Illinois
Environmental
Protection Agency

Bureau of Water
P.O. Box 19276
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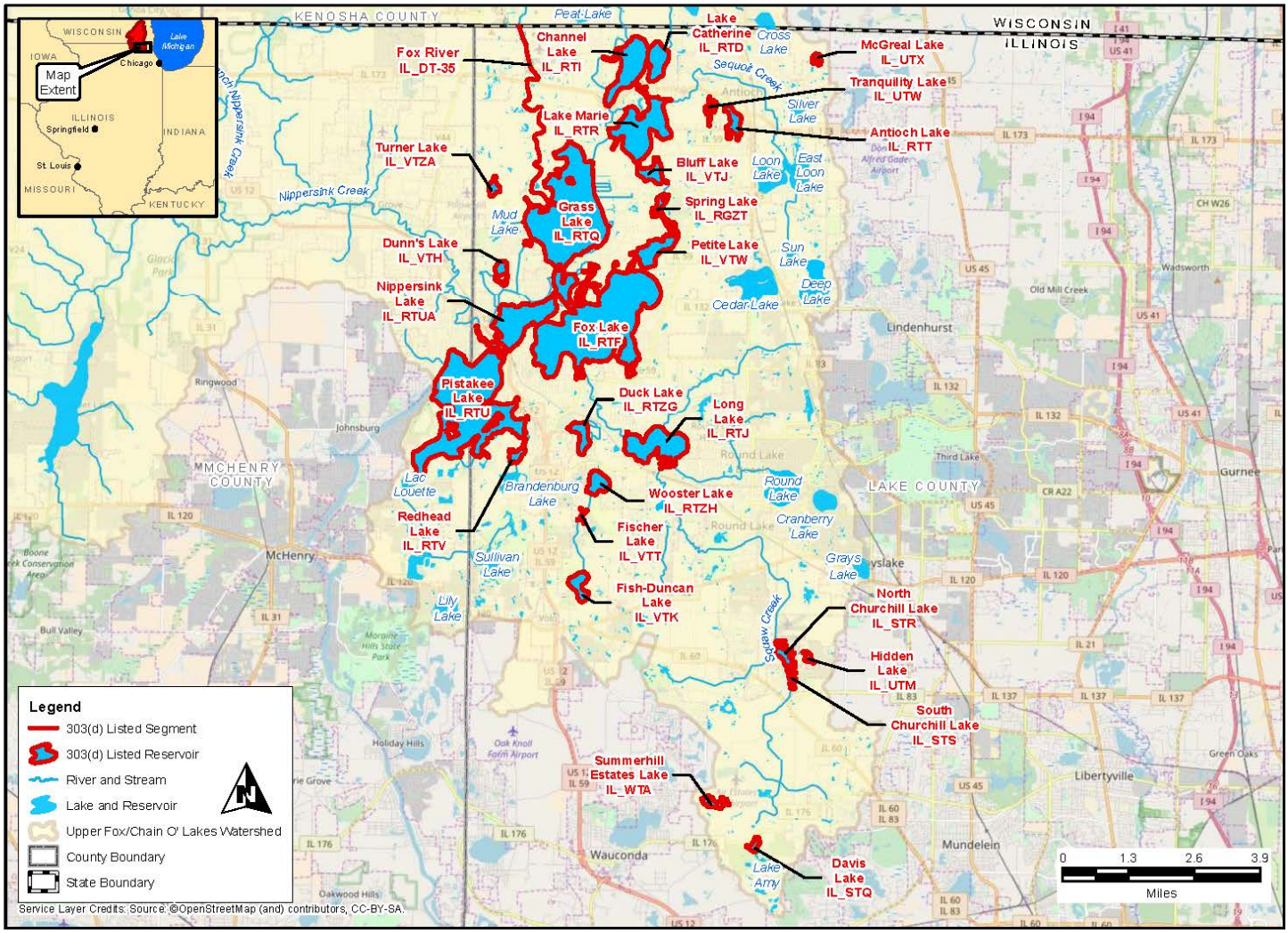
June 2020

IEPA/BOW/IL-2020-003

Upper Fox River/Chain O' Lakes Watershed TMDL Report



Upper Fox/Chain O' Lakes
TMDL Watershed

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TMDL Development for the Upper Fox River/Chain O' Lakes Watershed, Illinois

This file contains the following documents:

1) U.S. EPA Approval Letter and Decision Document for the Final TMDL Report
2) TMDL Report

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
WW-16J

June 4, 2020

Sanjay Sofat, Chief
Bureau of Water
Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, Illinois 62794-9276

Dear Mr. Sofat:

The U.S. Environmental Protection Agency has conducted a complete review of the final Total Maximum Daily Loads (TMDLs) for phosphorus and fecal coliform for the Fox River – Chain O' Lakes watershed, including supporting documentation and follow up information. The waterbodies are located in northeastern Illinois. The TMDLs submitted by the Illinois Environmental Protection Agency address the impaired Aesthetic Quality and Primary Contact Uses for the waterbodies.

The TMDLs meet the requirements of Section 303(d) of the Clean Water Act and EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, EPA hereby approves Illinois' 27 TMDLs for phosphorus and fecal coliform as noted in the enclosed decision document. The statutory and regulatory requirements, and EPA's review of Illinois' compliance with each requirement, are described in the enclosed decision document.

We wish to acknowledge Illinois' effort in submitting these TMDLs and look forward to future TMDL submissions by the State of Illinois. If you have any questions, please contact Mr. David Werbach, at 312-886-4242 or werbach.david@epa.gov .

Sincerely,

Tera L. Fong

Digitally signed by Tera L. Fong
Date: 2020.06.04 13:20:41 -05'00'

Tera L. Fong
Divison Director, Water Division

TMDL: Upper Fox River/Chain O' Lakes Watershed TMDL, IL
Date: 5/29/2020

DECISION DOCUMENT FOR THE APPROVAL OF THE UPPER FOX RIVER/CHAIN O'LAKES, ILLINOIS WATERSHED TMDL

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term "should" below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and EPA's TMDL regulations should be resolved in favor of the regulations themselves.

1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the waterbody as it appears on the State's/Tribe's 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see section 2 below).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the waterbody. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This information is necessary for EPA's review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

(1) the spatial extent of the watershed in which the impaired waterbody is located;
(2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
(3) Population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
(4) present and future growth trends, if taken into consideration in preparing the TMDL

(e.g., the TMDL could include the design capacity of a wastewater treatment facility); and (5) an explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Comment:
Location Description: The Illinois Environmental Protection Agency (IEPA) has developed TMDLs for phosphorus and fecal coliform for 27 impaired lakes in the Upper Fox River/Chain O'Lakes Watershed in northeastern Illinois (Table 1 of this Decision Document). The Upper Fox River/Chain O'Lakes watershed is located in Lake, McHenry, Kane and Cook Counties in far northeastern Illinois, and extends north into Wisconsin (Figure 1-1 of the TMDL). This TMDL submittal includes 26 TMDLs for total phosphorus (TP) impairing the Aesthetic Quality Use (AQU) in the lakes and one TMDL for fecal coliform that impairs Primary Contact Recreational Use (PCR) in Deep Lake. IEPA also explained that low dissolved oxygen (DO) and pH will be addressed in Hidden Lake by the TP TMDL (Section 7.1 of Appendix A of the TMDL).

Land use: Appendix D of the TMDL shows land use in the watershed, with agriculture at 40%, urban/built-up 35%, forest 10%, open water 7%, wetland 7%, and barren/exposed at 1%. Appendix D of the TMDL also contains land use data for each lake subwatershed. Original drainage in the watershed has been altered by agriculture and residential/recreational uses. Numerous homes, marinas, and restaurants are along the shorelines of the lakes (Section 2.5 of the TMDL).

Problem Identification: Section 1.2 of the TMDL and Table 1 of this Decision Document notes that one lake (Deep Lake) is impaired for PCR Use by fecal coliform, and the remaining 26 lakes are impaired for AQU by phosphorus. Some of the lakes experience harmful algal blooms (HABs) or eutrophication that occur under certain conditions during the year, which impairs the aesthetic quality designated use. In earlier stages of TMDL development, the DO and pH impairments for Hidden Lake were reviewed. As discussed in Section 1.5.2 of the TMDL, these impairments will be addressed by the phosphorus TMDL for the lake. There are Total Suspended Solids (TSS) impairments in several of the lakes, but IEPA decided that TMDLs would not be addressed at this time; rather, the State developed Load Reduction Strategies (LRSs). IEPA explained that the State defers development of TMDLs for those segments where there are no numeric water quality standards yet developed for those pollutants.

Table 1: Waterbodies Addressed in the Upper Fox River/Chain O' Lakes Watershed

Waterbody Name	**Segment ID**	**TMDL Parameter**	**LRS Parameter**
Antioch Lake	RTT	Phosphorus	Total Suspended Solids (TSS)
Bluff Lake	VTJ	Phosphorus	TSS
Lake Catherine	RTD	Phosphorus	
Channel Lake	RTI	Phosphorus	
Davis Lake	STQ	Phosphorus	
Deep Lake	VTD	Fecal Coliform	

Dunn's Lake	VTH	Phosphorus	TSS
Duck Lake	RTZG	Phosphorus	TSS
Fish-Duncan Lake	VTK	Phosphorus	TSS
Fischer Lake	VTT	Phosphorus	TSS
Fox Lake	RTF	Phosphorus	TSS
Grass Lake	RTQ	Phosphorus	TSS
Hidden Lake	UTM	Phosphorus, Dissolved Oxygen[1], pH[1]	TSS
Long Lake	RTJ	Phosphorus	TSS
Lake Marie	RTR	Phosphorus	TSS
McGreal Lake	UTX	Phosphorus	
Nippersink Lake	RTUA	Phosphorus	TSS
North Churchill Lake	STR	Phosphorus	TSS
Petite Lake	VTW	Phosphorus	
Pistakee Lake	RTU	Phosphorus	TSS
Redhead Lake	RTV	Phosphorus	TSS
South Churchill Lake	STS	Phosphorus	TSS
Spring Lake	RGZT	Phosphorus	TSS
Summerhill Estates Lake	WTA	Phosphorus	TSS
Lake Tranquility	UTW	Phosphorus	TSS
Turner Lake	VTZA	Phosphorus	TSS
Wooster Lake	RTZH	Phosphorus	

[1] Dissolved oxygen and pH impairments are directly related to excess nutrients (total phosphorus) in the waterbody and are addressed via total phosphorus TMDLs.

Pollutant of Concern: TP and fecal coliform are the pollutants of concern for the TMDLs. IEPA also noted that the lakes are also impaired due to high levels of TSS. At this time, IEPA has not developed TMDLs for TSS. Instead, IEPA has developed Load Reduction Strategies for most of the lakes and a segment of the Fox River (Table 1 of this Decision Document). The LRSs discuss implementation actions and activities that the State will pursue to reduce the TSS impairments in the waterbodies.

Sources: The sources of contaminants in the watershed are predominantly nonpoint source, but some lakes also have contributions from point sources.

Nonpoint Sources for TP – The nonpoint sources of phosphorus are described in Section 6 of Appendix A of the TMDL. In addition to runoff loads of phosphorus, several of the lakes are interconnected. The connectivity is especially an issue as the Chain O'Lakes (i.e., Bluff Lake, Lake Catherine, Channel Lake, Fox Lake, Grass Lake, Lake Marie, Nippersink Lake, Petite Lake, Pistakee Lake, and Spring Lake) are hydrologically connected and have other lakes or streams adding pollutants.

Internal loading: The release of phosphorus from lake sediments via physical disturbance from benthic fish (rough fish, e.g., carp), the release of phosphorus from wind mixing the water column, and the release of phosphorus from decaying curly-leaf pondweed, may all contribute internal phosphorus loading to the lakes in the TMDL watershed. Phosphorus may build up in the bottom waters of the lake and may be resuspended or mixed into the water column when the thermocline

decreases, and the lake water mixes. Some of the lakes have only a few species of water plant life and contain predominantly nuisance species including Eurasian watermilfoil and curly-leaf pondweed. Problems are also exacerbated as many of the lakes are very shallow.

Urban/residential sources: Nutrients, organic material and organic-rich sediment may be added via runoff from urban/developed subwatershed areas near the impaired lakes. Runoff from urban/developed areas can include phosphorus derived from fertilizers, leaf and grass litter, pet wastes, and other sources of anthropogenic derived nutrients.

Stormwater runoff from agricultural land use practices: Runoff from agricultural lands may contain significant amounts of nutrients, organic material and organic-rich sediment which may lead to impairments in the Upper Fox River/Chain O' Lakes watershed. Stormwater runoff may contribute nutrients and organic-rich sediment to surface waters from livestock manure, fertilizers, vegetation and erodible soils.

Stream channelization and stream erosion: Eroding streambanks and channelization efforts may add nutrients, organic material and organic-rich sediment to local surface waters. Nutrients may be added if there is particulate phosphorus bound with eroding soils. Eroding riparian areas may be linked to soil inputs within the water column and potentially to changes in flow patterns. Changes in flow patterns may also encourage down-cutting of the streambed and streambanks. Stream channelization efforts can increase the velocity of flow (via the removal of the sinuosity of a natural channel) and disturb the natural sedimentation processes of the streambed.

Discharges from septic systems or unsewered communities: Failing septic systems are a potential source of nutrients within the Upper Fox River/Chain O'Lakes watershed. Septic systems generally do not discharge directly into a waterbody, but effluents from failing septic systems may leach into groundwater or pond at the surface where they can be washed into surface waters via stormwater runoff events. Age, construction and use of septic systems can vary throughout a watershed and influence the nutrient contribution from these systems.

Wetland and Forest Sources: Phosphorus, organic material and organic-rich sediment may be added to surface waters by stormwater flows through wetland and forested areas in the Upper Fox River/Chain O' Lakes watershed. Storm events may mobilize phosphorus through the transport of suspended solids and other organic debris.

Wildlife: Wildlife is a known source of nutrient inputs to waterbodies as many animals spend time in or around waterbodies. Deer, geese, ducks, raccoons, and other animals all create potential sources of nutrients via contaminated runoff from animal habitats, such as urban park areas, forest, and rural areas.

Nonpoint Sources for bacteria - Fecal coliform may be introduced to Deep Lake through similar sources as phosphorus.

Urban/residential sources: Bacteria may be added via runoff from urban/developed areas near the impaired lake in the subwatershed. Runoff from urban/developed areas can include bacteria from pets and wildlife.

Discharges from septic systems: Failing septic systems are a potential source of bacteria within the Deep Lake subwatershed. IEPA noted that while the Deep Lake subwatershed is sewered, old septic systems may still be present (Section 2.3.2 of the TMDL). Septic systems generally do not discharge directly into a waterbody, but effluents from systems may leach into groundwater or pond at the surface where they can be washed into surface waters via stormwater runoff events.

Wildlife: Wildlife is a known source of bacteria inputs to waterbodies as many animals spend time in or around water bodies. Deer, geese, ducks, raccoons, and other animals all create potential sources of bacteria via contaminated runoff from animal habitats, such as urban park areas, forest, and rural areas.

Point Sources for TP: IEPA noted that several point sources that discharge phosphorus are in the Upper Fox River/Chain O' Lakes watershed. These include municipal wastewater treatment facilities (WWTF) and Municipal Separate Storm Sewer System (MS4s).

Individual Permitted Facilities: IEPA identified 11 individually permitted facilities that discharge in the Upper Fox River/Chain O' Lakes watershed (Section 2.3.1.4 of the TMDL). IEPA determined phosphorus allocations for each facility, as discussed further in Section 5 of this Decision Document.

MS4s: IEPA identified 22 MS4 dischargers in the Upper Fox River/Chain O' Lakes watershed (Table 2-24 of the TMDL) which contribute phosphorus loading to impaired lakes in the watershed. A portion of the phosphorus load was allocated to each discharger based upon the lake and the areal extent of the MS4 area (See Section 5 of this Decision Document).

Point Sources for bacteria: IEPA determined that there are no individually permitted point sources discharging bacteria in the Deep Lake subwatershed. The only point sources identified by IEPA are MS4s for Lake Villa Village and Lindenhurst Village (Section 2.3.2.4 of the TMDL).

MS4s: IEPA identified two MS4 dischargers in the Upper Fox River/Chain O' Lakes watershed which contribute bacteria loading to the Deep Lake subwatershed. These MS4s are the Lake Villa Village MS4 and Lindenhurst Village MS4 (Section 2.3.2.4 of the TMDL). A portion of the bacteria load was allocated to each MS4 based on the extent of the MS4 area in the Deep Lake subwatershed (See Section 5 of this Decision Document).

Surrogates: Hidden Lake is identified as impaired due to low DO and elevated pH (Table 1-1 of the TMDL). Section 3.5 of the TMDL states that low DO and elevated pH will be addressed through the phosphorus reduction at Hidden Lake. IEPA established a linkage between phosphorus, excessive plant and algal growth, and decreased oxygen concentrations in the water column due to the decomposition of plant life in the water column. The low DO and elevated pH

are further impacted by internal loading and cycling of phosphorus and sediments. IEPA explained that these impairments will be addressed in Hidden Lake by the TP TMDL.

Future growth: Section 2.5 of Appendix A of the TMDL states that the overall Fox River watershed has a population over 1 million residents, approximately 11% of the state population. The Upper Fox River/Chain O' Lakes TMDL watershed has a population of approximately 200,000. The population is expected to increase significantly though 2030. IEPA reviewed various reports regarding population growth, and determined that the WWTFs have adequate capacity to handle growth (Section 2.3.1.5 of the TMDL). Therefore, no reserve capacity was calculated by IEPA.

Priority ranking: The watershed was given priority for TMDL development due to the impairment impacts on the public value of the impaired water resource, and the timing of Illinois' basin monitoring process.

EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this first element.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy. (40 C.F.R. §130.7(c)(1)). EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

<u>Comment:</u>
Section 4.2 of Appendix A of the TMDL identifies the designated use for the impaired segments as General Use. General Use is defined by the Illinois Pollution Control Board as a standard that "will protect the state's water for aquatic life, wildlife, agricultural use, secondary contact use and most industrial uses, and ensure the aesthetic quality of the state's aquatic environment."

The applicable water quality standards (WQS) for these waterbodies are established in Illinois Administrative Rules Title 35, Environmental Protection; Subtitle C, Water Pollution; Chapter I, Pollution Control Board; Part 302, Water Quality Standards, Subpart B for General Use Water Quality Standards. The portions of the WQS that apply to the waterbodies of Table 1 of this Decision Document in the Upper Fox River/Chain O' Lakes watershed are General Use, specifically the Aesthetic Quality Use and Primary Contact Use (Section 2.1 of the TMDL). As noted in Table 1 of this Decision Document, 26 lakes are not supporting the Aesthetic Quality Use due to exceedences of the phosphorus criteria. Deep Lake is not supporting its Primary Contact Use (Section 1.2 of the TMDL) and is impaired due to excessive bacteria (fecal coliform).

Criteria: The applicable criteria are found in Table 2 of this Decision Document.

Table 2: WQSs for the impaired waters in the Upper Fox River/Chain O' Lakes watersheds

Pollutant	Units	Criteria
Phosphorus	mg/L	0.05 (lakes)
Fecal coliform	Count/100 mL	May through October 200*, 400**

* - geometric mean based upon a minimum of 5 samples in a 30 day period
** - not to be exceed by more than 10% of the samples in a 30 day period

Target: The water quality targets for these TMDLs are in Table 2 of this Decision Document.

Fecal Coliform: IEPA used the geometric mean portion of the WQS to determine loads. Allocations were developed for the Deep Lake bacteria-impaired segment based upon the 200 counts/100mL geometric mean portion of the WQS (Table 2 of this Decision Document). Although the loads were developed based upon the geometric mean portion of the WQS, EPA notes that both portions of the WQS apply and must be met.

Phosphorus: The IEPA used the phosphorus numeric WQS for lakes of 0.05 mg/L as the TMDL target.

Other impairments: Hidden Lake is also impaired for low dissolved oxygen (DO) and high pH (Table 1-1 of the TMDL). IEPA noted that the low DO and high pH impairments were reviewed and determined to be due to eutrophication, where excess algae blooms have scavenged dissolved oxygen and carbon dioxide (necessary to maintain pH balance) (Section 7.1 of Appendix A of the TMDL). The State determined that the phosphorus TMDL will reduce eutrophication in the lake and improve DO and pH levels.

IEPA also noted that many of the waterbodies were impaired due to total suspended solids (TSS). IEPA explained that TMDLs for these impairments will be developed after numeric criteria are developed for this pollutant. However, IEPA did develop LRSs that contain Best Managment Practices (BMPs) designed to reduce phosphorus and sediment loads entering the impaired waterbodies (Sections 3.3 and 3.4 of the TMDL).

EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this second element.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a waterbody for the applicable pollutant. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity. (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

<u>Comment:</u>
Loading Capacity: The loading capacities are found in Section 2 of the TMDL submittal. Tables 3-25 of this Decision Document (Tables 2-25 through 2-47 of the TMDL except as noted) summarize the phosphorus TMDLs for the lakes, and Table 26 of this Decision Document (Table 2-50 of the TMDL) summarizes the fecal coliform TMDL in Deep Lake, are found at the end of this document. There are a total of 23 models completed for the 26 lakes for the TP calculations, as some were combined due to their hydrologic connectivity.

Methodology – IEPA used the Simplified Lake Analysis Model (SLAM) to determine allocations for phosphorus. For the Deep Lake fecal coliform calculation, IEPA used a spreadsheet model (Section 2 of the TMDL).

SLAM – This model uses a simple loading analysis for lakes, described in Section 1.4.2 of the TMDL. A more traditional method for lake analysis, such as BATHTUB, was not used because IEPA determined that SLAM could also integrate the sediment dynamics and characteristics within lakes to determine phosphorus loading by using lake and sediment interactions. Parameter inputs considered in the calculations include: lake morphology, hydraulics, and thermal stratification; segmentation and flow direction; watershed inflows via runoff and point source discharge into the reservoir watershed; in-lake nutrients, settling velocity and nutrient uptake and burial; and sediment

layer dynamics. Confirmatory analysis was also completed to document that the observed and simulated values supported the methodology. Comparison of observed and predicted calculations yielded a range of 0.1 – 9.7 percent difference amongst all the lakes (Section 2 of the TMDL).

Modeling results: Loading of phosphorus from the surrounding watershed was calculated using estimated runoff values and export coefficients based upon land use (Appendix C of the TMDL). Several of the lakes are interconnected, which can be modeled separately in SLAM. Lake Catherine/Channel Lake, Fox Lake/Nippersink Lake, and North and South Churchill Lake were modeled together due to their hydraulic connectivity (Section 1.5.2 of the TMDL). Many of the lakes also are interconnected by streams. IEPA accounted for the downstream flow of water and pollutant loads by modeling the upstream lakes first, and then using the outputs from the upstream lake as input values for the downstream lake (Section 1.5.2 and Table 1-5 of the TMDL). All lakes exhibited signs of internal loading of phosphorus, so IEPA adjusted each lake model to account for additional internal load.

Fecal coliform Spreadsheet Approach – Illinois used a spreadsheet approach for Deep Lake for fecal coliform. Flow estimates, watershed proportions and measured in-lake fecal concentrations were used to determine the daily loading capacity for fecal coliform in Deep Lake (Section 1.4.3 of the TMDL)

Critical Conditions - Section 2.3.1.2 of the TMDL states that the critical condition for phosphorus in the lakes is primarily during the growing season. The critical condition for fecal coliform is the recreational period from May through October when most primary contact recreation occurs (Section 2.3.2.2 of the TMDL). The critical conditions were taken into account because the data were collected at these critical times, as well as times with different runoff characteristics and flow regimes.

EPA finds IEPA's approach for calculating the loading capacity to be reasonable and consistent with EPA guidance. EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this third element.

4. Load Allocations (LAs)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future nonpoint sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, load allocations should be described separately for natural background and nonpoint sources.

Comment:
The Load Allocations for phosphorus and fecal coliform are in Tables 3-26 at the end of this Decision Document. IEPA did identify the internal load portion of the LA for phosphorus. IEPA did not further quantify the LA for bacteria.

EPA finds IEPA's approach for calculating the LA to be reasonable and consistent with EPA guidance. EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this fourth element.

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permitees should be notified of any deviations from the initial individual WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

<u>Comment:</u>
WLA for Phosphorus for Individually Permitted NPDES sources: IEPA determined loads for phosphorus for the dischargers in the Upper Fox River/Chain O' Lakes watershed (Table 27 of this Decision Document). To determine the WLAs, IEPA reviewed discharge data for flow and effluent concentrations, as well as permitted limits for each facility. For those facilities with effluent limits, the permitted limit was used to determine the WLA. For the facilities that require monitoring only, IEPA reviewed similar facility data and applied an estimated concentration value for the facilities (Section 2.3.1.4 of the TMDL). For flows, the design average flow (DAF) for the facility was used. IEPA noted that for several facilities, the actual average flow is well below the DAF. The WLAs for each facility was applied to the SLAM model as impacting the nearest downstream lake to which it discharges.

Table 27: WLAs for the Upper Fox River/Chain O' Lakes Watershed TMDLs

NPDES Permit Number	Facility Name	Impacted Lake/Model	Model Calibration		TMDL/WLA Calculations		
			Current Average Measured Flow (MGD)	Current Average Effluent Concentration (mg/L of P)	DAF (MGD)	Permit Effluent Limit (mg/L of P)	WLA (lbs/day)
IL0045144	Village of Fox Lake-Tall Oaks STP	Dunn's Lake	0.152	0.480	0.5	1.0	0.63
IL0034746	Fremont School District #79[1]	Long Lake	0.005	5.0[2]	0.01	n/a	0.42
IL0046043	Camp Hickory[1]	Long Lake	0.014	5.0[2]	0.014	n/a	0.58
IL0050661	Dayspring Bible College and Seminary STP[1]	Long Lake	0.009	5.0[2]	0.03	n/a	1.25
IL0054615	Camp Henry Horner STP	Wooster Lake	0.0014	3.872	0.014	n/a	0.45[3]
IL0020354	Village of Antioch STP	Lake Marie	1.32	0.752	2.0	1.0	8.26
IL0020958	Fox Lake NW Regional WRF (Outfall 002)[4]	Pistakee Lake	Intermittent	0.081	8.0	1.0	67
IL0026093	Village of Richmond STP	Pistakee Lake	0.311	0.586	0.5	1.0	4.17
IL0026433	Village of Hebron WWTP	Pistakee Lake	0.078	0.502	0.33	1.0	2.75
IL0031861	City of Woodstock-North STP	Pistakee Lake	2.175	0.578	3.5	1.0	29.2
IL0074985	Spring Grove STP	Pistakee Lake	0.042	5.0[2]	0.075	n/a	3.13

[1] Facility upstream of measured stream flow and concentration data collection, effluent loads captured in stream data and not explicitly input into model.

[2] Current permit does not include effluent limits or discharge monitoring requirements for total phosphorus, effluent concentrations estimated based on facility type and treatment processes.

[3] No numerical effluent limit for phosphorus at this facility, total WLA based on measured phosphorus concentrations and facility design flows (DAF).

[4] Outfall 002 is used only under high runoff conditions when lake levels are high (approximately 1-6 times per year)

WLA for TP for MS4s: The overall WLAs for MS4 stormwater runoff are in Table 28 of this Decision Document. The WLAs are based upon the total area within a municipality's boundaries that lie within the subwatershed of concern. The runoff load of phosphorus from the SLAM model was then multiplied by the MS4 proportion, and the resulting load assigned to the MS4 discharger. IEPA explained that this was done for each lake and discharger, so that the needed reductions will vary depending upon the lake. Table 28 of this Decision Document contains the total WLA for each permitted MS4, but Tables 29-47 (Tables 2-5 to 2-23 of the TMDL) at the end of this Decision Document contain the WLAs for each discharger for each lake.

Table 28: Combined Total Phosphorus Allocation Summary for MS4s in the Upper Fox River/Chain O'Lakes Watershed

Source	NPDES ID	Combined Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	0.71
Fox Lake Village	ILR400339	1.05
Grayslake Village	ILR400202	0.26
Hainesville Village	ILR400205	0.35
Hawthorn Woods Village	ILR400209	0.13
Island Lake Village	ILR400632	0.002
Johnsburg Village	ILR400489	0.23
Lake Villa Village	ILR400369	0.59
Lakemoor Village	ILR400371	0.86
Lindenhurst Village	ILR400276	0.0002
McHenry City	ILR400385	0.19
Mundelein Village	ILR400395	0.12
Richmond Village	ILR400732	0.25
Round Lake Beach Village	ILR400439	0.88
Round Lake Heights Village	ILR400241	0.12
Round Lake Park Village	ILR400242	0.75
Round Lake Village	ILR400243	1.10
Spring Grove Village	ILR400520	1.55
Volo Village	ILR400657	0.73
Wauconda Village	ILR400501	0.07
Wonder Lake Village	ILR400503	1.03
Woodstock City	ILR400499	1.36

WLA for fecal coliform for Hidden Lake: IEPA did not identify any point sources within the Deep Lake subwatershed except for MS4s (Section 2.3.2 of the TMDL). As with phosphorus, the MS4 allocations were based upon the percentage of the subwatershed area covered by a MS4 permit. The WLA information for Hidden Lake are in Table 26 and Table 48 at the end of this Decision Document)

EPA finds IEPA's approach for calculating the WLA to be reasonable and consistent with EPA guidance. EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this fifth element.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and

water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

Comment:
TP: IEPA determined that the MOS for TP for the lakes are both implicit and explicit (Tables 3-25 of this Decision Document and Section 2.3.1.3 of the TMDL). An explicit MOS of 10% was used because of the lack of some site-specific data and uncertainty in the data due to flow, bathymetry, temperature variation, and well as uncertainty in chemical data. IEPA also noted that the SLAM modeling is implicitly conservative in utilizing using the default coefficients and conservative calculations, which are developed in that manner to account to be inherently conservative. Default model values, such as dispersion rates, are based on scientific data accumulated from literature and represent a broad-reaching survey of lakes.

Fecal coliform: The Deep Lake bacteria TMDL incorporates an implicit MOS of 10% of the total loading capacity (Table 26 of this Decision Document and Section 2.3.2.2 of the TMDL). IEPA did not use a rate of decay, or die-off rate of pathogen species, in the TMDL calculation. Bacteria have a limited capability of surviving outside their hosts, and normally a rate of decay would be incorporated. IEPA determined that it was more conservative to use the WQS (200/400 counts/100 mL) and not to apply a rate of decay, which could result in a discharge limit greater than the WQS.

As stated in *EPA's Protocol for Developing Pathogen TMDLs* (EPA 841-R-00-002), many different factors affect the survival of pathogens, including the physical condition of the water. These factors include, but are not limited to sunlight, temperature, salinity, and nutrient deficiencies. These factors vary depending on the environmental condition/circumstances of the water, and therefore it would be difficult to assert that the rate of decay caused by any given combination of these environmental variables was sufficient to meet the WQS of 200 cfu/100 mL. Thus, it is more conservative to apply the State's WQS as the MOS, because this standard must be met at all times under all environmental conditions.

EPA finds IEPA's approach for calculating the MOS to be reasonable and consistent with EPA guidance. EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this sixth element.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variations. (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)).

Comment:
Section 2.3.1.2 of the TMDL states that for TP, seasonal variation was included because the calculations were performed on a seasonal basis using over 16 years of data from 2000-2016. Both seasonal variation and critical conditions are considered because the data calculations are performed on an average annual basis using all time periods, then the values were recalculated to a daily basis.

Section 2.3.2.2 of the TMDL states that for fecal coliform for Deep Lake, IEPA considered seasonal variation and critical conditions because the standards were met under all flow conditions, and considered both stream and overland flows. Further, the recreational use standards were developed to meet seasonal standards (May through October) when there is likely recreational contact with the water. There is not just one critical condition, and the spreadsheet method takes that into account, and standards must be met under all flow scenarios.

EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this seventh element.

8. Reasonable Assurances

When a TMDL is developed for waters impaired by point sources only, the issuance of a National Pollutant Discharge Elimination System (NPDES) permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with "the assumptions and requirements of any available wasteload allocation" in an approved TMDL.

When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA's 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

EPA's August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comment:
Discussion regarding reasonable assurance that the reductions can occur is found in Section 3 of the TMDL. IEPA noted that there are numerous watershed groups active in the TMDL watershed, and several of these groups have developed watershed plans to implement actions and activities to address the impairments in the waterbodies. Figure 3-1 of the TMDL identifies several of the watershed plans. Section 3.1 of the TMDL contains information and links regarding these plans, which are summarized below:

- *Fish Lake Drain Watershed Management Plan* developed by the Lake County Stormwater Management Commission (LCSMC) addresses specific actions for four of the lakes in the TMDL report to address water quantity and water quality. The plan provides priority rating for the various actions.
- *Squaw Creek Watershed Management Plan* was developed by the LCSMC to provide input on locations and actions to address water quality and quantity in the Squaw Creek watershed, which contains several of the lakes addressed in this TMDL. Stormwater controls and water monitoring are prominently featured in this plan, as are lake diagnostic studies.
- *Long Lake* – The Long Lake Improvement and Sanitation Association and Sierra Club have detailed multiple objectives to improve water quality in Long Lake, based upon work detailed in the Squaw Creek Watershed Management Plan. This includes shoreline stabilization efforts, buffer zones, and controlling use of phosphorus lawn fertilizers.
- *Sequoit Creek Watershed Management Plan* was developed by the LCSMC in 2004 and has specific actions to improve Deep Lake as well as other portions of the watershed, to address concerns about flooding, water quality, diminishing open spaces and other problems that worsen with development, including: land use planning to reduce imperviousness, green way creation, restoration, detention basin retrofits, and floodplain buyouts.
- *Lake Catherine/Channel Lake-Lake Management Plan* was developed by the Friends of Friends of Lake Catherine & Channel Lakes to address problems in these two lakes. These are two of the larger lakes in the TMDL watershed, and have significant eutrophication problems. Various implementation actions are laid out, such as vegetation removal, buffer strips, and aeration to reduce phosphorus impacts.
- *The Nippersink Creek Watershed Plan* was developed by the Nippersink Creek Watershed Planning Committee and their consultants to address phosphorus and sediment loads into Nippersink Lake, one of the primary lakes of the Chain O' Lakes. Nonpoint sources are significant in this watershed, and the plan outlines numerous activities underway or to be implemented within the watershed.

Lake County, through its Health Department's Ecological Services Division, will provide updates on the progress of watershed-based planning and specific projects, as well as monitoring results. Lake County also has an active Stormwater Managment Commission, which develops Watershed Management Plans to address water quality impacts and controls throughout the county. More information can be found at https://www.lakecountyil.gov//2437/Watershed-Management-Plans. The Fox Waterway Agency also develops implementation actions and activities to protect water quality in the Chain O' Lakes. More information can be found at https://www.foxwaterway.com/.

EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this eighth element.

9. Monitoring Plan to Track TMDL Effectiveness

EPA's 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Comment:
Monitoring will be an essential part of going forward, as IEPA plans to use an adaptive management (Section 3.2 of the TMDL) or phased approach in implementation, and will need to monitor key response indicators to track effectiveness of nonpoint source BMPs. Section 3.11 of the TMDL states that monitoring of water quality will also include the Lake County Health Department (LCHD) Lakes Management Unit and the Volunteer Lake Monitoring Program (VLMP). The LCHD samples every five years and analyzes for total phosphorus and dissolved oxygen; VLMP is a group of local stakeholders that collects water quality data on a three-year cycle to determine changes and trends in phosphorus concentrations. The community involvement will assist IEPA with monitoring the effectiveness of BMPs.

Monitoring will aso be done by other groups discussed in Section 8 of this Decision Document. The LCSMC and Fox Waterway Agency also perform routine monitoring in the TMDL watershed. Most of the watershed plans discuss monitoring efforts to track BMP installation and effectiveness.

EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this ninth element.

10. Implementation

EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.

Comment:
Section 3.1 of the TMDL includes many aspects of implementation that would improve water quality in the watershed. These include actions such as identifying causes and sources of pollution, estimating reductions, describing the NPS management measures, estimating the technical assistance and costs, including public information, developing a schedule, developing the

interim and measurable milestones, identifying indicators to determining the achievement of reductions, and developing a monitoring component for the project.

The siltation and sediment controls that are discussed at length as part of the LRSs are also applicable to effective TP reduction. Section 3.3 of the TMDL has an exhaustive list of actions possible, including filter strips, field borders, conservation tillage, contour farming, conservation crop rotation, conservation cover, critical area planting, urban reforestation/riparian buffer restoration, wetland buffers, stormwater retention basins, vegetated swales, grassed waterways, pervious and porous pavement, stormwater reduction, bio-retention cells (rain gardens), and streambank stabilization. This section of the TMDL also provides maps of each subwatershed along with possible locations for BMP installation.

Section 3.5 of the TMDL recognizes the internal and external sources of phosphorus in lakes in relation to BMPs, and reiterates that both point and nonpoint sources should be addressed. Much of the wetland buffers, retention basins, bio-retention cells, and filter strips, etc., are the same as for the reduction of siltation and sediment from external sources. The internal loading may be addressed by more aeration, addition of aluminum to inactivate phosphorus, and dredging. Septic system management or upgrades to a municipal system, or agricultural nutrient management may decrease the TP that can enter the lakes.

Section 3.6 of the TMDL contains BMP recommendations for fecal coliform reduction. Many of the exceedences occur during storm events, when pollutants are washed into the lake. Municipalities with MS4s will review their stormwater plans, but most of the focus is likely to be on illicit discharges caused when stormwater interacts with a sewage disposal system. The priority is to find the sewage discharges to the storm drain system, and repair or eliminate those discharge locations. Much of the BMPs are the same as above, the wetland buffers, retention basins, bio-retention cells, and filter strips, etc.

Section 3.8 of the TMDL includes BMP cost estimates to control nonpoint sources in great detail, including the pricing of filter strips/ riparian buffer, nutrient management plans, wetland functions, bank stabilization/erosion controls, conservation cover, vegetated swales, green roofs, bio-retention cells, and septic maintenance.

Education and funding mechanisms are discussed in Section 3.9 and 3.10 of the TMDL. The funding mechanisms include Illinois Section 319(h) of the Clean Water Act funding, whereby Illinois EPA receives federal funds, contributing to as much as 60% of the total cost. There are also wetland program development grants, National Park Service financial assistance, the Conservation Reserve Program, the Conservation Stewardship Program, the Agricultural Conservation Easement Program and the Environmental Quality Incentive Program. Many of these programs provide cost-share funds to encourage implementation.

Illinois has provided timeline milestones in Section 3.11.1 of the TMDL for acquiring funds, implementing short- and long-term projects, monitoring, holding stakeholder meetings, and providing education and outreach. IEPA provides local contact information for many of these entities in Section 3.10.4 of the TMDL.

EPA reviews, but does not approve, implementation plans. EPA finds that all elements have been adequately addressed.

11. Public Participation

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2)). Provision of inadequate public participation may be a basis for disapproving a TMDL. If EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

Comment:
IEPA held a meeting for the Stage 1 TMDL Report at the University Center of Lake County, in Grayslake, Illinois on August 25, 2009. This meeting was an opportunity for the public to be informed of the proposed project and invite the public to provide information to the State for TMDL development efforts.

The TMDL was public noticed from May 14, 2019 to June 14, 2019. Copies of the draft TMDL were made available upon request, at the Illinois EPA and on IEPA's Internet web site at https://www2.illinois.gov/epa/public-notices/Pages/general-notices.aspx . IEPA held a public meeting on May 14, 2019, at the Fox Waterways Agency in the Village of Fox Lake, Illinois. The draft TMDL report was available for review in hard copy at the Fox Waterway Agency, Lake County Stormwater Commission, and the Grayslake Area Public Library.

Comments were received from permittees and the Sierra Club. A summary of the issues raised is set forth below.

The Village of Fox Lake noted that a discharge (002) was not included in the TMDL. IEPA revised the TMDL to address this discharge.

The Village of Antioch noted that the village had recently upgraded their WWTF and were concerned over the WLA assigned to the permit. They acknowledge that they will have to meet a lowered effluent limit in the future, but that planning is underway, and financial impacts need to be considered by the State. IEPA responded that the draft NPDES permit for Antioch contains Special Condition #20, which require Antioch to develop a Phosphorus Discharge Optimization Plan to reduce phosphorus discharges through optimization of the current treatment facility. Special Condition #21 of the permit requires Antioch to meet a reduced phosphorus effluent limit

pursuant to the enforceable schedule and requirements within the permit (IEPA Draft NPDES Permit #IL0020354).

During the review of the Response to Comments, EPA and IEPA determined that the LA in the final allocations for Lake Marie (Table 2-41 of the TMDL) was in error. The administrative record contains the communications between IEPA, the Village of Antioch, and the IEPA contractors indicating that the LA was to be revised. As a result of this error, the EPA is noting that the LA for Lake Marie is actually 1.58 lbs/day of phosphorus (email dated 05/20/2020 from Abel Haile, IEPA). Table 15 of this Decision Document contains the correct allocations for Lake Marie. EPA and IEPA reviewed the remaining TMDL summary tables in the TMDL and determined that a similar issue occurred for Dunn's Lake (Table 2-30 of the TMDL). Table 8 of this Decision Document contains the correct allocations for Dunn's Lake. IEPA also noted (email dated 05/20/2020 from Abel Haile, IEPA) that the point source discharge to Dunn's Lake (Village of Fox Lake -Tall Oaks; IL0045144) is in the process of closing, significantly reducing the phosphorus load to the lake.

Sierra Club of Illinois raised several issues, most prominently regarding how the WLAs were calculated and will be used in permits. Sierra Club requested that the smaller facilities that have relatively high phosphorus effluent concentrations be required to substantially reduce phosphorus loads in their discharge. Even though these are small overall amounts of phosphorus, given the relatively small lakes which they discharge into, the systems could have an impact on water quality. IEPA explained that these systems have historically not monitored for phosphorus, so the current modeled concentrations are estimates, and estimated at the higher end of the likely range. IEPA stated that the minor dischargers will be required to evaluate and develop a range of measures for reducing phosphorus discharges. This includes Phosphorus Discharge Optimization Plans as well as including recommended phosphorus effluent monitoring requirements during the next NPDES permit cycle. The remaining comments dealt with either implementation actions or corrections needed in the TMDL. IEPA revised the TMDL as appropriate.

EPA reviewed the comments and the IEPA responses, as well as changes made to the TMDL as a result of the comments. EPA determined that IEPA adequately responded to the comments. EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this eleventh element.

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a technical review or final review and approval. Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

Comment:
EPA received the Upper Fox River Chain O'Lakes Watershed TMDL on May 8, 2020, accompanied by a submittal letter dated May 7, 2020. In the submittal letter, IEPA stated "Illinois is submitting the Upper Fox River Chain O'Lakes Watershed TMDL …. for USEPA's final approval." The letter states that the Upper Fox River Chain O'Lakes Watershed is impaired on Illinois' 2016 303(d) list. The waterbodies are impaired for Primary Contact Use due to fecal coliform and Aesthetic Quality Use due to phosphorus.

EPA finds that the TMDL document submitted by IEPA satisfies all requirements concerning this twelfth element.

13. Conclusion

After a full and complete review, EPA finds that the 26 phosphorus TMDLs and one fecal coliform TMDL for the Upper Fox River Chain O'Lakes Watershed satisfy all the elements of a TMDL, for a total of **27 TMDLs** (Table 1 of this Decision Document).

The EPA's approval of these TMDLs extends to the water bodies which are identified in Table 1 of this Decision Document with the exception of any portions of the water bodies that are within Indian Country, as defined in 18 U.S.C. Section 1151. The EPA is taking no action to approve or disapprove TMDLs for those waters at this time. The EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.

TMDL Summaries for Phosphorus

Table 3: TMDL Summary for Antioch Lake (RTT)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTT	Internal	0.33	-	-	0.30	0.033	0.92	0.59	64%
	External	0.26	0.079	-	0.16	0.026	0.53	0.27	50%
	Total	**0.60**	**0.079**	**-**	**0.46**	**0.060**	**1.45**	**0.85**	**59%**

Table 4: TMDL Summary for Bluff Lake (VTJ)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTJ	Internal	1.15	-	-	1.04	0.12	1.36	0.21	15%
	External	1.72	-	-	1.55	0.17	6.89	5.17	75%
	Total	**2.88**	**-**	**-**	**2.59**	**0.29**	**8.25**	**5.37**	**65%**

Table 5: TMDL Summary for Lake Catherine (RTD) and Channel Lake (RTI)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
Catherine	Internal	1.32	-	-	1.19	0.13	1.32	-	0%
	External	3.51	0.31	-	2.85	0.35	3.90	0.39	10%
	Total	4.83	0.31	-	4.04	0.48	5.22	0.39	7%
Channel	Internal	2.24	-	-	2.02	0.22	2.80	0.56	20%
	External	4.56	-	-	4.10	0.46	10.6	6.04	57%
	Total	6.80	-	-	6.12	0.68	13.4	6.60	49%
Combined Total	Internal	3.57	-	-	3.21	0.36	4.13	0.56	14%
	External	8.06	0.31	-	6.95	0.81	14.5	6.43	44%
	Total	**11.6**	**0.31**	**-**	**10.2**	**1.16**	**18.6**	**6.99**	**38%**

Table 6: TMDL Summary for Davis Lake (STQ)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
STQ	Internal	0.18	-	-	0.16	0.018	1.79	1.61	90%
	External	0.12	0.0004	-	0.11	0.012	0.24	0.12	50%
	Total	**0.30**	**0.0004**	**-**	**0.27**	**0.030**	**2.03**	**1.73**	**85%**

Table 7: TMDL Summary for Duck Lake (RTZG)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTH	Internal	0.27	-	-	0.24	0.027	0.27	-	0%
	External	2.72	0.06	-	2.38	0.27	3.19	0.48	15%
	Total	**2.98**	**0.06**	**-**	**2.62**	**0.30**	**3.46**	**0.48**	**14%**

Table 8: TMDL Summary for Dunn's Lake (VTH)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTH	**Total**	**0.79**	**0.048**	**0.63**	**0.33**	**0.079**	**1.34**	**0.55**	**41%**

Table 9: TMDL Summary for Fischer Lake (VTT)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTK	Internal	0.16	-	-	0.14	0.015	0.60	0.44	74%
	External	1.06	0.14	-	0.81	0.11	4.62	3.55	77%
	Total	**1.22**	**0.14**	**-**	**0.95**	**0.12**	**5.21**	**4.00**	**77%**

Table 10: TMDL Summary for Fish-Duncan Lake (VTK)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTT	Internal	0.43	-	-	0.39	0.04	1.72	1.29	75%
	External	1.34	0.63	-	0.58	0.13	5.38	4.03	75%
	Total	**1.77**	**0.63**	**-**	**0.97**	**0.18**	**7.10**	**5.32**	**75%**

Table 11: TMDL Summary for Fox (RTF) and Nippersink Lakes (RTUA)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
Fox Lake	Internal	13.6	-	-	12.2	1.36	19.4	5.80	30%
	External	40.8	0.23	-	36.5	4.08	163	122	75%
	Total	**54.4**	**0.23**	**-**	**48.7**	**5.44**	**183**	**128**	**70%**
Nippersink Lake	Internal	12.6	-	-	11.3	1.26	25.2	12.6	50%
	External	36.5	0.01	-	32.8	3.65	243	207	85%
	Total	**49.1**	**0.01**	**-**	**44.2**	**4.91**	**269**	**219**	**82%**

Combined Total	Internal	26.2	-	-	23.6	2.62	44.6	18.4	41%
	External	77.3	0.24	-	69.3	7.73	407	329	81%
	Total	**104**	**0.24**	**-**	**92.9**	**10.5**	**451**	**348**	**77%**

Table 12: TMDL Summary for Grass Lake (RTQ)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTQ	Internal	22.1	-	-	19.9	2.21	29.4	7.30	25%
	External	79.0	0.002	-	71.1	7.90	395	316	80%
	Total	**101**	**0.002**	**-**	**90.9**	**10.1**	**424**	**323**	**76%**

Table 13: TMDL Summary for Hidden Lake (UTM)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
UTM	Internal	0.047	-	-	0.042	0.005	0.26	0.21	82%
	External	0.057	0.051	-	0.001	0.006	0.23	0.17	75%
	Total	**0.104**	**0.051**	**-**	**0.043**	**0.011**	**0.49**	**0.38**	**79%**

Table 14: TMDL Summary for Long Lake (RTJ)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTJ	Internal	3.10	-	-	2.79	0.31	10.3	7.24	70%
	External	10.3	3.70	2.25	3.32	1.03	28.2	17.9	64%
	Total	**13.4**	**3.70**	**2.25**	**6.11**	**1.34**	**38.6**	**25.2**	**66%**

Table 15: TMDL Summary for Lake Marie (RTR)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTR	**Total**	**11.3**	**0.33**	**8.26**	**1.58**	**1.13**	**32.7**	**21.5**	**66%**

Table 16: TMDL Summary for McGreal Lake (UTX)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
UTX	Internal	0.142	-	-	0.128	0.014	0.746	0.604	81%
	External	0.051	0.001	-	0.045	0.005	0.145	0.094	65%
	Total	**0.193**	**0.001**	**-**	**0.173**	**0.019**	**0.891**	**0.698**	**78%**

Table 17: TMDL Summary for North (STR) and South Churchill (STS) Lakes

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
North Churchill Lake	Internal	0.082	-	-	0.074	0.008	0.17	0.09	52%
	External	0.43	0.39	-	-	0.043	1.08	0.65	60%
	Total	**0.51**	**0.39**	**-**	**0.074**	**0.051**	**1.25**	**0.74**	**59%**
South Churchill Lake	Internal	0.30	-	-	0.27	0.030	0.62	0.32	52%
	External	0.091	0.034	-	0.049	0.009	0.18	0.09	50%
	Total	**0.39**	**0.034**	**-**	**0.32**	**0.039**	**0.80**	**0.41**	**52%**
Combined Total	Internal	0.38	-	-	0.34	0.038	0.79	0.41	52%
	External	0.52	0.42	-	0.049	0.052	1.26	0.74	59%
	Total	**0.90**	**0.42**	**-**	**0.39**	**0.090**	**2.05**	**1.15**	**56%**

Table 18: TMDL Summary for Petite Lake (VTW)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTW	Internal	2.89	-	-	2.60	0.29	4.82	1.93	40%
	External	1.83	-	-	1.65	0.18	10.8	8.96	83%
	Total	**4.73**	**-**	**-**	**4.25**	**0.47**	**15.6**	**10.9**	**70%**

Table 19: TMDL Summary for Pistakee Lake (RTU)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTU	Internal	0.33	-	-	0.30	0.03	5.52	5.19	94%
	External	156.1	2.08	106.2	32.3	15.5	742.1	586	79%
	Total	**156.4**	**2.08**	**106.2**	**32.6**	**15.5**	**747.6**	**591**	**79%**

Table 20: TMDL Summary for Redhead Lake (RTV)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTV	Internal	0.22	-	-	0.20	0.02	0.34	0.12	35%
	External	0.31	0.052	-	0.23	0.03	1.05	0.73	70%
	Total	0.54	0.052	-	0.43	0.05	1.39	0.85	61%

Table 21: TMDL Summary for Spring Lake (RGZT)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTJ	Internal	0.71	-	-	0.64	0.07	0.84	0.13	15%
	External	1.01	-	-	0.91	0.10	8.43	7.42	88%
	Total	1.72	-	-	1.55	0.17	9.27	7.55	81%

Table 22: TMDL Summary for Summerhill Estates Lake (WTA)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
WTA	Internal	0.11	-	-	0.10	0.01	0.65	0.54	83%
	External	0.09	-	-	0.08	0.009	0.37	0.28	75%
	Total	0.20	-	-	0.18	0.02	1.01	0.81	80%

Table 23: TMDL Summary for Tranquility Lake (UTW)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
UTW-1	Internal	0.06	-	-	0.05	0.006	0.08	0.02	20%
	External	0.20	0.10	-	0.08	0.020	0.40	0.20	50%
	Total	0.26	0.10	-	0.13	0.026	0.48	0.22	45%
UTW-2	Internal	0.07	-	-	0.06	0.007	0.09	0.02	20%
	External	0.08	0.05	-	0.02	0.008	0.16	0.08	50%
	Total	0.15	0.05	-	0.08	0.015	0.24	0.10	39%
Lake Total	Internal	0.13	-	-	0.12	0.013	0.16	0.03	20%
	External	0.28	0.16	-	0.10	0.028	0.56	0.28	50%
	Total	**0.41**	**0.16**	**-**	**0.21**	**0.041**	**0.72**	**0.31**	**43%**

Table 24: TMDL summary for Turner Lake (VTZA)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VZTA	Internal	0.28	-	-	0.25	0.028	0.28	-	0%
	External	0.32	0.16	-	0.14	0.032	0.48	0.16	33%
	Total	**0.60**	**0.16**	**-**	**0.39**	**0.060**	**0.76**	**0.16**	**21%**

Table 25: TMDL Summary for Wooster Lake (RTZH)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTZH	Internal	0.79	-	-	0.71	0.08	1.21	0.42	35%
	External	2.90	0.08	0.45	2.13	0.29	4.91	2.01	41%
	Total	**3.69**	**0.08**	**0.45**	**2.84**	**0.37**	**6.12**	**2.43**	**40%**

TMDL Summary for Fecal Coliform

Table 26: Fecal Coliform TMDL for Deep Lake (VTD)

Segment ID	LC (mil col/day)	LA (mil col/day)	WLA (mil col/day)	MOS (mil col/day)	Current Load[1] (mil col/day)	Percent Reduction Needed (%)
VTD	1,986	393	1,395	199	22,625	91%

[1] Actual Load was calculated using the 90th percentile of observed concentrations (EPA 2007)

Phosphorus Allocations for MS4s

Table 29: Allocation Summary for MS4s in the Antioch Lake Watershed

Source	NPDES ID	Municipal Area in Watershed (acres)	Percent of Total Watershed Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	147	33.2%	0.079
Total MS4		**147**	**33.2%**	**0.079**

Table 30: Allocation Summary for MS4s in the Lake Catherine and Channel Lake Watersheds

Subbasin	Source	NPDES ID	Municipal Area in Watershed (acres)	Percent of Total Watershed Area	Total Phosphorus WLA (lbs/day)
Catherine	Antioch Village	ILR400281	353	9.8%	0.31
Channel	-		-	-	-
Total MS4			**353**	**2.9%**	**0.31**

Table 31: Allocation Summary for MS4s in the Davis Lake Watershed

Source	NPDES ID	Municipal Area in Watershed (acres)	Percent of Total Watershed Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	1.5	0.35%	0.0004
Total MS4		**1.5**	**0.35%**	**0.0004**

Table 32: Allocation Summary for MS4s in the Duck Lake Watershed

Source	NPDES ID	Municipal Area in Watershed (acres)	Percent of Total Watershed Area	Total Phosphorus WLA (lbs/day)
Volo Village	ILR400657	1,358	42.6%	0.516
Total MS4		**1,650**	**51.8%**	**0.627**

Table 33: Allocation Summary for MS4s in the Fox and Nippersink Lakes Watershed

Subbasin	Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Municipal Area in Subbasin[1]	Total Phosphorus WLA (lbs/day)
Fox	Fox Lake Village	ILR400339	1,147	20.2%	0.199
	Lake Villa Village	ILR400369	174	3.1%	0.030
Nippersink	Fox Lake Village	ILR400339	433	41.0%	0.011
Total Fox Lake			**1,321**	**23.5%**	**0.230**
Total Nippersink Lake			**433**	**41.0%**	**0.011**
Total MS4			**1,754**	**24.3%**	**0.240**

[1] Subbasin area contributing to direct runoff into the lake, excludes portions of the watershed flowing to upstream modeled lakes.

Table 34: Allocation Summary for MS4s in the Grass Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	1,529	0.28%	0.0021
Spring Grove Village	ILR400520	150	0.03%	0.0002
Total MS4		**1,679**	**0.31%**	**0.0024**

Table 35: Allocation Summary for MS4s in the Hidden Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Round Lake Park Village	ILR400242	138	98.4%	0.051
Total MS4		**138**	**98.4%**	**0.051**

Table 36: Allocation Summary for MS4s in the Long Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Grayslake Village	ILR400202	8623	3.7%	0.259
Hainesville Village	ILR400205	1,160	5.0%	0.348
Hawthorn Woods Village	ILR400209	438	1.9%	0.131
Lake Villa Village	ILR400369	1,413	6.0%	0.424
Mundelein Village	ILR400395	404	1.7%	0.121
Round Lake Beach Village	ILR400439	2,941	12.6%	0.883

Round Lake Heights Village	ILR400241	390	1.7%	0.117
Round Lake Park Village	ILR400242	927	4.0%	0.278
Round Lake Village	ILR400243	3,557	15.2%	1.067
Volo Village	ILR400657	9.5	0.04%	0.003
Wauconda Village	ILR400501	225	1.0%	0.067
Total MS4		**12,326**	**52.7%**	**3.699**

Table 37: Allocation Summary for MS4s in the Lake Marie Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	2,491	26.9%	0.161
Lake Villa Village	ILR400369	2,548	27.6%	0.164
Lindenhurst Village	ILR400276	3.0	0.03%	0.0002
Total MS4		**5,041**	**54.5%**	**0.326**

Table 38: Allocation Summary for MS4s in the McGreal Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	2.0	1.5%	0.001
Total MS4		**2.0**	**1.5%**	**0.001**

Table 39: Allocation Summary for MS4s in the North and South Churchill Lakes Watershed

Subbasin	Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
North Churchill	Round Lake Park Village	ILR400242	136	100.0%	0.388
South Churchill	Round Lake Park Village	ILR400242	207	41.1%	0.034
Total MS4			**343**	**53.5**	**0.422**

Table 40: Allocation Summary for MS4s in the Pistakee Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	1,705	1.2%	0.157
Johnsburg Village	ILR400489	819	0.6%	0.075
Lakemoor Village	ILR400371	2,646	1.9%	0.243
McHenry City	ILR400385	639	0.5%	0.059
Richmond Village	ILR400732	2,706	1.9%	0.249

Spring Grove Village	ILR400520	5,454	3.8%	0.502
Volo Village	ILR400657	198	0.1%	0.018
Wonder Lake Village	ILR400503	3,630	2.6%	0.334
Woodstock City	ILR400499	4,792	3.4%	0.441
Total MS4		**19,883**	**14.0%**	**2.078**

Table 41: Allocation Summary for MS4s in the Redhead Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	119	14.9%	0.042
Volo Village	ILR400657	28	3.6%	0.010
Total MS4		**148**	**18.5%**	**0.052**

Table 42: Allocation Summary for MS4s in the Tranquility Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	220	88.1%	0.156
Total MS4		**220**	**88.1%**	**0.156**

Table 43: Allocation Summary for MS4s in the Turner Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	151	26.3%	0.153
Spring Grove Village	ILR400520	2.5	0.4%	0.002
Total MS4		**154**	**26.7%**	**0.155**

Table 44: Allocation Summary for MS4s in the Wooster Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	132	25.0%	0.047
Round Lake Village	ILR400243	78.9	15.0%	0.028
Volo Village	ILR400657	6.3	1.2%	0.002
Total MS4		**217**	**41.1%**	**0.078**

Fecal Coliform Allocations for MS4s

Table 45: Fecal Coliform Allocation Summary for MS4s in the Deep Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Fecal coliform WLA (mil col/day)
Lake Villa Village	ILR400369	1,114	77.8%	1,391
Lindenhurst Village	ILR400276	3.0	0.2%	3.8
Total MS4		**1,117**	**78.0%**	**1,395**

FINAL REPORT

Upper Fox River - Chain O' Lakes Watershed TMDL

Prepared for Illinois EPA

June 2020

CDM Smith

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Acronyms

ACEP	Agricultural Conservation Easement Program
BMP	best management practice
BOD	biological oxygen demand
CBOD	carbonaceous biochemical oxygen demand
cfu	colony forming units
CSO	combined sewer overflow
CWA	Clean Water Act
DAF	design average flow
DMF	design maximum flow
DMR	discharge monitoring report
DO	dissolved oxygen
EQIP	Environmental Quality Incentives Program
GIS	geographic information system
IDA	Illinois Department of Agriculture
Illinois EPA	Illinois Environmental Protection Agency
LA	load allocation
lbs	pounds
LC	loading capacity
LRS	load reduction strategy
mg/L	milligrams per liter
mg/kg	milligrams per kilograms
ml	milliliters
MGD	million gallons per day
MOS	margin of safety
MS4	municipal separate storm sewer discharger
MWRD	Metropolitan Water Reclamation District of Greater Chicago
NBOD	nitrogeneous biochemical oxygen demand
NIPC	Northeastern Illinois Planning Commission
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NTU	nephelometric turbidity unit
NVSS	non-volatile suspended solids
POTW	publicly owned treatment work
RC	reserve capacity
SLAM	Simplified Lake Analysis Model
SOD	sediment oxygen demand
SSRP	Streambank Stabilization and Restoration Program
STORET	Storage and Retrieval Database
SWCD	Soil and Water Conservation District
TARP	Tunnel and Reservoir Plan
TMDL	total maximum daily load
TRM	turf reinforcement mat
TSS	total suspended solids
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency
USGS	U.S. Geological Survey
WLA	waste load allocation
WREP	Wetland Reserve Enhancement Partnership

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Executive Summary

A total maximum daily load, or TMDL, is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Development of TMDLs for waters that do not support their designated uses is a requirement of Section 303(d) of the Clean Water Act (CWA). The Illinois EPA has a three-stage approach to TMDL development. The stages are:

Stage 1 – Watershed Characterization, Data Analysis, Methodology Selection

Stage 2 – Data Collection (optional)

Stage 3 – Model Calibration, TMDL Scenarios, Implementation Plan

TMDL development for this watershed began in 2008. Stage 1 was completed in March 2010 under a contract with AECOM (*Upper Fox River/Chain O' Lakes Watershed TMDL Final Stage 1 Report*, AECOM 2010). The stage 1 report is provided in **Appendix A**. No formal Stage 2 data collection was completed, but additional water quality data were collected and gathered by Illinois EPA, the Lake County Department of Health, and other agencies in the time between the completion of Stage 1 and the commencement of Stage 3. While portions of this watershed are within Wisconsin, this TMDL Study encompasses 29 impaired waterbody segments and their contributing watersheds within the Illinois portion of the Upper Fox River/Chain O' Lakes watershed. TMDL allocations have been set for phosphorus in lakes and fecal coliform. Impairments for dissolved oxygen and pH in one waterbody are directly related to excess nutrients and addressed via the total phosphorus TMDL for that lake. Additional impairments in the watershed include total suspended solids and sedimentation/siltation. TMDLs are not provided for these impairments due to a lack of applicable numerical water quality standard; however, a load reduction target and implementation strategies for these parameters are discussed. Load allocations, percent reductions, and implementation strategies discussed in this report are focused on areas of the watershed within Illinois and while inputs from the Wisconsin portion of the watershed are inherent in the stream flow and water quality data (particularly for segment DT-35 of the Fox River), no allocations or load reductions have been developed in this study for the portions of the watershed within Wisconsin.

The sources of pollutants in the Illinois portion of this watershed include NPDES permitted facilities such as wastewater treatment facilities and regulated stormwater. In addition, sources of nonpoint pollution are largely the result of stormwater runoff in developed and undeveloped areas. Sources of pollutants in agricultural areas are primarily related to nutrient and sediment loading as a result of crop production.

The loading capacity for fecal coliform stream impairments is determined using a load duration curve framework. The loading capacities for total phosphorus impairments in lakes are developed using the Simplified Lake Assessment Model (SLAM). TMDLs and needed load reductions are presented in Section 2. The TMDL, or loading capacity, is distributed among permitted point sources as waste load allocations (WLA) and nonpoint and background sources as load allocations (LA). A margin of safety (MOS) is also included to account for uncertainty. Reserve Capacity (RC) may also be included in the TMDL load capacity (LC) analysis to account for future growth if the necessary information is available. The required pollutant reductions range from zero to 94%.

Section 3 of this report includes an implementation plan intended to provide basic information and direction to additional resources detailing potential implementation activities that can be employed to address the pollutant loads within the Illinois portion of the watershed.

Section 1

Methodology Development for the Upper Fox River/Chain O'Lakes Watershed

1.1 Total Maximum Daily Load Overview

A total maximum daily load, or TMDL, is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. TMDLs are a requirement of Section 303(d) of the Clean Water Act (CWA). To meet this requirement, the Illinois Environmental Protection Agency (Illinois EPA) must identify water bodies not meeting water quality standards and then establish TMDLs for restoration of water quality. Illinois EPA develops a list known as the "303(d) list" of water bodies not meeting water quality standards every two years, and it is included in the Integrated Water Quality Report. Water bodies on the 303(d) list are then targeted for TMDL development. The Illinois EPA's most recent Integrated Water Quality Report was submitted to the United States Environmental Protection Agency (USEPA) in July 2016. In accordance with USEPA's guidance, the report assigns all waters of the state to one of five categories. 303(d) listed water bodies make up category five in the integrated report (Appendix A of the Integrated Report, available at: https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Pages/303d-list.aspx).

In general, a TMDL is a quantitative assessment of water quality impairments, contributing sources, and pollutant reductions needed to attain water quality standards. The TMDL specifies the amount of pollutant or other stressor that needs to be reduced to meet water quality standards, allocates pollutant control or management responsibilities among sources in a watershed, and provides a scientific and policy basis for taking actions needed to restore a water body.

Water quality standards are laws or regulations that states authorize to enhance water quality and protect public health and welfare. Water quality standards provide the foundation for accomplishing two of the principal goals of the CWA. These goals are:

- Restore and maintain the chemical, physical, and biological integrity of the nation's waters
- Where attainable, to achieve water quality that promotes protection and propagation of fish, shellfish, and wildlife, and provides for recreation in and on the water

Water quality standards consist of three elements:

- The designated beneficial use or uses of a water body or segment of a water body
- The water quality criteria necessary to protect the use or uses of that particular water body
- An antidegradation policy

Examples of designated uses are primary contact (swimming), protection of aquatic life, and public and food processing water supply. Water quality criteria describe the quality of water that will support a designated use. Water quality criteria can be expressed as numeric limits or as a narrative statement. Antidegradation policies are adopted so that water quality improvements are conserved, maintained, and protected.

TMDL endpoints established for DO and pH in the Upper Fox River/Chain O' Lakes watershed are based on protection of the aquatic life designated use while the TMDL endpoint for fecal coliform is based on protection of the primary body contact recreational use. The endpoints for total phosphorus in lakes, TSS, and sedimentation/siltation are based on protection of the aesthetic quality designated use. The designated use for aesthetic quality states that waters "... shall be free from sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, color or turbidity of other than natural origin" (Illinois Administrative Code 35.302.203). In the case of phosphorus in lakes, TSS, and Sedimentation/siltation, the conditions leading to non-attainment of the aesthetic quality use are typically associated with excess algae growth caused by nutrient (phosphorus) loading and suspension of sediment in the water column for the TSS and sedimentation/siltation impairments (IAC 35.302.205).

1.2 TMDL Goals and Objectives for the Upper Fox River/Chain O' Lakes Watershed

The Illinois EPA has a three-stage approach to TMDL development. The stages are:

Stage 1 – Watershed Characterization, Data Analysis, Methodology Selection

Stage 2 – Data Collection (optional)

Stage 3 – Model Calibration, TMDL Scenarios, Implementation Plan

TMDL development for this watershed began in 2008. Stage 1 was completed in March 2010 under a contract with AECOM (*Upper Fox River/Chain O' Lakes Watershed TMDL Final Stage 1 Report*, AECOM 2010). The stage 1 report is provided in **Appendix A**. Stage 2 data collection was recommended but described as not imperative in the Stage 1 reporting process. No formal Stage 2 data collection was completed, but additional water quality data were collected and gathered by Illinois EPA, the Lake County Department of Health, and other agencies in the time between the completion of Stage 1 and the commencement of Stage 3. All newly available data were assessed and incorporated into this Stage 3 report as appropriate.

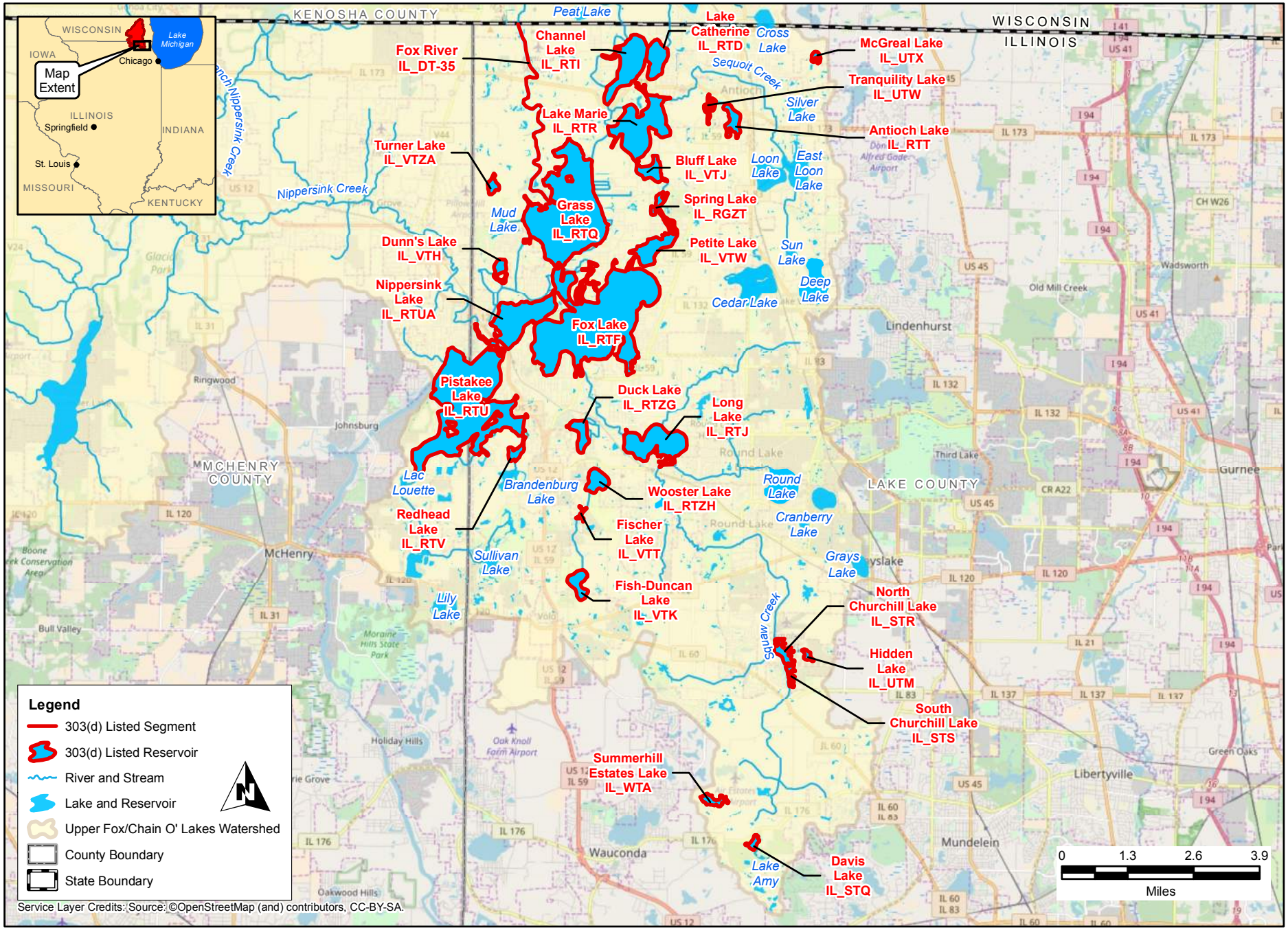
Following are the impaired waterbody segments in the Upper Fox River/Chain O' Lakes watershed:

- Fox River (DT-35)
- Antioch Lake (RTT)
- Bluff Lake (VTJ)
- Lake Catherine (RTD)
- Channel Lake (RTI)
- Davis Lake (STQ)

- Deep Lake (VTD)
- Dunn's Lake (VTH)
- Duck Lake (RTZG)
- Fish-Duncan Lake (VTK)
- Fischer Lake (VTT)
- Fox Lake (RTF)
- Grass Lake (RTQ)
- Hidden Lake (UTM)
- Long Lake (RTJ)
- Lake Marie (RTR)
- McGreal Lake (UTX)
- Nippersink Lake (RTUA)
- North Churchill Lake (STR)
- Petite Lake (VTW)
- Pistakee Lake (RTU)
- Redhead Lake (RTV)
- Round Lake (RTH)
- South Churchill Lake (STS)
- Spring Lake (RGZT)
- Summerhill Estates Lake (WTA)
- Lake Tranquility (UTW)
- Turner Lake (VTZA)
- Wooster Lake (RTZH)

These impaired water body segments are shown on **Figure 1-1**. There are 29 impaired waterbody segments within the watershed for which TMDL and/or a load reduction strategy (LRS) development was initiated in 2008. **Table 1-1** lists the waterbody segment and cause of impairment, with the exception of those impairments since removed from the 303(d) List, which are discussed below.

A significant portion of the Upper Fox River/Chain O' Lakes watershed is upstream of the Illinois-Wisconsin state line. TMDL calculations and resulting load allocations discussed in this report are focused on the portion of the watershed within Illinois. Implementation strategies and percent reductions discussed do not include Wisconsin's portion of the watershed outside of Illinois.



Upper Fox/Chain O' Lakes TMDL Watershed

CDM Smith

FIGURE 1-1

Table 1-1 Waterbodies and Impairments Originally Targeted for TMDL and Load Reduction Strategy (LRS) Development in the Upper Fox River/Chain O' Lakes Watershed (based on the 2008 303(d) List)

Waterbody Name	Segment ID	TMDL Parameter	LRS Parameter
Fox River	DT-35		Sedimentation/Siltation
Antioch Lake	RTT	Phosphorus	Total suspended solids (TSS)
Bluff Lake	VTJ	Phosphorus	TSS
Lake Catherine	RTD	Phosphorus	
Channel Lake	RTI	Phosphorus	
Davis Lake	STQ	Phosphorus	
Deep Lake	VTD	Fecal Coliform	
Dunn's Lake	VTH	Phosphorus	TSS
Duck Lake	RTZG	Phosphorus	TSS
Fish-Duncan Lake	VTK	Phosphorus	TSS
Fischer Lake	VTT	Phosphorus	TSS
Fox Lake	RTF	Phosphorus	TSS
Grass Lake	RTQ	Phosphorus	TSS
Hidden Lake	UTM	Phosphorus, Dissolved Oxygen[1], pH[1]	TSS
Long Lake	RTJ	Phosphorus	TSS
Lake Marie	RTR	Phosphorus	TSS
McGreal Lake	UTX	Phosphorus	
Nippersink Lake	RTUA	Phosphorus	TSS
North Churchill Lake	STR	Phosphorus	TSS
Petite Lake	VTW	Phosphorus	
Pistakee Lake	RTU	Phosphorus	TSS
Redhead Lake	RTV	Phosphorus	TSS
Round Lake	RTH		TSS
South Churchill Lake	STS	Phosphorus	TSS
Spring Lake	RGZT	Phosphorus	TSS
Summerhill Estates Lake	WTA	Phosphorus	TSS
Lake Tranquility	UTW	Phosphorus	TSS
Turner Lake	VTZA	Phosphorus	TSS
Wooster Lake	RTZH	Phosphorus	

[1] Dissolved oxygen and pH impairments are directly related to excess nutrients (total phosphorus) in the waterbody and are addressed via total phosphorus TMDLs.

Sun Lake and Gray's Lake were included in the Stage 1 discussions but are not included in Stage 3. Sun Lake's has since been delisted as impaired. Gray's Lake currently remains on the 303(d); however, surface flow from Grays Lake is now diverted into Mill Creek, a part of the Des Plaines River watershed (Mill Creek), via a spillway and storm sewer system. This waterbody is no longer a part of the Upper Fox River/Chain O' Lakes watershed.

Likewise, in accordance with the Stage 1 recommendation and IEPA review, the ammonia impairment for Pistakee Lake was removed and will therefore not be included in Stage 3. The fecal coliform impairment in Fox River segment DT-35 was not included in the approved 303(d) lists issued in 2012 and 2014, and this impairment is not addressed in this report.

Illinois EPA has previously only developed TMDLs for parameters that have numeric water quality standards while deferring development of TMDLs for parameters without numeric water

quality standards until those criteria have been developed and adopted. As part of the TMDL development process, Illinois EPA started to include LRSs in TMDL watershed projects in 2012 for those pollutants that do not currently have numeric water quality standards.

For potential causes that do not have numeric water quality standards as noted in **Table 1-1**, TMDLs were not developed. However, LRSs (similar to TMDLs) were developed as part of Stage 3 based on target values established by Illinois EPA. LRS targets are based on data from all stream segments or lakes within the HUC-10 basins of the watershed, as well as stream segments or lakes which closely border the watershed in neighboring HUC-10 basins, in order to best represent the land use, hydrologic, and geologic conditions unique to the watershed. Load reduction targets were calculated by Illinois EPA using data from stream/lake segments whose most current assessment shows full support for aquatic life and data that has passed quality assurance and quality checks within Illinois EPA and are in accordance with state and federal laws. Some of these potential causes may also be addressed by implementation of controls for the pollutants with numeric water quality standards.

The TMDLs for the segments listed above specify the following elements:

- Loading Capacity (LC) or the maximum amount of pollutant loading a water body can receive without violating water quality standards
- Waste Load Allocation (WLA) or the portion of the TMDL allocated to existing or future point sources
- Load Allocation (LA) or the portion of the TMDL allocated to existing or future nonpoint sources and natural background
- Margin of Safety (MOS) or an accounting of uncertainty about the relationship between pollutant loads and receiving water quality
- Reserve Capacity (RC) or a portion of the load explicitly set aside to account for growth in the watershed

These elements are combined into the following equation:

$$\mathbf{TMDL = LC = \Sigma WLA + \Sigma LA + MOS + RC}$$

Developing an LRS involves determining the LC and load reduction that is needed in order for the water body to meet "Full Use Support" for its designated uses. In an LRS, the LC is not divided into WLA, LA, or MOS. These TMDL components are represented by one number as a target concentration for load reduction within each unique watershed. The LRS provides guidance (with no regulatory requirements) for voluntary nonpoint source reduction efforts by implementing agricultural and urban stormwater best management practices (BMPs).

TMDL and LRS development also takes into account the seasonal variability of pollutant loads so that water quality standards are met during all seasons of the year. Also, reasonable assurance that the TMDL and LRS targets will be achieved is described in the implementation plan. The implementation plan for the Fox River/Chain O' Lakes Watershed describes how water quality

standards and targets will be met and attained. This implementation plan includes recommendations for implementing point source controls, urban and rural BMPs, cost estimates, institutional needs to implement BMPs and controls throughout the watershed, and a timeframe for completion of implementation activities.

1.3 Existing Data Inventory

Illinois EPA provided project files previously collected and analyzed by AECOM for the Upper Fox River/Chain O' Lakes watershed TMDL project completed under the previous consultant's TMDL contract. This dataset included a number of files containing both water quality data and general watershed data related to the TMDL development process. Versions of several of the water quality models proposed in the Stage 1 report for TMDL development were included in the data transfer. While this dataset provided much of the information necessary to complete Stage 3 of the TMDLs, some level of uncertainty existed as to the completeness and usability of each of the data sources. A review and assessment of the existing dataset was necessary, the results of which are discussed below.

1.3.1 Existing Water Quality Data

Water quality data provided by Illinois EPA included a number of MS Access and MS Excel files containing water quality data originating from several sources. The bulk of the available water quality data was originally collected by the Illinois EPA, U.S. Geological Survey (USGS), or the Lake County Public Health Department. Based on a review of data summary and progress report documents produced by AECOM during the early stages of Stage 3 development, the original datasets compiled and used by AECOM did not appear to have been provided in full. Therefore, available data sources (Illinois EPA, Lake County Health Department, etc.) were queried for relevant water quality data to supplement the existing water quality dataset provided. All data identified were compiled into a watershed-specific database that contains approximately 40,000 sample results for the sampled waterbodies in the Upper Fox River/Chain O' Lakes watershed. The dataset includes sample results for approximately 32 different parameters, presumably including only those parameters which were potentially relevant to the TMDL and LRS development process as shown in **Table 1-2**.

Table 1-2: List of Parameters Included in the Water Quality Dataset Compiled for the Upper Fox River/Chain O' Lakes Watershed

Alkalinity, Total	Orthophosphate as P, Total
Chloride	pH
Chlorophyll a	Phosphorus
Chlorophyll a, corrected	Secchi
Dissolved Oxygen (DO)	Solids, Dissolved
E. coli	Solids, Fixed
Fecal Coliform	Solids, Suspended Volatile
Nitrogen, ammonia as N	Solids, Total
Nitrogen, Nitrite + Nitrate as N	Solids, Total Suspended (TSS)
Nitrogen, Nitrate as N	Solids, Total Volatile
Nitrogen, Nitrite as N	Specific Conductivity
Nitrogen, Total Kjeldahl	Temperature
Orthophosphate as P, Dissolved	

A summary of the relevant available data from the dataset compiled from Stage 1 data and additional data queried prior to the current Stage 3 development for each waterbody including period of record, sample count, minimum value, maximum value, and average value is provided in **Table 1-3**.

Table 1-3: Summary of Water Quality Data Reviewed for the Current Stage 3 Database Relevant to TMDL and LRS Development in the Upper Fox River/Chain O' Lakes Watershed

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
Sun Lake (RTC)	Alkalinity	mg/L	48	1991-2008	138	226	161
	Ammonia as N	mg/L	18	1991-2008	0.010	1.2	0.23
	Chlorophyll a	ug/L	40	1991-2008	ND	21	1.3
	Chlorophyll a, uncorrected for pheophytin	ug/L	6	1991-1992	4.5	21	11
	Dissolved oxygen (DO)	mg/L	76	1992-2008	ND	10	5.4
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	22	1991-2008	0.05	0.12	0.06
	Nitrogen, Kjeldahl	mg/L	78	1991-2008	0.23	2.5	1.1
	Nitrogen, Nitrate (NO3) as N	mg/L	12	1991-1993	0.05	0.12	0.06
	Orthophosphate as P, Dissolved	mg/L	3	1993-2001	0.02	0.03	0.02
	Phosphorus, Dissolved	mg/L	2	1992	0.009	0.009	0.009
	Phosphorus, Soluble Reactive	mg/L	12	1993-2008	0.005	0.04	0.013
	Phosphorus, Total	mg/L	42	1991-2008	0.013	0.15	0.04
	Solids, suspended, volatile	mg/L	42	1992-2008	88	681	235
	Solids, Total Suspended (TSS)	mg/L	35	1991-2008	0.40	20	4.3
Antioch Lake (RTT)	Alkalinity	mg/L	51	1992-2015	91	182	149
	Ammonia as N	mg/L	34	1988-2015	0.011	0.53	0.15
	Chlorophyll a	ug/L	36	1988-2015	ND	139	9.5
	Chlorophyll a, corrected for pheophytin	ug/L	16	2009	6.0	89	31
	Chlorophyll a, uncorrected for pheophytin	ug/L	22	1988-2009	1.6	139	39
	Dissolved oxygen (DO)	mg/L	51	1989-2015	0.21	16	7.5
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	49	1988-2009	0.009	0.10	0.06
	Nitrogen, Kjeldahl	mg/L	71	1989-2015	0.17	2.6	1.1
	Nitrogen, Nitrate (NO3) as N	mg/L	18	1988-2008	0.05	0.10	0.06
	Nitrogen, Nitrite (NO2) as N	mg/L	5	2008	0.05	0.05	0.05
	Orthophosphate as P, Dissolved	mg/L	21	1992-2001	0.007	0.10	0.02
	Orthophosphate as P, Total	mg/L	3	1988	0.02	0.03	0.02
	Phosphorus, Dissolved	mg/L	16	1989-2009	0.006	0.05	0.02
	Phosphorus, Soluble Reactive	mg/L	24	1992-2015	0.007	0.10	0.02
	Phosphorus, Total	mg/L	58	1988-2015	0.010	0.33	0.09
	Solids, suspended, volatile	mg/L	66	1992-2015	4.0	304	81
	Solids, Total Suspended (TSS)	mg/L	64	1992-2015	1.5	21	9.7
Bluff Lake (VTJ)	Alkalinity	mg/L	40	2002-2014	175	375	232
	Ammonia as N	mg/L	92	1987-2014	0.005	8.4	1.3
	Chlorophyll a	ug/L	17	1988-2014	ND	97	20
	Chlorophyll a, corrected for pheophytin	ug/L	6	2008-2012	2.8	202	74
	Chlorophyll a, uncorrected for pheophytin	ug/L	34	1987-2012	2.6	214	51
	Dissolved oxygen (DO)	mg/L	400	1987-2014	ND	27	5.6

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	85	1987-2012	0.005	0.94	0.13
	Nitrogen, Kjeldahl	mg/L	84	1987-2014	0.02	29	2.9
	Nitrogen, Nitrate (NO3) as N	mg/L	14	1988-2014	0.05	0.61	0.19
	Orthophosphate as P, Dissolved	mg/L	2	2002	0.02	0.03	0.02
	Orthophosphate as P, Total	mg/L	4	1988	0.09	0.15	0.11
	Phosphorus, Dissolved	mg/L	74	1987-2012	ND	1.8	0.18
	Phosphorus, Soluble Reactive	mg/L	16	2002-2014	0.005	1.2	0.25
	Phosphorus, Total	mg/L	100	1987-2014	0.014	1.8	0.24
	Solids, suspended, volatile	mg/L	45	2002-2014	2.0	139	33
	Solids, Total Suspended (TSS)	mg/L	45	2002-2014	3.8	34	11
Channel Lake (RTI)	Alkalinity	mg/L	55	2002-2014	173	340	216
	Ammonia as N	mg/L	243	1979-2014	0.005	9.4	0.80
	Chlorophyll a	ug/L	19	1990-2002	ND	55	14
	Chlorophyll a, corrected for pheophytin	ug/L	17	2008-2012	0.50	71	31
	Chlorophyll a, uncorrected for pheophytin	ug/L	111	1979-2012	0.50	217	27
	Dissolved oxygen (DO)	mg/L	1399	1979-2014	ND	26	6.3
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	215	1979-2012	0.005	5.8	0.24
	Nitrogen, Kjeldahl	mg/L	233	1979-2014	0.06	10	1.6
	Nitrogen, Nitrate (NO3) as N	mg/L	11	1990-2002	0.03	0.48	0.19
	Orthophosphate as P, Dissolved	mg/L	17	1990-2002	0.005	0.84	0.12
	Phosphorus, Dissolved	mg/L	172	1979-2012	ND	1.2	0.12
	Phosphorus, Soluble Reactive	mg/L	22	1990-2014	0.005	1.1	0.24
	Phosphorus, Total	mg/L	261	1979-2014	ND	1.2	0.15
	Solids, suspended, volatile	mg/L	67	2002-2014	1.00	133	22
	Solids, Total Suspended (TSS)	mg/L	66	2002-2014	1.00	17	7.2
Davis Lake (STQ)	Alkalinity	mg/L	20	2000-2009	131	254	184
	Ammonia as N	mg/L	8	2000-2009	1.0	5.5	3.2
	Chlorophyll a	ug/L	20	2000-2009	ND	ND	All ND
	Dissolved oxygen (DO)	mg/L	50	2000	ND	8.9	2.5
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	7	2000	0.04	0.10	0.06
	Nitrogen, Kjeldahl	mg/L	30	2000-2009	0.83	5.9	2.3
	Nitrogen, Nitrate (NO3) as N	mg/L	7	2000	0.04	0.10	0.06
	Orthophosphate as P, Dissolved	mg/L	7	2000	0.011	0.76	0.35
	Phosphorus, Soluble Reactive	mg/L	17	2000-2009	0.009	0.76	0.23
	Phosphorus, Total	mg/L	21	2000-2009	0.03	0.92	0.30
	Solids, suspended, volatile	mg/L	20	2000-2009	79	148	116
	Solids, Total Suspended (TSS)	mg/L	20	2000-2009	1.00	16	5.0
Deep Lake (VTD)	Alkalinity	mg/L	66	1992-2012	125	206	161
	Ammonia as N	mg/L	47	1989-2012	0.08	3.0	0.77
	Chlorophyll a	ug/L	64	1989-2008	ND	22	1.9

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Chlorophyll a, corrected for pheophytin	ug/L	3	2012	0.50	0.56	0.52
	Chlorophyll a, uncorrected for pheophytin	ug/L	3	2012	0.50	0.57	0.52
	Fecal coliform	cfu/100ml	13	2001	10.00	3,700	556
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	20	2012	0.02	0.10	0.08
	Nitrogen, Kjeldahl	mg/L	63	1989-2012	0.17	3.6	1.1
	Nitrogen, Nitrate (NO3) as N	mg/L	12	1989-1998	0.04	0.09	0.06
	Phosphorus, Dissolved	mg/L	17	2012	ND	0.29	0.05
	Phosphorus, Soluble Reactive	mg/L	23	1992-2008	0.005	0.35	0.13
	Phosphorus, Total	mg/L	80	1989-2012	0.011	0.43	0.09
	Solids, suspended, volatile	mg/L	83	1989-2012	4.0	332	101
	Solids, Total Suspended (TSS)	mg/L	78	1989-2012	1.00	66	4.6
Duck Lake (RTZG)	Alkalinity	mg/L	38	1997-2010	140	210	175
	Ammonia as N	mg/L	23	1988-2009	0.010	0.21	0.09
	Chlorophyll a	ug/L	31	1988-2006	ND	20	3.3
	Chlorophyll a, corrected for pheophytin	ug/L	10	2008-2009	4.8	49	15
	Chlorophyll a, uncorrected for pheophytin	ug/L	16	1988-2009	5.1	50	15
	Dissolved oxygen (DO)	mg/L	50	1989-2006	1.0	28	13
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	20	1989-2009	0.012	0.10	0.07
	Nitrogen, Kjeldahl	mg/L	66	1989-2010	0.62	4.9	1.8
	Nitrogen, Nitrate (NO3) as N	mg/L	25	1988-2009	0.05	0.10	0.06
	Nitrogen, Nitrite (NO2) as N	mg/L	10	2008-2009	0.012	0.05	0.05
	Orthophosphate as P, Dissolved	mg/L	7	2001	0.006	0.04	0.03
	Phosphorus, Dissolved	mg/L	3	1989-1995	0.013	0.02	0.014
	Phosphorus, Soluble Reactive	mg/L	8	2001-2010	0.006	0.04	0.03
	Phosphorus, Total	mg/L	47	1988-2010	0.02	0.14	0.06
	Solids, suspended, volatile	mg/L	38	1997-2010	4.0	161	95
	Solids, Total Suspended (TSS)	mg/L	38	1997-2010	4.0	34	11
Dunn's Lake (VTH)	Alkalinity	mg/L	36	1997-2014	177	255	205
	Ammonia as N	mg/L	19	1989-2014	0.011	0.49	0.21
	Chlorophyll a	ug/L	20	1997-2002	ND	ND	All ND
	Chlorophyll a, corrected for pheophytin	ug/L	11	2009	10	114	54
	Chlorophyll a, uncorrected for pheophytin	ug/L	11	2009	11	115	55
	Dissolved oxygen (DO)	mg/L	49	1989-2014	2.0	16	8.9
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	23	1989-2009	0.009	0.65	0.22
	Nitrogen, Kjeldahl	mg/L	57	1989-2014	1.1	3.1	1.7
	Nitrogen, Nitrate (NO3) as N	mg/L	8	1997-2014	0.07	0.48	0.32
	Orthophosphate as P, Dissolved	mg/L	5	1997-2002	0.007	0.03	0.014
	Phosphorus, Dissolved	mg/L	12	1989-2009	0.005	0.04	0.015
	Phosphorus, Soluble Reactive	mg/L	5	1997-2002	0.007	0.03	0.014

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Phosphorus, Total	mg/L	37	1989-2014	0.05	0.18	0.10
	Solids, suspended, volatile	mg/L	47	1997-2014	6.0	197	94
	Solids, Total Suspended (TSS)	mg/L	47	1997-2014	9.0	75	31
Fischer Lake (VTT)	Alkalinity	mg/L	30	2001-2009	158	218	188
	Ammonia as N	mg/L	18	2001-2009	0.10	1.1	0.20
	Chlorophyll a	ug/L	20	2001-2006	ND	ND	All ND
	Chlorophyll a, corrected for pheophytin	ug/L	10	2008-2009	17	89	48
	Chlorophyll a, uncorrected for pheophytin	ug/L	10	2008-2009	19	89	49
	Dissolved oxygen (DO)	mg/L	49	2006	0.20	12	8.2
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	14	2001-2009	0.09	0.38	0.16
	Nitrogen, Kjeldahl	mg/L	50	2001-2009	0.31	3.5	2.0
	Nitrogen, Nitrate (NO3) as N	mg/L	14	2001-2009	0.05	0.38	0.14
	Nitrogen, Nitrite (NO2) as N	mg/L	10	2008-2009	0.05	0.05	0.05
	Orthophosphate as P, Dissolved	mg/L	18	2001-2006	0.005	0.41	0.08
	Phosphorus, Soluble Reactive	mg/L	18	2001-2006	0.005	0.41	0.08
	Phosphorus, Total	mg/L	30	2001-2009	0.07	0.52	0.20
	Solids, suspended, volatile	mg/L	30	2001-2009	4.0	199	110
	Solids, Total Suspended (TSS)	mg/L	30	2001-2009	6.0	60	19
Fish-Duncan Lake (VTK)	Alkalinity	mg/L	30	1997-2006	149	285	198
	Ammonia as N	mg/L	23	1988-2006	0.02	3.8	0.80
	Chlorophyll a	ug/L	36	1988-2006	ND	112	11
	Chlorophyll a, uncorrected for pheophytin	ug/L	6	1988	21	112	66
	Dissolved oxygen (DO)	mg/L	94	1989-2006	ND	12	6.2
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	20	1988-2006	0.06	0.79	0.25
	Nitrogen, Kjeldahl	mg/L	62	1989-2006	1.1	4.9	2.3
	Nitrogen, Nitrate (NO3) as N	mg/L	18	1988-2006	0.06	0.79	0.26
	Orthophosphate as P, Dissolved	mg/L	19	1997-2006	0.005	0.85	0.12
	Orthophosphate as P, Total	mg/L	1	1988	0.22	0.22	0.22
	Phosphorus, Dissolved	mg/L	2	1989	0.02	0.02	0.02
	Phosphorus, Soluble Reactive	mg/L	19	1997-2006	0.005	0.85	0.12
	Phosphorus, Total	mg/L	38	1988-2006	0.03	0.91	0.16
	Solids, suspended, volatile	mg/L	30	1997-2006	96	173	140
	Solids, Total Suspended (TSS)	mg/L	30	1997-2006	2.5	25	9.8
Fox Lake (RTF)	Alkalinity	mg/L	54	2002-2014	175	285	224
	Ammonia as N	mg/L	97	1973-2014	0.005	1.4	0.16
	Chlorophyll a	ug/L	15	2002	ND	228	60
	Chlorophyll a, corrected for pheophytin	ug/L	12	2008-2012	4.9	113	47
	Chlorophyll a, uncorrected for pheophytin	ug/L	42	1979-2012	3.9	228	76
	Dissolved oxygen (DO)	mg/L	213	1973-2014	ND	25	9.3

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	86	1973-2012	0.005	0.91	0.14
	Nitrogen, Kjeldahl	mg/L	89	1973-2014	0.44	7.2	1.8
	Nitrogen, Nitrate (NO3) as N	mg/L	16	2002-2014	0.010	0.91	0.35
	Orthophosphate as P, Dissolved	mg/L	14	2002	0.008	0.02	0.012
	Phosphorus, Dissolved	mg/L	58	1979-2012	ND	0.16	0.02
	Phosphorus, Soluble Reactive	mg/L	17	2002-2014	0.007	0.02	0.011
	Phosphorus, Total	mg/L	114	1973-2014	0.02	23	0.32
	Solids, suspended, volatile	mg/L	69	2002-2014	7.0	196	31
	Solids, Total Suspended (TSS)	mg/L	69	2002-2014	11	51	24
Fox River (DT-35)	Alkalinity	mg/L	52	2008-2013	160	315	253
	Ammonia as N	mg/L	82	1999-2013	0.005	0.93	0.13
	Chlorophyll a, corrected for pheophytin	ug/L	26	2008-2012	1.6	122	25
	Chlorophyll a, uncorrected for pheophytin	ug/L	50	2001-2012	1.1	233	41
	Dissolved oxygen (DO)	mg/L	85	1999-2013	3.5	18	11
	Fecal coliform	cfu/100ml	45	1999-2013	1.00	7,200	400
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	98	1999-2013	0.03	4.7	1.7
	Nitrogen, Kjeldahl	mg/L	84	1999-2013	0.16	2.7	1.0
	Phosphorus, Dissolved	mg/L	89	1999-2013	0.005	0.17	0.02
	Phosphorus, Total	mg/L	90	1999-2013	0.005	0.30	0.09
	Solids, suspended, volatile	mg/L	51	2008-2013	4.0	20	9.4
	Solids, Total Suspended (TSS)	mg/L	52	2008-2013	4.0	67	24
	Total Organic Carbon (TOC)	mg/L	51	2008-2013	4.2	13	6.7
Grass Lake (RTQ)	Alkalinity	mg/L	35	2002-2014	185	325	242
	Ammonia as N	mg/L	104	1973-2012	0.005	0.67	0.10
	Chlorophyll a	ug/L	10	2002	ND	157	57
	Chlorophyll a, corrected for pheophytin	ug/L	11	2008-2012	8.6	139	72
	Chlorophyll a, uncorrected for pheophytin	ug/L	69	1983-2012	9.6	268	99
	Dissolved oxygen (DO)	mg/L	221	1973-2014	ND	20	11
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	101	1973-2012	0.005	3.1	0.50
	Nitrogen, Kjeldahl	mg/L	100	1973-2014	0.43	9.5	1.8
	Nitrogen, Nitrate (NO3) as N	mg/L	12	2002-2014	0.02	2.4	0.60
	Orthophosphate as P, Dissolved	mg/L	9	2002	0.007	0.02	0.011
	Phosphorus, Dissolved	mg/L	79	1983-2012	ND	0.13	0.02
	Phosphorus, Soluble Reactive	mg/L	12	2002-2014	0.005	0.02	0.011
	Phosphorus, Total	mg/L	113	1973-2014	0.04	0.44	0.13
	Solids, suspended, volatile	mg/L	45	2002-2014	7.0	153	29
	Solids, Total Suspended (TSS)	mg/L	45	2002-2014	20	109	37
Grays Lake (RGK)	Ammonia as N	mg/L	45	1988-2009	0.011	1.00	0.21
	Chlorophyll a, corrected for pheophytin	ug/L	15	2009	1.9	12	4.1

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Chlorophyll a, uncorrected for pheophytin	ug/L	32	1988-1998	2.1	49	12
	Dissolved oxygen (DO)	mg/L	118	1998-2002	0.10	11	7.6
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	46	1988-2009	0.005	0.18	0.05
	Nitrogen, Kjeldahl	mg/L	53	1991-2009	0.19	1.8	0.85
	Orthophosphate as P, Dissolved	mg/L	2	1996	0.005	0.009	0.007
	Orthophosphate as P, Total	mg/L	2	1988	0.011	0.014	0.013
	Phosphorus, Dissolved	mg/L	28	1998-2009	ND	0.02	0.006
	Phosphorus, Total	mg/L	72	1988-2009	0.011	0.07	0.02
	Solids, suspended, volatile	mg/L	14	2009	4.0	6.0	4.6
	Solids, Total Suspended (TSS)	mg/L	7	2009	4.0	9.0	5.0
Hidden Lake (UTM)	Alkalinity	mg/L	5	2002	117	174	141
	Ammonia as N	mg/L	3	2002	0.50	0.56	0.54
	Chlorophyll a	ug/L	5	2002	ND	ND	All ND
	Dissolved oxygen (DO)	mg/L	20	2002	3.1	12	6.9
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	2	2002	0.06	2.2	1.1
	Nitrogen, Kjeldahl	mg/L	10	2002	1.9	5.0	3.0
	Nitrogen, Nitrate (NO3) as N	mg/L	2	2002	0.06	2.2	1.1
	Orthophosphate as P, Dissolved	mg/L	4	2002	0.008	0.15	0.06
	Phosphorus, Soluble Reactive	mg/L	4	2002	0.008	0.15	0.06
	Phosphorus, Total	mg/L	8	2002	0.19	0.27	0.23
	Solids, suspended, volatile	mg/L	5	2002	114	120	116
	Solids, Total Suspended (TSS)	mg/L	5	2002	52	106	74
Lake Catherine (RTD)	Alkalinity	mg/L	55	2002-2014	171	350	216
	Ammonia as N	mg/L	178	1981-2014	ND	8.3	0.67
	Chlorophyll a	ug/L	19	1990-2002	ND	38	12
	Chlorophyll a, corrected for pheophytin	ug/L	13	2008-2012	0.50	58	22
	Chlorophyll a, uncorrected for pheophytin	ug/L	89	1981-2012	0.50	217	23
	Dissolved oxygen (DO)	mg/L	813	1981-2014	ND	26	5.6
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	159	1981-2012	ND	4.7	0.23
	Nitrogen, Kjeldahl	mg/L	167	1981-2014	0.24	18	1.7
	Nitrogen, Nitrate (NO3) as N	mg/L	11	1990-2002	0.010	0.58	0.15
	Orthophosphate as P, Dissolved	mg/L	15	2002	ND	0.52	0.10
	Orthophosphate as P, Total	mg/L	3	1990	0.010	0.18	0.07
	Phosphorus, Dissolved	mg/L	113	1981-2012	ND	1.0	0.08
	Phosphorus, Soluble Reactive	mg/L	20	2002-2014	ND	0.75	0.20
	Phosphorus, Total	mg/L	178	1981-2014	0.010	1.4	0.13
	Solids, suspended, volatile	mg/L	62	2002-2014	1.00	131	23
	Solids, Total Suspended (TSS)	mg/L	61	2002-2014	1.00	16	6.8
	Alkalinity	mg/L	57	2002-2014	165	470	229

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
Lake Marie (RTR)	Ammonia as N	mg/L	142	1973-2014	0.005	9.0	1.1
	Chlorophyll a	ug/L	15	2002	ND	106	38
	Chlorophyll a, corrected for pheophytin	ug/L	13	2008-2012	3.2	178	63
	Chlorophyll a, uncorrected for pheophytin	ug/L	64	1983-2012	1.1	295	62
	Dissolved oxygen (DO)	mg/L	693	1973-2014	ND	23	6.6
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	133	1973-2012	0.005	0.92	0.15
	Nitrogen, Kjeldahl	mg/L	139	1973-2014	0.56	10	2.4
	Nitrogen, Nitrate (NO3) as N	mg/L	12	2002-2014	0.06	0.65	0.27
	Orthophosphate as P, Dissolved	mg/L	15	2002	0.007	1.1	0.16
	Phosphorus, Dissolved	mg/L	99	1983-2012	ND	1.6	0.14
	Phosphorus, Soluble Reactive	mg/L	19	2002-2014	0.005	1.1	0.25
	Phosphorus, Total	mg/L	154	1973-2014	0.02	1.8	0.22
	Solids, suspended, volatile	mg/L	57	2002-2014	3.0	146	30
	Solids, Total Suspended (TSS)	mg/L	57	2002-2014	3.3	29	13
Lake Tranquility (UTW)	Alkalinity	mg/L	30	2002-2015	173	290	196
	Ammonia as N	mg/L	10	2002-2015	0.11	0.21	0.17
	Chlorophyll a	ug/L	15	2002	ND	ND	All ND
	Dissolved oxygen (DO)	mg/L	84	2002-2015	0.09	13	6.5
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	3	2002	0.05	0.44	0.23
	Nitrogen, Kjeldahl	mg/L	45	2002-2015	0.73	1.8	1.1
	Nitrogen, Nitrate (NO3) as N	mg/L	8	2002-2015	0.05	0.44	0.16
	Orthophosphate as P, Dissolved	mg/L	2	2002	0.007	0.11	0.06
	Phosphorus, Soluble Reactive	mg/L	11	2002-2015	0.005	0.11	0.02
	Phosphorus, Total	mg/L	45	2002-2015	0.03	0.26	0.07
	Solids, suspended, volatile	mg/L	30	2002-2015	106	187	135
	Solids, Total Suspended (TSS)	mg/L	30	2002-2015	1.2	24	8.6
Long Lake (RTJ)	Alkalinity	mg/L	217	1991-2014	137	316	196
	Ammonia as N	mg/L	418	1973-2014	0.005	9.8	0.59
	Chlorophyll a	ug/L	106	1991-2012	ND	25	0.84
	Chlorophyll a, corrected for pheophytin	ug/L	20	2009	12	105	45
	Chlorophyll a, uncorrected for pheophytin	ug/L	177	1979-2009	4.3	310	47
	Dissolved oxygen (DO)	mg/L	2026	1973-2014	ND	29	7.7
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	324	1973-2012	0.005	4.6	0.48
	Nitrogen, Kjeldahl	mg/L	529	1973-2014	0.41	11	1.9
	Nitrogen, Nitrate (NO3) as N	mg/L	79	1991-2014	0.06	1.8	0.42
	Orthophosphate as P, Dissolved	mg/L	36	1991-2007	0.007	1.9	0.45
	Phosphorus, Dissolved	mg/L	283	1979-2012	ND	1.6	0.17
	Phosphorus, Soluble Reactive	mg/L	118	1991-2014	0.005	2.3	0.38
	Phosphorus, Total	mg/L	492	1973-2014	0.010	2.7	0.30

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Solids, suspended, volatile	mg/L	229	1996-2014	4.0	219	100
	Solids, Total Suspended (TSS)	mg/L	235	1991-2014	1.8	96	11
McGreal Lake (UTX)	Alkalinity	mg/L	26	1992-2002	116	257	148
	Ammonia as N	mg/L	12	1992-2002	0.11	0.42	0.28
	Chlorophyll a	ug/L	26	1992-2002	ND	ND	All ND
	Dissolved oxygen (DO)	mg/L	45	2002	0.04	9.6	5.6
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	4	1992-1993	0.06	0.06	0.06
	Nitrogen, Kjeldahl	mg/L	52	1992-2002	0.23	3.3	1.1
	Nitrogen, Nitrate (NO3) as N	mg/L	4	1992-1993	0.06	0.06	0.06
	Orthophosphate as P, Dissolved	mg/L	13	1992-2002	0.006	0.14	0.03
	Phosphorus, Soluble Reactive	mg/L	13	1992-2002	0.006	0.14	0.03
	Phosphorus, Total	mg/L	52	1992-2002	0.02	0.71	0.10
	Solids, suspended, volatile	mg/L	26	1992-2002	97	232	147
	Solids, Total Suspended (TSS)	mg/L	23	1992-2002	0.50	33	5.8
Nippersink Lake (RTUA)	Alkalinity	mg/L	39	2002-2014	177	340	237
	Ammonia as N	mg/L	57	1996-2012	0.005	0.65	0.08
	Chlorophyll a	ug/L	10	2002	24	151	81
	Chlorophyll a, corrected for pheophytin	ug/L	11	2008-2012	27	121	64
	Chlorophyll a, uncorrected for pheophytin	ug/L	39	1996-2012	24	194	88
	Dissolved oxygen (DO)	mg/L	121	1996-2014	4.1	19	9.5
	Fecal coliform	cfu/100ml	5	2009	1.00	720	145
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	53	1996-2012	0.005	1.7	0.34
	Nitrogen, Kjeldahl	mg/L	54	1996-2014	0.86	6.3	1.9
	Nitrogen, Nitrate (NO3) as N	mg/L	10	2002-2014	0.02	1.4	0.56
	Orthophosphate as P, Dissolved	mg/L	10	2002	0.007	0.02	0.011
	Phosphorus, Dissolved	mg/L	34	1996-2012	ND	0.03	0.014
	Phosphorus, Soluble Reactive	mg/L	13	2002-2014	0.005	0.02	0.011
	Phosphorus, Total	mg/L	85	1996-2014	0.03	2.8	0.16
	Solids, suspended, volatile	mg/L	48	2002-2014	7.0	170	29
	Solids, Total Suspended (TSS)	mg/L	48	2002-2014	11	139	34
North Churchill Lake (STR)	Alkalinity	mg/L	10	2003	154	196	176
	Ammonia as N	mg/L	4	2003	0.11	0.21	0.17
	Chlorophyll a	ug/L	10	2003	ND	ND	All ND
	Dissolved oxygen (DO)	mg/L	53	2003	1.7	9.0	7.0
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	10	2003	0.18	2.6	1.3
	Nitrogen, Kjeldahl	mg/L	20	2003	1.2	2.0	1.5
	Nitrogen, Nitrate (NO3) as N	mg/L	10	2003	0.18	2.6	1.3
	Orthophosphate as P, Dissolved	mg/L	3	2003	0.005	0.05	0.02
	Phosphorus, Soluble Reactive	mg/L	3	2003	0.005	0.05	0.02
	Phosphorus, Total	mg/L	10	2003	0.03	0.13	0.08

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Solids, suspended, volatile	mg/L	10	2003	114	140	125
	Solids, Total Suspended (TSS)	mg/L	10	2003	45	134	78
Petite Lake (VTW)	Alkalinity	mg/L	40	2002-2014	175	275	208
	Ammonia as N	mg/L	101	1987-2014	0.005	0.90	0.15
	Chlorophyll a	ug/L	16	1989-2002	ND	117	26
	Chlorophyll a, corrected for pheophytin	ug/L	6	2008-2012	12	88	41
	Chlorophyll a, uncorrected for pheophytin	ug/L	39	1987-2012	5.7	194	65
	Dissolved oxygen (DO)	mg/L	307	1987-2014	ND	14	7.6
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	94	1987-2012	0.005	0.90	0.13
	Nitrogen, Kjeldahl	mg/L	92	1987-2014	0.10	4.2	1.7
	Nitrogen, Nitrate (NO3) as N	mg/L	11	1989-2014	0.08	0.60	0.32
	Orthophosphate as P, Dissolved	mg/L	10	2002	0.009	0.04	0.02
	Orthophosphate as P, Total	mg/L	6	1989	0.02	0.04	0.03
	Phosphorus, Dissolved	mg/L	72	1987-2012	ND	0.22	0.02
	Phosphorus, Soluble Reactive	mg/L	12	2002-2014	0.009	0.04	0.02
	Phosphorus, Total	mg/L	114	1987-2014	0.02	0.23	0.09
	Solids, suspended, volatile	mg/L	49	2002-2014	4.0	164	34
	Solids, Total Suspended (TSS)	mg/L	48	2002-2014	4.0	30	13
Pistakee Lake (RTU)	Alkalinity	mg/L	55	2002-2014	180	320	233
	Ammonia as N	mg/L	73	1973-2014	0.010	8.8	0.96
	Chlorophyll a	ug/L	15	2002	ND	371	83
	Chlorophyll a, corrected for pheophytin	ug/L	11	2008-2012	6.9	87	49
	Chlorophyll a, uncorrected for pheophytin	ug/L	40	1983-2012	1.9	371	101
	Dissolved oxygen (DO)	mg/L	336	1973-2014	ND	16	6.7
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	97	1973-2012	0.005	2.6	0.28
	Nitrogen, Kjeldahl	mg/L	96	1973-2014	0.10	15	2.4
	Nitrogen, Nitrate (NO3) as N	mg/L	16	2002-2014	0.06	1.0	0.41
	Orthophosphate as P, Dissolved	mg/L	14	2002	0.007	0.74	0.12
	Phosphorus, Dissolved	mg/L	68	1983-2012	ND	0.94	0.11
	Phosphorus, Soluble Reactive	mg/L	16	2002-2014	0.007	0.74	0.11
	Phosphorus, Total	mg/L	123	1973-2014	0.02	3.0	0.23
	Solids, suspended, volatile	mg/L	69	2002-2014	4.0	149	29
	Solids, Total Suspended (TSS)	mg/L	68	2002-2014	4.0	57	18
Redhead Lake (RTV)	Alkalinity	mg/L	15	2002-2014	170	255	205
	Ammonia as N	mg/L	11	1981-2009	0.011	0.20	0.08
	Chlorophyll a	ug/L	9	1988-2002	ND	92	25
	Chlorophyll a, corrected for pheophytin	ug/L	5	2009	1.4	35	22
	Chlorophyll a, uncorrected for pheophytin	ug/L	12	1981-2009	1.5	92	32
	Dissolved oxygen (DO)	mg/L	27	1981-2014	4.7	11	8.2

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	13	1981-2009	ND	0.10	0.05
	Nitrogen, Kjeldahl	mg/L	21	1981-2014	0.60	3.0	1.7
	Nitrogen, Nitrate (NO3) as N	mg/L	2	1988	0.08	0.08	0.08
	Orthophosphate as P, Dissolved	mg/L	2	2002	0.008	0.02	0.012
	Phosphorus, Dissolved	mg/L	7	1981-2009	0.010	0.02	0.011
	Phosphorus, Soluble Reactive	mg/L	2	2002	0.008	0.02	0.012
	Phosphorus, Total	mg/L	22	1981-2014	0.02	0.27	0.11
	Solids, suspended, volatile	mg/L	19	2002-2014	4.0	162	75
	Solids, Total Suspended (TSS)	mg/L	19	2002-2014	4.0	68	22
Round Lake (RTH)	Alkalinity	mg/L	86	1991-2012	97	261	153
	Ammonia as N	mg/L	183	1977-2012	0.005	6.5	0.43
	Chlorophyll a	ug/L	64	1989-2009	ND	30	3.2
	Chlorophyll a, corrected for pheophytin	ug/L	18	2009-2012	2.6	13	6.3
	Chlorophyll a, uncorrected for pheophytin	ug/L	107	1979-2012	2.3	63	10
	Dissolved oxygen (DO)	mg/L	843	1979-2005	0.05	29	7.2
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	171	1979-2012	0.005	1.9	0.10
	Nitrogen, Kjeldahl	mg/L	232	1979-2012	0.13	7.4	1.2
	Nitrogen, Nitrate (NO3) as N	mg/L	16	1989-1999	0.05	1.9	0.32
	Orthophosphate as P, Dissolved	mg/L	11	1995-2003	0.006	0.49	0.13
	Orthophosphate as P, Total	mg/L	7	1989	0.02	0.22	0.09
	Phosphorus, Dissolved	mg/L	113	1996-2012	ND	0.37	0.02
	Phosphorus, Soluble Reactive	mg/L	17	1995-2009	0.006	0.49	0.11
	Phosphorus, Total	mg/L	219	1977-2012	ND	0.61	0.05
	Solids, suspended, volatile	mg/L	109	1989-2012	4.0	228	69
	Solids, Total Suspended (TSS)	mg/L	111	1989-2012	0.40	17	5.7
South Churchill Lake (STS)	Alkalinity	mg/L	10	2003	144	187	171
	Ammonia as N	mg/L	8	2003	0.10	0.18	0.14
	Chlorophyll a	ug/L	10	2003	ND	ND	All ND
	Dissolved oxygen (DO)	mg/L	44	2003	2.1	8.6	6.9
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	10	2003	0.34	9.7	5.0
	Nitrogen, Kjeldahl	mg/L	20	2003	1.2	1.7	1.4
	Nitrogen, Nitrate (NO3) as N	mg/L	10	2003	0.34	9.7	5.0
	Orthophosphate as P, Dissolved	mg/L	6	2003	0.006	0.03	0.02
	Phosphorus, Soluble Reactive	mg/L	6	2003	0.006	0.03	0.02
	Phosphorus, Total	mg/L	10	2003	0.05	0.13	0.09
	Solids, suspended, volatile	mg/L	10	2003	119	159	136
	Solids, Total Suspended (TSS)	mg/L	10	2003	29	60	48
Spring Lake (RGZT)	Alkalinity	mg/L	15	2002-2014	180	270	215
	Ammonia as N	mg/L	18	1974-2014	0.005	0.66	0.21
	Chlorophyll a	ug/L	5	2002	27	100	55

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Chlorophyll a, corrected for pheophytin	ug/L	5	2009	3.4	49	22
	Chlorophyll a, uncorrected for pheophytin	ug/L	10	2002-2009	3.9	100	39
	Dissolved oxygen (DO)	mg/L	86	1972-2014	0.90	16	9.1
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	50	1972-2009	ND	1.9	0.51
	Nitrogen, Kjeldahl	mg/L	16	2002-2014	0.63	4.7	1.9
	Nitrogen, Nitrate (NO3) as N	mg/L	5	2002-2014	0.05	1.1	0.44
	Orthophosphate as P, Dissolved	mg/L	5	2002	0.008	0.02	0.012
	Phosphorus, Dissolved	mg/L	5	2009	0.012	0.05	0.03
	Phosphorus, Soluble Reactive	mg/L	7	2002-2014	0.006	0.02	0.011
	Phosphorus, Total	mg/L	59	1972-2014	0.013	0.40	0.15
	Solids, suspended, volatile	mg/L	19	2002-2014	4.0	144	41
	Solids, Total Suspended (TSS)	mg/L	19	2002-2014	4.0	23	13
Summerhill Estates Lake (WTA)	Alkalinity	mg/L	10	2004-2009	92	167	141
	Ammonia as N	mg/L	1	2004	ND	ND	All ND
	Chlorophyll a	ug/L	10	2004-2009	ND	ND	All ND
	Dissolved oxygen (DO)	mg/L	31	2004	0.12	12	5.8
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	1	2004	0.15	0.15	0.15
	Nitrogen, Kjeldahl	mg/L	15	2004-2009	0.85	1.9	1.5
	Nitrogen, Nitrate (NO3) as N	mg/L	1	2004	0.15	0.15	0.15
	Orthophosphate as P, Dissolved	mg/L	4	2004	0.011	0.06	0.04
	Phosphorus, Soluble Reactive	mg/L	9	2004-2009	0.009	0.18	0.06
	Phosphorus, Total	mg/L	10	2004-2009	0.06	0.31	0.17
	Solids, suspended, volatile	mg/L	10	2004-2009	78	126	99
	Solids, Total Suspended (TSS)	mg/L	10	2004-2009	2.7	15	7.8
Turner Lake (VTZA)	Alkalinity	mg/L	20	1997-2002	177	258	209
	Ammonia as N	mg/L	12	1989-2002	0.005	1.3	0.23
	Chlorophyll a	ug/L	20	1997-2002	ND	ND	All ND
	Dissolved oxygen (DO)	mg/L	114	1989-2006	0.16	13	7.3
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	15	1989-1999	0.010	0.07	0.03
	Nitrogen, Kjeldahl	mg/L	50	1989-2002	0.57	2.1	1.5
	Nitrogen, Nitrate (NO3) as N	mg/L	4	1997	0.06	0.07	0.06
	Orthophosphate as P, Dissolved	mg/L	4	1997-2002	0.005	0.012	0.007
	Phosphorus, Dissolved	mg/L	10	1989-1999	ND	0.02	0.009
	Phosphorus, Soluble Reactive	mg/L	4	1997-2002	0.005	0.012	0.007
	Phosphorus, Total	mg/L	31	1989-2002	0.012	0.08	0.04
	Solids, suspended, volatile	mg/L	20	1997-2002	81	165	115
	Solids, Total Suspended (TSS)	mg/L	20	1997-2002	3.0	31	12
Wooster Lake (RTZH)	Alkalinity	mg/L	185	1995-2014	133	267	191
	Ammonia as N	mg/L	122	1983-2014	ND	6.3	1.6
	Chlorophyll a	ug/L	116	1989-2010	ND	81	1.1

Waterbody Name	Parameter	Units	Number of Samples	Period of Record	Min	Max	Average
	Chlorophyll a, uncorrected for pheophytin	ug/L	10	1983-1992	2.3	81	21
	Dissolved oxygen (DO)	mg/L	223	1983-2014	0.08	13	5.8
	Nitrite (NO2) + Nitrate (NO3) as N	mg/L	49	1983-2008	0.010	1.9	0.29
	Nitrogen, Kjeldahl	mg/L	261	1983-2014	0.50	8.2	2.3
	Nitrogen, Nitrate (NO3) as N	mg/L	44	1989-2013	0.05	1.9	0.33
	Nitrogen, Nitrite (NO2) as N	mg/L	5	2008	0.05	0.23	0.09
	Orthophosphate as P, Dissolved	mg/L	34	1995-2007	ND	0.69	0.25
	Orthophosphate as P, Total	mg/L	5	1989	0.010	0.33	0.08
	Phosphorus, Dissolved	mg/L	4	1983-1992	ND	0.40	0.14
	Phosphorus, Soluble Reactive	mg/L	97	1995-2014	ND	0.84	0.28
	Phosphorus, Total	mg/L	185	1983-2014	0.012	0.95	0.21
	Solids, suspended, volatile	mg/L	185	1995-2014	4.0	165	112
	Solids, Total Suspended (TSS)	mg/L	171	1995-2014	0.80	15	4.6

1.4 Methodology Overview

Table 1-4 contains information on the methodologies selected and used to develop TMDLs and LRSs for impaired segments within the Upper Fox River/Chain O' Lakes watershed.

Table 1-4 Methodologies Used to Develop TMDLs and LRSs in the Upper Fox River/Chain O' Lakes Watershed

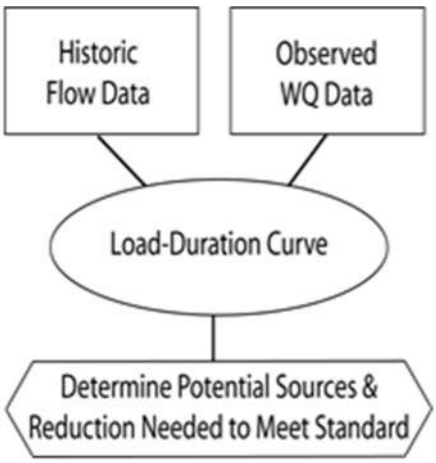
Waterbody Name (Segment ID)	Impairment	Assessment Type	Approach
Fox River (DT-35)	Sedimentation/Siltation	LRS	Load Duration Curve (for NVSS)
Antioch Lake (RTT)	**Phosphorus**	**TMDL**	Simplified Lake Analysis Model (SLAM)
	Total suspended solids (TSS)	LRS	Spreadsheet model for target reductions
Bluff Lake (VTJ)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Lake Catherine (RTD)	**Phosphorus**	**TMDL**	SLAM
Channel Lake (RTI)	**Phosphorus**	**TMDL**	SLAM
Davis Lake (STQ)	**Phosphorus**	**TMDL**	SLAM
Deep Lake (VTD)	**Fecal Coliform**	**TMDL**	Spreadsheet model for target reductions
Dunn's Lake (VTH)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Duck Lake (RTZG)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Fish-Duncan Lake (VTK)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Fischer Lake (VTT)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Fox Lake (RTF)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Grass Lake (RTQ)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions

Waterbody Name (Segment ID)	Impairment	Assessment Type	Approach
Hidden Lake (UTM)	**Phosphorus**	**TMDL**	SLAM
	Dissolved Oxygen[1]	**TMDL**	Phosphorus TMDL
	pH[1]	**TMDL**	Phosphorus TMDL
	TSS	LRS	Spreadsheet model for target reductions
Long Lake (RTJ)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Lake Marie (RTR)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
McGreal Lake (UTX)	**Phosphorus**	**TMDL**	SLAM
Nippersink Lake (RTUA)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
North Churchill Lake (STR)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Petite Lake (VTW)	**Phosphorus**	**TMDL**	SLAM
Pistakee Lake (RTU)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Redhead Lake (RTV)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Round Lake (RTH)	TSS	LRS	Spreadsheet model for target reductions
South Churchill Lake (STS)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Spring Lake (RGZT)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Summerhill Estates Lake (WTA)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Lake Tranquility (UTW)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Turner Lake (VTZA)	**Phosphorus**	**TMDL**	SLAM
	TSS	LRS	Spreadsheet model for target reductions
Wooster Lake (RTZH)	**Phosphorus**	**TMDL**	SLAM

[1] Dissolved oxygen and pH and impairment directly related to excess nutrients (total phosphorus) in the waterbody and are addressed via total phosphorus TMDLs.

1.4.1 Load-Duration Curve Overview

Loading capacity analyses were performed for the sedimentation/siltation impairment in segment DT-25 of the Fox River through the development of a load-duration curve. A load-duration curve is a graphical representation of the maximum load of a pollutant that a stream segment can assimilate over a range of flow scenarios while still meeting the instream water quality standard. The load-duration curve approach utilizes historical flow data and observed water quality data to assess the magnitude and frequency of exceedances as well as to determine the flow scenarios when exceedances occur most often (see **Schematic 1**). In the Upper Fox River/Chain O' Lakes watershed, load-duration curves were constructed for Fox River segment DT-35 for non-volatile suspended solids (NVSS), NVSS is a surrogate



Schematic 1

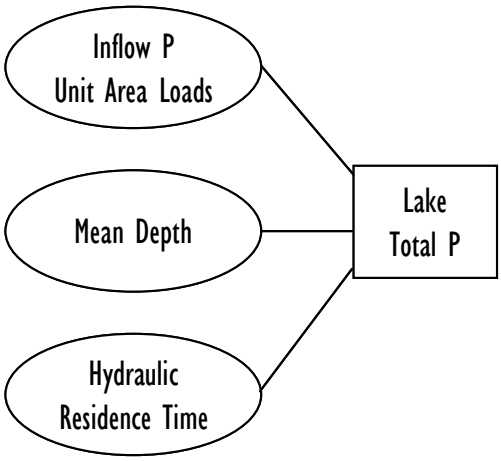
analyte related to TSS (calculated as the difference of TSS minus volatile suspended solids in paired samples) that is currently used by Illinois EPA to develop LRSs for impairments associated with high sedimentation and siltation.

1.4.2 Simplified Lake Assessment Model (SLAM) Overview

CDM Smith's SLAM was used to develop TMDLs for each of the lakes impaired by total phosphorous. SLAM was originally developed as an enhanced version of the USEPA's BATHTUB model but provides more explicit modeling of lake/sediment interactions than is available in the BATHTUB model, and has streamlined functionality and data requirements while still providing for a robust simulation of small lake nutrient and phytoplankton dynamics. SLAM requires inputs from several data sources including online databases and GIS-compatible data.

SLAM calculates lake mass and flow balances on a daily time step assuming one or more well-mixed lake zones. Each zone follows the conceptual model often referred to as a "continuously stirred tank reactor", whereby complete and immediate mixing is assumed for each zone in both the vertical and horizontal directions. This assumption makes the model particularly well suited for lakes similar to those found in the Upper Fox River/Chain O' Lakes watershed, which are generally well-mixed and can justifiably be divided into a limited number of small and/or shallow zones. The model targets the key parameters important for eutrophic lakes, including phytoplankton (as chl-a), phosphorus (P), and nitrogen (N), and can be easily modified to aid in assessment of unrelated conservative parameters such as TSS.

SLAM also includes a state-of-the-art dynamic sediment nutrient flux module. This module calculates internal nutrient loads from the sediments to the water column as a function of shallow sediment nutrient dynamics and diffusive exchanges between sediment pore water and the overlying water column. Internal nutrient loads are a key component of many eutrophic lakes, particularly small and/or shallow lakes with large catchment areas, as is the case with many of the lakes in the Upper Fox River/Chain O' Lakes watershed.



Schematic 2

Oxygen conditions in the model are simulated as meta- and hypolimnetic depletion rates, rather than explicit concentrations. Watershed loadings to the lakes were estimated using event mean concentration data, precipitation data, and estimated runoff flows within the watershed. **Schematic 2** outlines the basic data inputs for SLAM used to calculate the TMDLs. Subbasin flows were estimated using the area ratio method, and phosphorus loadings to each lake from the surrounding watersheds were estimated using the unit area load method, also known as the "export coefficient" method (USEPA 2001). This method is based on the assumption that, on an annual basis and normalized to area, a roughly constant runoff pollutant loading can be expected for a given land use type. This method also requires that unit area loads are not applied to watersheds that differ greatly in climate, hydrology, soils, or ecology from those from which the parameters were derived (USGS 1997).

SLAM is particularly well suited for use in this watershed study as each model can simulate the interaction between up to five distinct model zones simultaneously, allowing for several of the interconnected lakes in the Chain O' Lakes system to be modeled together in a single model. The daily timestep basis of model inputs and outputs is conducive to linking multiple models together to allow for a more direct simulation of the overall Chain O' Lakes system than would be possible using outputs derived on an average annual basis, as is the case with other lake eutrophication models often used for TMDL calculations. Where practicable, multiple impaired lakes are combined into a single model for these TMDL calculations and are discussed as a group in Sections 1 and 2 of this report. In all cases, model outputs for lakes upstream of downstream models are sequentially integrated into the downstream model to more accurately reflect the impacts of in-lake processes on water quality and particularly phosphorus loads being carried downstream.

1.4.3 TMDL Development Overview for Fecal Coliform in Deep Lake

A simplified spreadsheet approach was used to calculate the reduction in fecal coliform loading into Deep Lake required to meet the water quality standard. The calculations utilize the target value, watershed flow estimates, relative lake watershed proportions, and measured in-lake fecal coliform concentrations to calculate the current daily load of fecal coliform into the lake (million colonies/day), the target load (million colonies/day), and the percent reduction needed to meet the TMDL target.

1.4.4 LRS Overview for TSS in Lakes

A simple spreadsheet approach was used to calculate the reductions in TSS loading into each TSS-impaired lake required to meet the watershed-specific target value established by Illinois EPA. LRS targets are based on data from all stream segments or lakes within the HUC-10 basins of the watershed, as well as stream segments or lakes which closely border the watershed in neighboring HUC-10 basins, in order to best represent the land use, hydrologic, and geologic conditions unique to the watershed. Load reduction targets were calculated by Illinois EPA using data from stream/lake segments whose most current assessment shows full support for aquatic life and data that has passed quality assurance and quality checks within Illinois EPA and are in accordance with state and federal laws.

The calculations utilize the target value, watershed flow estimates, relative lake watershed proportions, and measured in-lake TSS concentrations to calculate the current daily load of TSS into each lake (lbs/day), the target loads (lbs/day), and the percent reductions needed in order to meet the LRS target. This simplified approach is appropriate for LRS development as it does not require the explicit assessment of waste load allocation (WLA) and load allocation (LA).

1.5 Methodology Development

The following sections further discuss and describe the methodologies utilized to examine sedimentation/siltation issues in the Fox River (segment DT-35) as well as total phosphorous, TSS, dissolved oxygen (DO), and fecal coliform impairments in lakes within the Upper Fox River/Chain O' Lakes watershed.

Data to support LRS development were not compiled during Stage 1; however, as part of the Stage 3 evaluation, CDM Smith reviewed the Stage 1 datasets and queried the available Illinois

EPA and Lake County Health Department databases to obtain additional data, as available, for several parameters, including TSS and data needed to support calculations of NVSS concentrations. All water quality data queried during TMDL development are summarized in Section 1.3.

1.5.1 Load Duration Curves

Load duration curves are used for assessment and comparison of the range of loads allowable throughout the flow regime of a stream. This approach was used to characterize the current loading of NVSS to address the sedimentation/siltation impairment at segment DT-35 of Fox River.

1.5.1.1 Watershed Delineation and Flow Estimation

Watersheds contributing directly to the impaired stream segment were delineated during Stage 1 and updated/revised as needed during Stage 3. The watershed delineations result in the following estimate of directly contributing watershed area used for the impaired segment's load duration curve development:

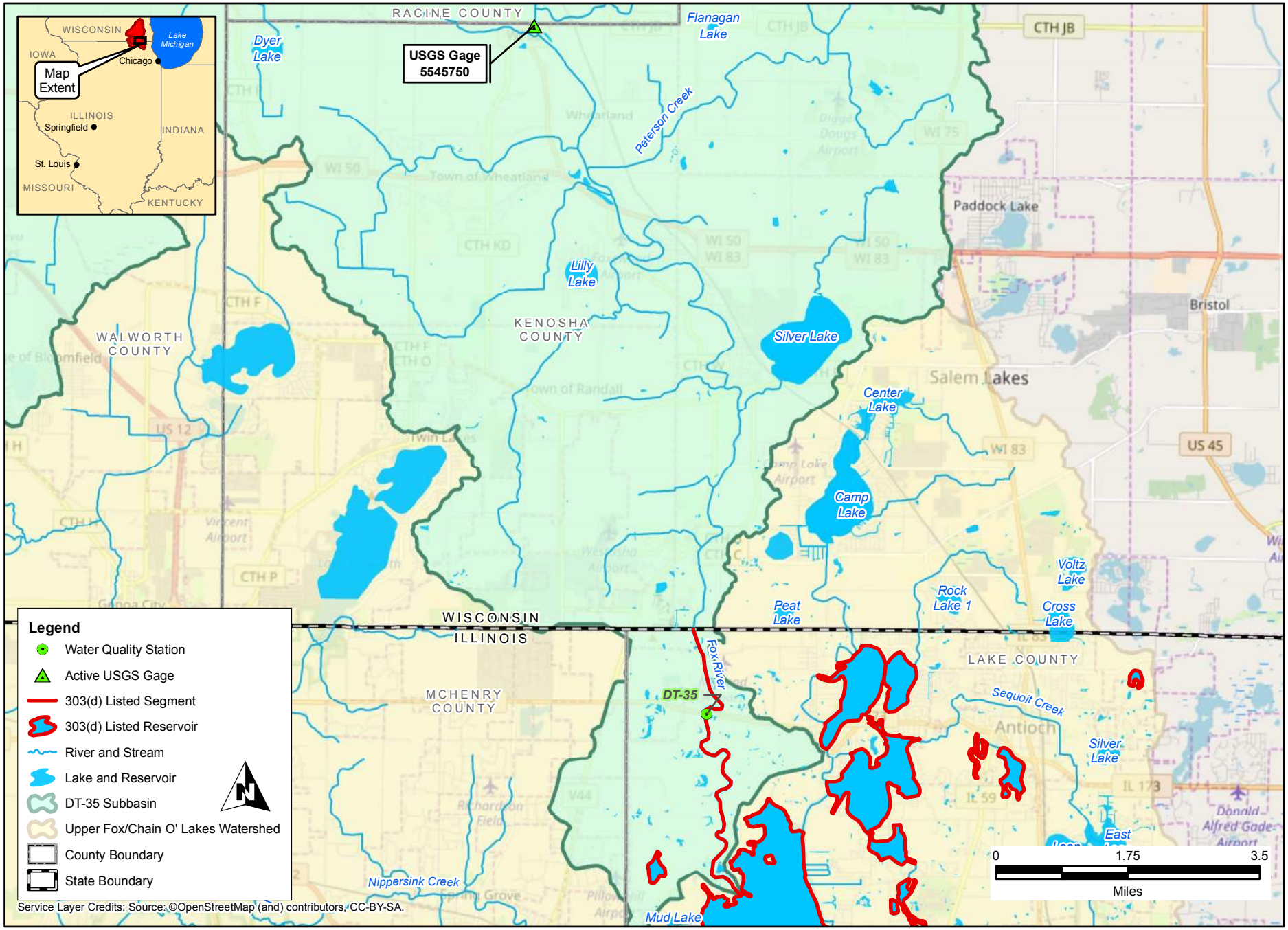
- Fox River at downstream extent of DT-35 Segment: 940 square miles in total (6.1 square miles within Illinois)
- Fox River at water quality sampling station DT-35: 846 square miles

Figure 1-2 shows the location of the water quality stations on the segment, as well as the boundary of the GIS-delineated watersheds.

In order to create a load duration curve, it is necessary to obtain flow data corresponding to each water quality sample. As discussed in Section 2.7 of the Stage 1 report, there are eight USGS stream gages within the Illinois portion of the watershed, five of which have stream flow (or discharge) information; however, data from only three of them (Nippersink Creek [USGS 05548280], Squaw Creek [05547755], and Grass Lake [USGS 05547350]) were summarized in the Stage 1 report. Data from the other two gages were not summarized; however, both are upstream of one of the summarized gages (the Nippersink Creek gage).

To support load duration curve development, flow data from USGS Gage 05545750 (Fox River near New Munster, WI) were used to establish a flow duration curve for segment DT-35 of the Fox River. This gage is located within the Wisconsin portion of the watershed, approximately 9 miles upstream of segment DT-35. In addition, USGS gage 5527950 (Mill Creek at Old Mill Creek, IL), while located in a neighboring subbasin, served as a viable additional data source for some analyses as it is very similar in watershed area, land uses, and degree of development to many of the subbasins in the Fox River/Chain O' Lakes watershed.

USGS Gage 05545750 (Fox River near New Munster, WI) was used to establish a flow duration curve for segment DT-35 of the Fox River using the drainage area ratio method represented by the following equation:



Upper Fox/Chain O' Lakes

Fox River (DT-35) Water Quality and Gaging Stations

CDM Smith

FIGURE 1-2

$$Q_{gauged}\left(\frac{Area_{ungauged}}{Area_{gauged}}\right)=Q_{ungauged}$$

where Q_{gaged} = Streamflow of the gaged basin

$Q_{ungaged}$ = Streamflow of the ungaged basin

$Area_{gaged}$ = Area of the gaged basin

$Area_{ungaged}$ = Area of the ungaged basin

The assumption behind the equation is that the flow per unit area is equivalent in watersheds with similar characteristics. Therefore, the flow per unit area in the gaged watershed multiplied by the area of the ungaged watershed estimates the flow for the ungaged watershed.

Data downloaded through the USGS for the surrogate gages used in the load duration curve, as well as various lake analyses, were adjusted to account for point source influences in the watershed upstream of the gauging stations. Average daily flows from all National Pollutant Discharge Elimination System (NPDES) permitted facilities upstream of the surrogate USGS gages were subtracted from the gaged flow prior to flow-per unit-area calculations. The resulting estimates account for flows associated with precipitation and overland runoff only. Average daily flows from permitted NPDES discharges upstream of the impaired segments in the Upper Fox River/Chain O' Lakes watershed were then added back into the equation to more accurately reflect estimated daily streamflow conditions in a given segment.

1.5.1.2 Sedimentation/Siltation LRS: Fox River Segment DT-35

A load duration curve was developed for the sedimentation/siltation impairment in Fox River segment DT-35. Numeric standards do not exist for sedimentation/siltation impairments in streams, so the watershed-specific LRS target value provided by Illinois EPA of 13.6 mg/L of non-volatile suspended solids (NVSS) was used to develop the load duration curve for the impairment. NVSS data were paired with the corresponding flow for the sampling dates and plotted against the load duration curve as shown in **Figure 1-3**.

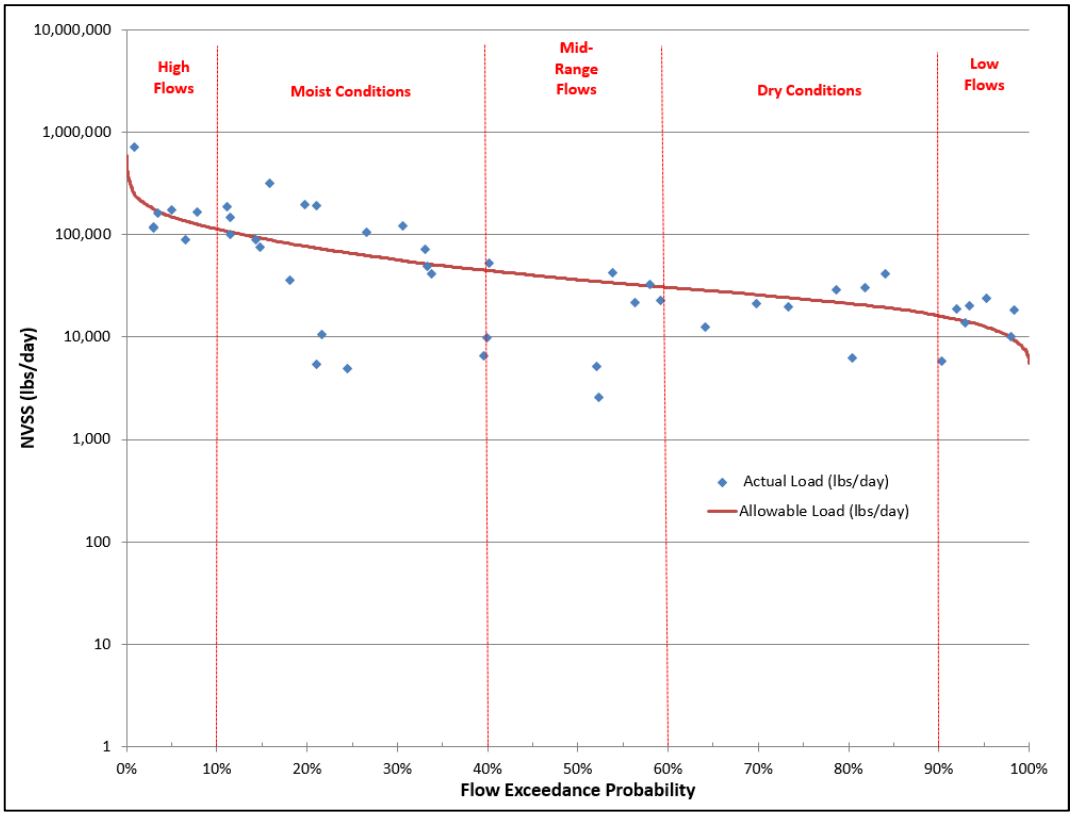


Figure 1-3. NVSS Load Duration Curve for the Fox River Segment DT-35

Twenty-two of the 51 NVSS samples collected from Fox River segment DT-35 exceed the LRS target value. Plotting the available sample data against the load duration curve shows that exceedances of the target value occurred during all flow categories. NVSS data collected during the Stage 3 evaluation are provided in Section 1.3. **Appendix B** contains spreadsheets used for the calculation of the load duration curve.

1.5.2 SLAM Development for Lake Impairments Caused by Total Phosphorus

As shown in **Table 1-1**, 26 of the 28 impaired lakes in the Upper Fox River/Chain O' Lakes watershed are listed as being impaired by total phosphorus. One of these lakes, Hidden Lake, is also impaired for DO and pH. As discussed in Section 7.1 of the Stage 1 Report, a well-established link exists between increased algal productivity from excess nutrients like phosphorus, and decreased DO concentrations as well as elevated pH in lakes and reservoirs. Excess loading of nutrients to lakes and reservoirs provides food to aquatic plants and algae. As these plants and algae decompose, they consume oxygen which depletes concentrations in the lake. Additionally, as the plants and algae grow, they consume carbon dioxide (CO_2), which would otherwise dissolve into carbonic acid; thus, plant and algae growth contributes to increased pH (decreased acidity). As a result, reductions in total phosphorus needed to meet the water quality standard will likely result in reductions in nuisance algae growth, which would likely address the impairment caused by low DO concentrations and high pH in Hidden Lake. The TMDL target for total phosphorus is 0.05 mg/L.

Historically, the U.S. Army Corps of Engineers (USACE) BATHTUB model (Walker 1996) has been the primary model used for assessment of nutrient (total phosphorus, ammonia) and nutrient-related impairments (chlorophyll a, pH, DO). However, the BATHTUB model is no longer the most efficient approach to developing these TMDLs as it does not provide explicit modeling of the major lake and sediment interactions that are important drivers of nutrient issues in each of the relatively small and shallow lakes impaired for total phosphorus in the Upper Fox River/Chain O' Lakes watershed. The BATHTUB model also relies on a dated platform that is less user friendly than other options and is primarily setup to model nutrient fate and transport on an annual basis. Modeling on an annual basis can lead to additional error and uncertainty when calibrating than one may typically see in models focusing on daily or even monthly time-steps.

As an alternative to BATHTUB, CDM Smith's SLAM was used to develop TMDLs for total phosphorus impairments in these lakes. The SLAM relies on the following primary inputs:

- Model segmentation: number of geographically distinct segments of a reservoir to be modeled, flow direction, and an estimate of longitudinal dispersion between segments
- Lake morphology and hydraulics: surface area, average and maximum depth, volume, inflows, mixing lengths, thermal stratification
- Watershed inflows: estimated runoff and point source discharges into the reservoir's watershed, average annual phosphorus load to each segment as a function of land use using runoff coefficients and point source data
- In-lake nutrients: initial nutrient concentrations in the lake; estimates of settling velocity nutrient uptake; and burial fractions. Seasonality factors may be included to account for expected variations in settling velocity and nutrient uptake over time.
- Sediment layer dynamics: sediment characteristics used for calculating nutrient fluxes, or seasonally prescribed nutrient fluxes can be used.

The individual values input into each of the above portions of the model interface are described in the following sections along with watershed and operational information for each of the impaired lakes.

Up to five distinct lake segments or model zones can be defined in SLAM. Each zone is treated as a well-mixed module within the model and zones are connected via advection and/or diffusion. Concentration outputs are generated for each zone. Lake hydraulic parameter inputs are required for each zone. In addition to defining the number of lake segments, or zones, to be modeled, the model segmentation screen is used to specify the lateral or longitudinal diffusion coefficient used to provide an estimate of mixing between zones. A recommended range of longitudinal dispersion coefficients for mixing between zones is 1,000 – 1,000,000 square feet per day, based on literature values. Model segmentation, or zones, are discussed for each model in the following sections.

A total of 23 separate models were developed as part of this TMDL analysis. With the exception of six lakes, all of the phosphorus-impaired lakes were modeled individually (only one lake corresponding to each SLAM) with any immediately upstream lakes incorporated as inflows

rather than interacting model zones. Alternatively, three models were developed to address the other six lakes (two lakes corresponding to each SLAM) and each lake was modeled as its own zone or zones within the model. The lake pairings in these models are Lake Catherine with Channel Lake, Fox Lake with Nippersink Lake, and North Churchill Lake with South Churchill Lake. These lakes were paired as a result of their direct connectivity to each other and interactive lake hydraulics.

In order for the interconnectivity between lakes to be accounted for in the SLAM development, models were developed in sequence from upstream to downstream lakes. The daily flow and phosphorus load outputs from calibrated models for lakes immediately upstream of other modeled lakes were input directly into the downstream lake models. This creates a cascading set of models that allows for the influence of lakes within a modeled subbasin to be directly accounted for in runoff and inflow calculations. The relationship between direct model inputs and outputs of adjacent lakes are summarized below in **Table 1-5** and discussed further in their respective SLAM discussions below.

Table 1-5: Summary of inter-lake inputs incorporated in SLAM development in the Upper Fox River/Chain O' Lakes Watershed

Waterbody Grouping within Discrete Models	Upstream Contributing Lake(s)	Downstream Receiving Lake(s)
Antioch Lake	-	Lake Tranquility
Bluff Lake	Lake Marie	Spring Lake
Lake Catherine and Channel Lake	-	Lake Marie
Davis Lake	-	-
Duck Lake	Wooster Lake	Fox Lake
Dunn's Lake	-	Nippersink Lake
Fischer Lake	Fish-Duncan Lake	Wooster Lake
Fish-Duncan Lake	-	Fischer Lake
Fox Lake and Nippersink Lake	Grass Lake, Petite Lake, Duck Lake, Dunn's Lake, Long Lake	Pistakee Lake
Grass Lake	Lake Marie	Nippersink Lake; Fox Lake
Hidden Lake	-	-
Long Lake	-	Fox Lake
Lake Marie	Lake Catherine and Channel Lake, Lake Tranquility	Grass Lake; Bluff Lake
McGreal Lake	-	-
North and South Churchill Lake	-	-
Petite Lake	Spring Lake	Fox Lake
Pistakee Lake	Nippersink Lake, Redhead Lake	-
Redhead Lake	-	Pistakee Lake
Spring Lake	Bluff Lake	Petite Lake
Summerhill Estates Lake	-	-
Lake Tranquility	Antioch Lake	Lake Marie
Turner Lake	-	-
Wooster Lake	Fischer Lake	Duck Lake

1.5.2.1 SLAM Development for Antioch Lake

Antioch Lake is an 89-acre reservoir located in Antioch Township, near the Village of Antioch, in Lake County, Illinois. The lake is primarily used for recreation, including boating, fishing, and swimming, and is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.1.1 Model Segmentation

Given the available data and relatively small size of Antioch Lake, a single model zone was defined for this waterbody in SLAM. The sampling location and watershed boundary are shown on **Figure 1-4.**

1.5.2.1.2 Lake Hydraulics

Lake hydraulics are defined in SLAM via either internal calculation or user prescription. Data needs for internal calculations of lake hydraulics are somewhat greater as the model performs dynamic water balance calculations of lake volumes at each time-step based on user-defined or calculated inflows, outflows, and evaporative losses. Corresponding lake depths, surface areas, and releases are calculated as a function of user-defined bathymetry tables. For the prescribed hydraulics option, users specify monthly-variable lake volumes, areas, and depths. Hydraulics are assumed static within a month and lake outflows are set equal to total lake inflows at each time-step. Evaporative losses are not explicitly included in the calculations but rather should be implicitly reflected in the prescribed volumes.

Due to data availability and the mostly static nature of Antioch Lake, prescribed lake hydraulics were used in this model setup, and included total lake volumes by month. The surface area, volume, and depth inputs were derived from the 2015 Summary Report for Antioch Lake (Lake County 2015a). These values were input into the model as static measures without seasonal variation as there is little evidence of significant and consistent water surface elevation fluctuation over the course of a year in Antioch Lake. Surface areas were verified using GIS. A summary of these inputs is shown below in **Table 1-6**.

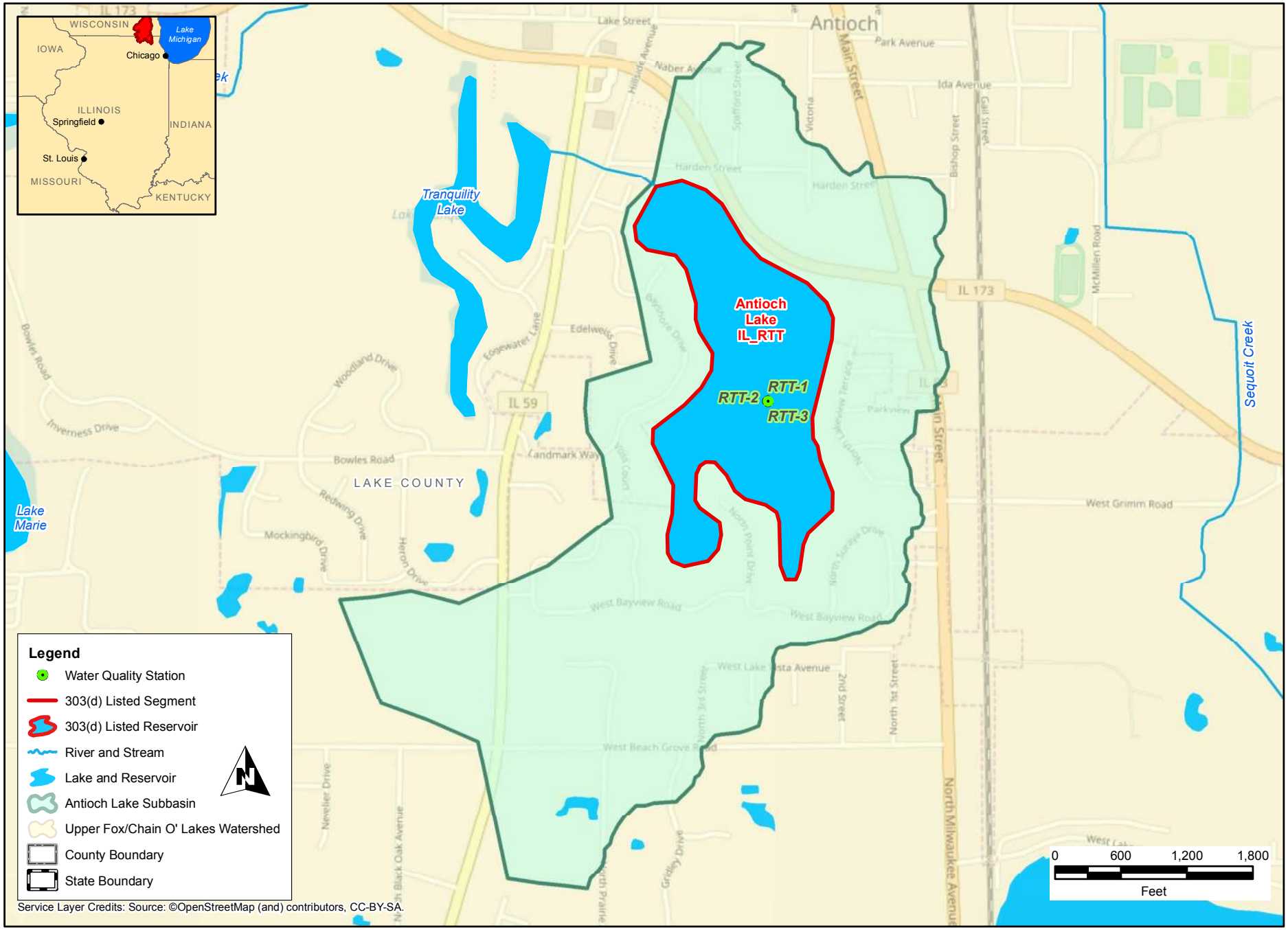
Table 1-6 Antioch Lake (RTT) Lake Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RTT	None	89	100%	468	5.3	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.1.3 Watershed Parameters

Watershed parameters input into SLAM are associated with flows and pollutant loads entering the lake from the watershed. Watershed sources simulated in the model include storm runoff events, dry weather baseflow, and, if applicable, supplemental water. Flows and loads can either be internally calculated or prescribed by the user. Internally calculated flows and loads are calculated in the model as a combination of wet weather runoff and dry weather baseflow. Runoff is calculated as a function of user defined daily precipitation, runoff coefficients, and total drainage area. Alternatively, monthly flows and nutrient loads entering the lake from the watershed can be prescribed by the user as a daily time-series. For lake models with multiple



Service Layer Credits: Source: ©OpenStreetMap (and) contributors, CC-BY-SA.

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Upper Fox/Chain O' Lakes
Antioch Lake Subbasin

FIGURE 1-4

zones, zone distribution percentages must be specified by the user. These percentages define how much of the total lake nutrient load (calculated or prescribed) enters the lake at a given zone. Estimates of the particulate fractions associated with prescribed total phosphorus concentrations are also required inputs into the model and are derived from site specific total and dissolved phosphorus data, as available.

Watershed inputs to SLAM for the Antioch Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (coefficients provided in **Appendix C**). This document provides an extensive list of phosphorus export coefficients for various land uses in several regions of the country compiled from a number of sources in the literature. The export coefficients for each land use are reported in pounds/acre/year, which can then be multiplied by the number of acres of each land use in the Antioch Lake subbasin to provide a median annual phosphorus load into the reservoir and each segment. Land use characteristics and areas for each subbasin are provided in **Appendix E**. The total phosphorus load into Antioch Lake is estimated to be approximately 193 pounds/year (lbs/yr) based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-7.**

Phosphorus loads from point source discharges can be explicitly included as supplemental water in the watershed inputs to SLAM. The supplemental water input allows the user to input average monthly discharge and monthly average phosphorus concentrations in the discharge along with the fraction of the load as particulate phosphorus. In the case of Antioch Lake, there are no point source discharges currently discharging to the lake or to the watershed upstream of the lake.

Table 1-7 Antioch Lake Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Annual External Phosphorus Load (lbs)
Antioch Lake	RTT	442	193

1.5.2.1.4 Lake Nutrient Parameters

Lake nutrient parameters support the simulation of lake water column nutrient dynamics and include nutrient uptake kinetic and settling rates and lake water quality initial conditions. Uptake kinetics are defined by first order rate constants, applied to dissolved nutrients only. These rate constants represent the transformation of dissolved nutrient into organic particulate fraction via phytoplankton uptake.

Uptake kinetics and settling rates can be specified as steady annual rates or as monthly-variable rates. Seasonality in rates might represent, for example, changes in phytoplankton uptake with growing season or differences between particulate nutrient composition in summer (phytoplankton-based organic nutrients) vs. winter (sediment-bound runoff load). Due to limited

availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Antioch Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data (all depths, all seasons) collected from Antioch Lake (0.093 mg/L).

1.5.2.1.5 Sediment Layer Parameters

SLAM allows for user inputs of monthly sediment nutrient fluxes, quantifying the movement of phosphorus from the shallow sediments to the water column or vice versa. Areal flux rates ($mg/m^2/day$) can be entered as positive values for fluxes from sediments to the water column and negative values for exchanges in the opposite direction. Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Antioch Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal load of phosphorus is estimated to be approximately 335 lbs/year.

1.5.2.1.6 SLAM Confirmatory Analysis

Historical water quality data for Antioch Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Antioch Lake included measurements only between the months of May and September for most years, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Antioch Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data, as in-lake loads from sediment resuspension and cycling are not accounted for. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling and resuspension from bottom sediments. Because much of the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO levels recorded at depths in the deepest areas of the lake suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-8**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-8 Summary of Model Confirmatory Analysis – Antioch Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Site	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
RTT	0.093	0.088	5.5%

1.5.2.2 SLAM Development for Bluff Lake

Bluff Lake is a 100-acre reservoir located in in Antioch Township, near the Village of Antioch, in Lake County, Illinois. Bluff Lake receives water from Lake Marie, which is discussed in **Section 1.5.2.13**, and then flows to Spring Lake, which is discussed in **Section 1.5.2.19**. The lake is primarily used for recreation, including boating, fishing, swimming, as well as aesthetics, and is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.2.1 Model Segmentation

The SLAM for Bluff Lake was developed to include one model zone, or lake segment (VTJ). The sampling location and watershed boundary for Bluff Lake are shown on **Figure 1-5**.

1.5.2.2.2 Lake Hydraulics

The Bluff Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Bluff Lake were estimated on an annual basis as the fluctuation in water surface elevations are relatively minor (approximately 5 inches) in this lake over the course of a year (Lake County 2014a). Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data collected by Lake County (Lake County 2014a). A summary of these inputs is shown below in **Table 1-9**.

Table 1-9 Bluff Lake (VTJ) Hydraulics Data

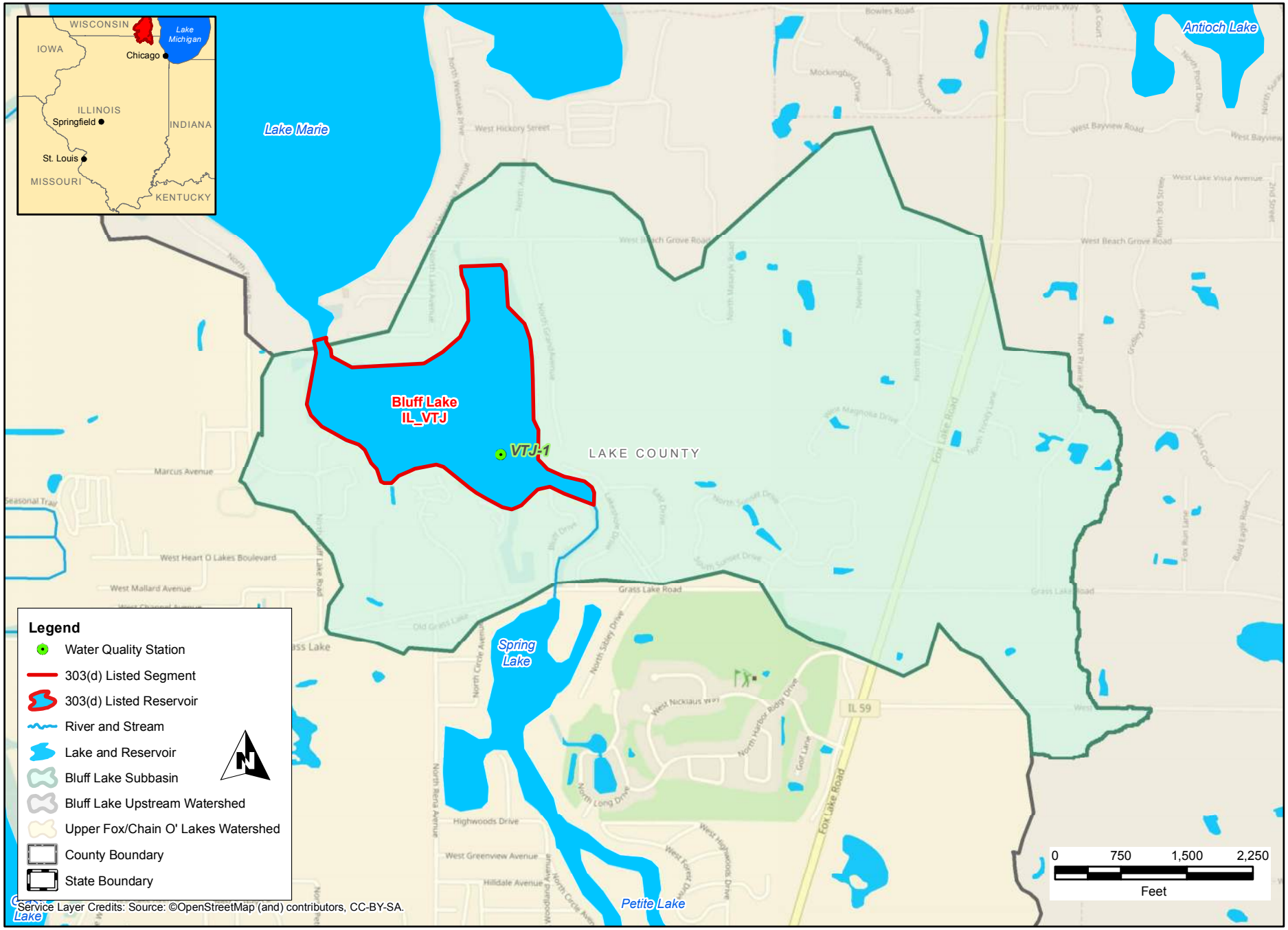
Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
VTJ	None	100.3	100%	1,341	10.5	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.2.3 Watershed Parameters

Watershed inputs to SLAM for the Bluff Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1** for the Bluff Lake 693-acre subbasin, which excludes the watershed area flowing first into Lake Marie. Additionally, Bluff Lake receives flows from the upstream Lake Marie (discussed further in **Section 1.5.2.1**3) and daily outflow rates from the Lake Marie model outputs were added to the daily overland flow estimates prior to input into the Bluff Lake model.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (see **Appendix D**). The total phosphorus load from direct overland runoff into Bluff Lake is estimated to be approximately 313.1 lbs/year based on flow and land use characteristics. Based on calibrated SLAM outputs for the upstream lake, Lake Marie outflows contribute approximately 2,201 lbs/yr of phosphorus to Bluff Lake. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to



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Upper Fox/Chain O' Lakes
Bluff Lake Subbasin

FIGURE 1-5

estimate the daily phosphorus loads into the reservoir as a function of overland flow. The daily phosphorus concentration estimates from the Lake Marie SLAM output was added to the daily load from direct overland flow to estimate the total daily phosphorus load into Bluff Lake. The estimated phosphorus loads as a function of land use characteristics and upstream contributing lake modeled outflows are provided in **Table 1-10.**

Phosphorus loads from point source discharges can be explicitly included as supplemental water in the watershed inputs to the SLAM. The supplemental water input allows the user to input average monthly discharge and monthly average phosphorus concentrations in the discharge along with the fraction of the load as particulate phosphorus. In the case of Bluff Lake, there are no point sources discharging to the lake or to the watershed upstream of the lake, excluding the aforementioned Lake Marie outflows.

Table 1-10 Bluff Lake Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Total Annual External Phosphorus Load (lbs)
Bluff Lake	VTJ	693	313	2,201	2,514

[1] The presented phosphorus load reflects the incorporation of Lake Marie SLAM outflows.

1.5.2.2.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were initially set to values within the model-default ranges derived from literature for the SLAM developed for Bluff Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Bluff Lake (0.091mg/L).

1.5.2.2.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Bluff Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification, sediment resuspension, and mixing on a monthly average basis. The total annual internal phosphorus load in Bluff Lake is estimated to be approximately 495 lbs/year.

1.5.2.2.6 SLAM Confirmatory Analysis

Historical water quality data for Bluff Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Bluff Lake included measurements only between the months of May and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, as well as more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Bluff Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data and more realistically reflect in-lake nutrient dynamics, the internal loading rates were adjusted on a seasonal (monthly) basis. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is

relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO levels recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. Monthly nutrient uptake rates were also adjusted to reflect nutrient uptake during seasonal algae and macrophyte growth periods.

As can be seen in **Table 1-11**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-11 Summary of Model Confirmatory Analysis – Bluff Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
VTJ	0.091	0.098	7.5

1.5.2.3 SLAM Development for Lake Catherine and Channel Lake

Lake Catherine (147.3 acres) and Channel Lake (341.7 acres) are adjacent glacially formed lakes within the Chain O' Lakes system in Lake County, Illinois. These lakes are primarily used for recreation, including boating, fishing, and swimming, and are listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

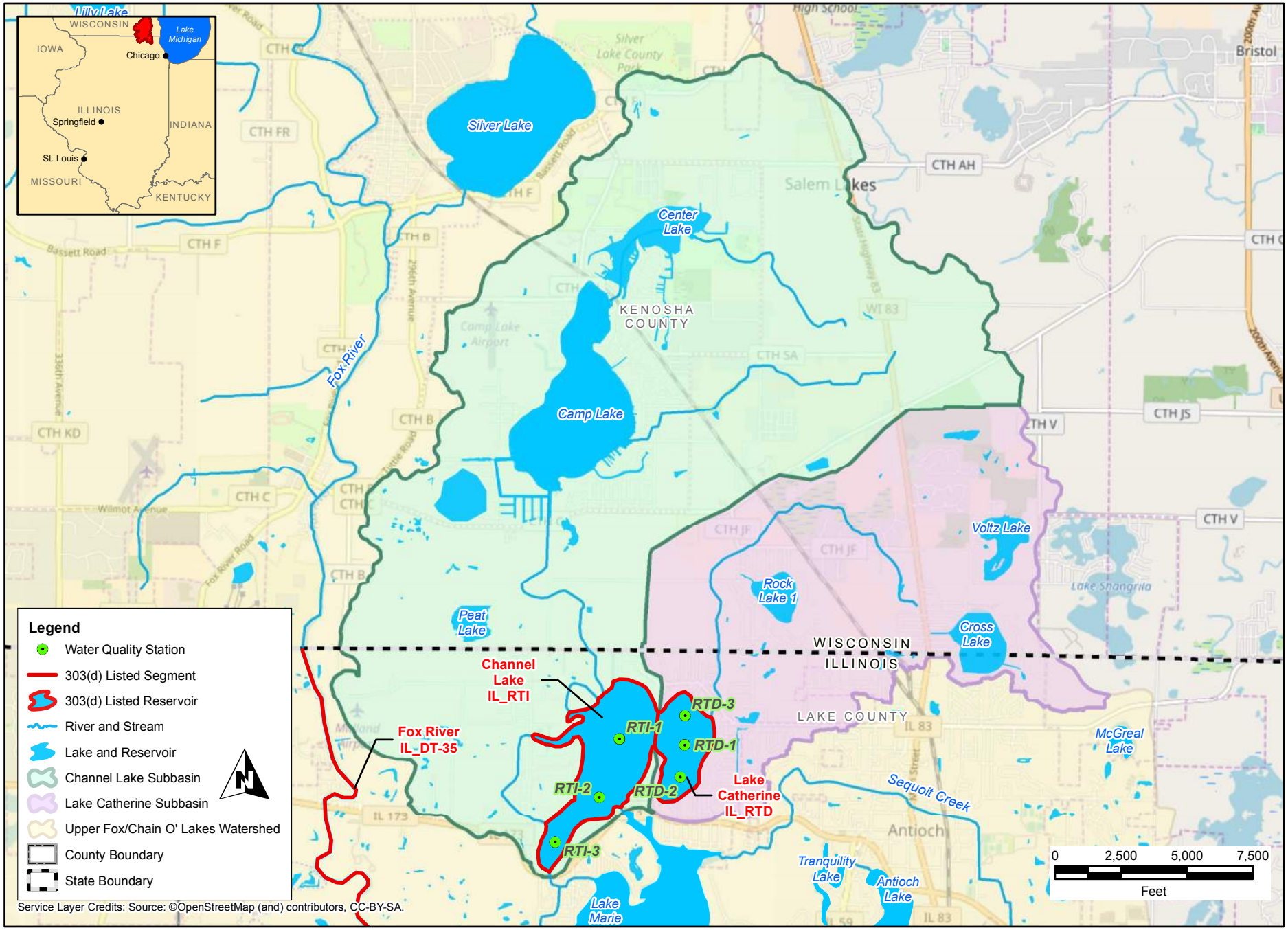
1.5.2.3.1 Model Segmentation

Due to the large degree of interconnectivity between these adjacent lakes, a single SLAM was developed for the Lake Catherine and Channel Lake system. The model was developed to include two model zones, or lake segments, corresponding to each lake (RTD and RTI, respectively). Flow within the lakes generally moves west, from Lake Catherine (RTD) to Channel Lake (RTI). The segment boundaries for these zones are shown on **Figure 1-6.** The estimated longitudinal dispersion rate was set at 300,000 ft^2/day.

1.5.2.3.2 Lake Hydraulics

Due to data availability and the mostly static nature of water levels in the Lake Catherine and Channel Lake system, prescribed lake hydraulics were used in this model setup. Hydraulic parameters were specified for the entire lake system as a whole, and for each of the individual zones. Total lake volumes by month and estimates of each zone's sub-volume were entered into the respective zone input tabs. The downstream zone was also specified for each zone based on morphology of the system and effectively define the system's flow path.

The surface area, volumes, and depths of each of the model segments within the system were estimated on an annual basis as there is little evidence of significant and consistent water elevation fluctuation over the course of a year. Segment lengths, interface widths, and surface areas were determined in GIS. Lake depths and volumes were estimated from available sampling and bathymetric data (Lake County 2014b and 2014c). A summary of these inputs is shown below in **Table 1-12**.



Upper Fox/Chain O' Lakes
Lake Catherine and Channel Lake Subbasins

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FIGURE 1-6

Table 1-12 Lake Catherine (RTD) and Channel Lake (RTI) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
Zone 1: RTD	RTI	147	30%	2,881	16.7	3,000	1,300
Zone 2: RTI	None	342	70%	4,895	14.5	8,200	135
Lake Total		**489**	**100%**	**7,776**	**15.6**		

1.5.2.3.3 Watershed Parameters

Watershed inputs to SLAM for the Lake Catherine and Channel Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in each of the lake's subbasins to provide a median annual phosphorus load into the overall lake and to each segment (**Appendix D**). The total phosphorus load from runoff into the Lake Catherine and Channel Lake system is estimated to be approximately 5,290 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics in each lake segment's overland subbasin and the relative percent of the total load is provided in **Table 1-13.**

No NPDES-permitted point sources currently discharge to Lake Catherine and Channel Lake system or watershed immediately upgradient of the lakes.

Table 1-13 Lake Catherine (RTD) and Channel Lake (RTI) Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Annual Phosphorus Load (lbs)	Percent of Phosphorus Load (%)
Lake Catherine	Zone 1 (RTD)	3,619	1,422	27%
Channel Lake	Zone 2 (RTI)	8,805	3,868	73%
	TOTAL	**12,424**	**5,290**	**100%**

1.5.2.3.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Lake Catherine and Channel Lake. The initial model water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from the lake system (0.050 mg/L).

1.5.2.3.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Lake Catherine and Channel Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus loads are estimated to be approximately 484 and 1,023 lbs/year for Lake Catherine and Channel Lake, respectively.

1.5.2.3.6 SLAM Confirmatory Analysis

Historical water quality data for Lake Catherine and Channel Lake were used to help calibrate the model and confirm model calculations. As the data inventory for both lakes included measurements only between the months of May and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Lake Catherine and Channel Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, and better reflect the nutrient dynamics in a system like this, the internal loading rates were adjusted on a seasonal (monthly) basis. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lakes are both relatively shallow and have relatively high concentrations of suspended sediment; wind, precipitation, and recreational uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO levels recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-14**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-14 Summary of Model Confirmatory Analysis – Lake Catherine and Channel Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

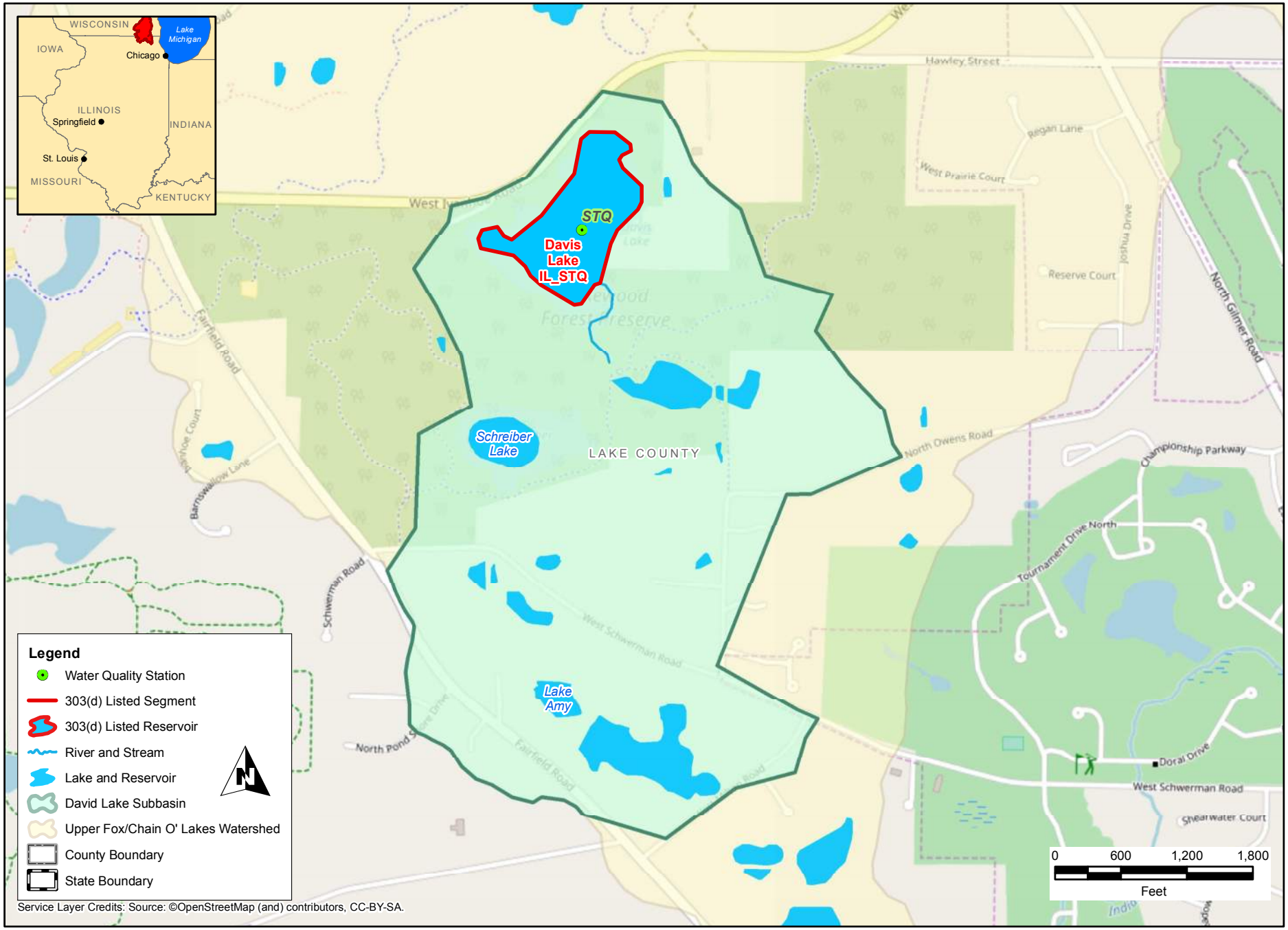
Site	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
Zone 1: RTD	0.043	0.045	4.1%
Zone 2: RTI	0.056	0.058	3.5%
Average	0.050	0.052	3.8%

1.5.2.4 SLAM Development for Davis Lake

Davis Lake is a 36-acre reservoir located in Lake County, Illinois. The lake is primarily used for aesthetics and is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.4.1 Model Segmentation

The SLAM for Davis Lake was developed to include one model zone, or lake segment (STQ). The sampling location and watershed boundary for Davis Lake are shown on **Figure 1-7**.



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Upper Fox/Chain O' Lakes
Davis Lake Subbasin

FIGURE 1-7

1.5.2.4.2 Lake Hydraulics

The Davis Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Davis Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2009a). A summary of these inputs is shown below in **Table 1-15**.

Table 1-15 Davis Lake (STQ) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
STQ	None	35.9	100%	323	9.0	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.4.3 Watershed Parameters

Watershed inputs to SLAM for the Davis Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Davis Lake is estimated to be approximately 87 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-16.**

There are currently no NPDES-permitted point sources discharging to the lake or to the watershed upstream of the lake.

Table 1-16 Davis Lake Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Total Annual External Phosphorus Load (lbs)
Davis Lake	STQ	442	87

1.5.2.4.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Davis Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for available data collected from Davis Lake (0.296 mg/L).

1.5.2.4.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Davis Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and physical mixing on a monthly average basis. The total annual internal phosphorus load in Davis Lake is estimated to be approximately 655 lbs/year.

1.5.2.4.6 SLAM Confirmatory Analysis

Historical water quality data for Davis Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Davis Lake included measurements only between the months of May and September, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, as well as more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Davis Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-17**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved considering the relatively limited dataset available for this lake, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-17 Summary of Model Confirmatory Analysis – Davis Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

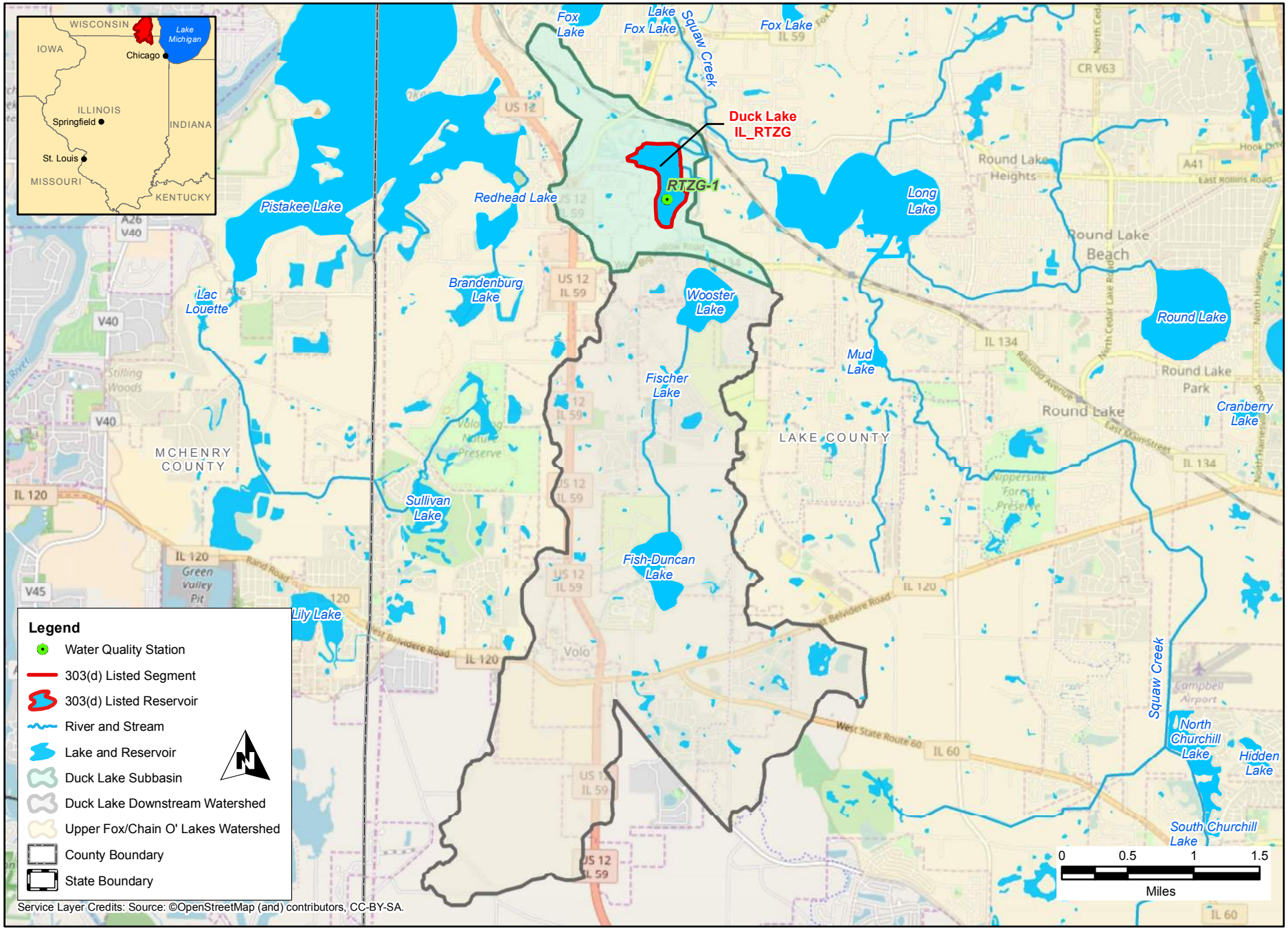
Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
STQ	0.296	0.324	9.03

1.5.2.5 SLAM Development for Duck Lake

Duck Lake is a 110-acre natural slough pothole lake located in Lake County, Illinois, near the Village of Fox Lake. Duck Lake receives water from Wooster Lake, which is discussed in **Section 1.5.2.23**, and then flows to Fox Lake, which is discussed in **Section 1.5.2.9**. The lake is primarily used for recreation, including fishing, boating, and swimming, and it is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.5.1 Model Segmentation

The SLAM for Duck Lake was developed to include one model zone, or lake segment (RTZG). The sampling location and watershed boundary for Duck Lake are shown on **Figure 1-8**.



CDM Smith

Upper Fox/Chain O' Lakes
Duck Lake Subbasin

FIGURE 1-8

1.5.2.5.2 Lake Hydraulics

The Duck Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Duck Lake were estimated on an annual basis as there is no evidence to support modeling water elevation fluctuation over the course of a year. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2016a). A summary of these inputs is shown below in **Table 1-18**.

Table 1-18 Duck Lake (RTZG) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RTZG	None	110	100%	497	4.5	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.5.3 Watershed Parameters

Watershed inputs to SLAM for the Duck Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated using modeled outputs from upstream lakes and by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Duck Lake is estimated to be approximately 284 lbs/year based on flow and land use characteristics. Additionally, Duck Lake receives flows from the upstream Wooster Lake, which is discussed further in **Section 1.5.2.23**. Based on calibrated SLAM outputs for the upstream lake, Wooster Lake outflows contribute approximately 881 lbs/yr to Duck Lake. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates and added to the modeled daily upstream lake outflows to estimate the daily phosphorus load into the reservoir as a function of flow. The estimated phosphorus load as a function of land use characteristics in the lake's subbasin, the load from upstream Lake Wooster outflows, and the total phosphorus load are provided in **Table 1-19.**

No NPDES-permitted point sources currently discharge to Duck Lake or to the watershed upstream of the lake.

Table 1-19 Duck Lake Phosphorus Loads

Name	Lake Segment	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Total Annual External Phosphorus Load (lbs)
Duck Lake	RTZG	284	881	1,166

[1] The presented phosphorus load reflects the incorporation of Wooster Lake outflows into the model.

1.5.2.5.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Duck Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for available data collected from Duck Lake (0.042 mg/L).

1.5.2.5.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Duck Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Duck Lake is estimated to be approximately 97 lbs/year.

1.5.2.5.6 SLAM Confirmatory Analysis

Historical water quality data for Duck Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Duck Lake included measurements only between the months of May and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Duck Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. As can be seen in **Table 1-20**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-20 Summary of Model Confirmatory Analysis – Duck Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

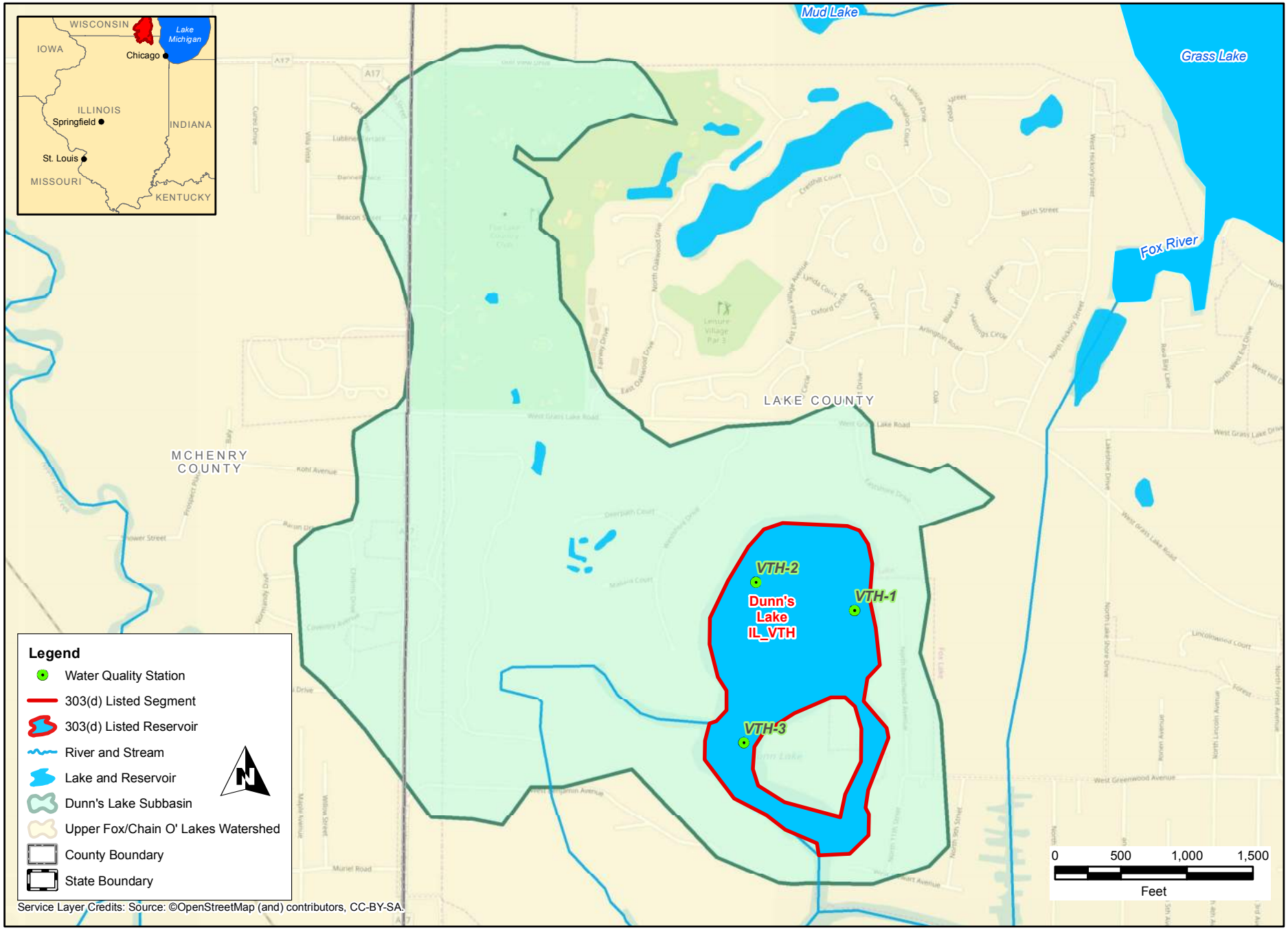
Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
RTZG	0.042	0.040	6.6%

1.5.2.6 SLAM Development for Dunn's Lake

Dunn's Lake is a 68-acre glacial lake located in Lake County, Illinois. The lake is primarily used for recreation, including fishing, boating, and beaching, and it is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.6.1 Model Segmentation

The SLAM for Dunn's Lake was developed to include one model zone, or lake segment (VTH). The sampling location and watershed boundary for Dunn's Lake are shown on **Figure 1-9**.



CDM Smith

Upper Fox/Chain O' Lakes
Dunn's Lake Subbasin

FIGURE 1-9

1.5.2.6.2 Lake Hydraulics

The Dunn's Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Dunn's Lake were estimated on an annual basis as there is no evidence to support modeling water elevation fluctuation over the course of a year. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2014d). A summary of these inputs is shown below in **Table 1-21**.

Table 1-21 Dunn's Lake (VTH) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
VTH	None	67.6	100%	254	3.75	n/a[1]	n/a[1]

[1]Segment mixing length and interface width data inputs apply only to segmented lake models.

1.5.2.6.3 Watershed Parameters

Watershed inputs to SLAM for the Dunn's Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Dunn's Lake is estimated to be approximately 122 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-22.**

Table 1-22 Dunn's Lake (VTH) Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Total Annual External Phosphorus Load (lbs)
Dunn's Lake	VTH	416	121.5

Phosphorus loads from point source discharges can be explicitly included as supplemental water in the watershed inputs to the SLAM. The supplemental water input allows the user to input average monthly discharge and monthly average phosphorus concentrations in the discharge along with the fraction of the load as particulate phosphorus. In the case of Dunn's Lake, there is one point source discharging to the watershed upstream of the lake, the Village of Fox Lake – Tall Oaks Sewage Treatment Plant (ILL045144), which has a measured daily average flow of 0.151 million gallons per day (mgd) and an average total phosphorus concentration of 0.48 mg/L in the effluent (based on 2007-2015 DMR data). These measured values differ considerably from the NPDES-permitted values for this facility of a design average flow (DAF) of 0.5 mgd and a

maximum average concentration of 1.0mg/L for total phosphorus in effluent. Measured values were input into SLAM in order to reflect actual conditions during the model calibration process, while permitted values were used for model runs developed to calculate TMDLs and WLAs. These inputs and resulting WLAs are described further in **Section 2.3.1.4.**

1.5.2.6.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Dunn's Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Dunn's Lake (0.105 mg/L).

1.5.2.6.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Dunn's Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Dunn's Lake is estimated to be approximately 139 lbs/year.

1.5.2.6.6 SLAM Confirmatory Analysis

Historical water quality data for Dunn's Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Dunn's Lake included measurements only between the months of May and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Dunn's Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. As can be seen in **Table 1-23**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-23 Summary of Model Confirmatory Analysis – Dunn's Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
VTH	0.105	0.101	4.5%

1.5.2.7 SLAM Development for Fischer Lake

Fischer Lake is an approximately 23-acre reservoir located in Lake County, Illinois. Fischer Lake receives water from Fish-Duncan Lake, which is discussed in **Section 1.5.2.7**, and then flows to Wooster Lake, which is discussed in **Section 1.5.2.23**. The lake is primarily used for fishing, non-

motorized boating, and aesthetics, and it is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.7.1 Model Segmentation

The SLAM for Fischer Lake was developed to include one model zone, or lake segment (VTT). The sampling location and watershed boundary for Fischer Lake are shown on **Figure 1-10**.

1.5.2.7.2 Lake Hydraulics

The Fischer Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Fisher Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2016b). A summary of these inputs is shown below in **Table 1-24**.

Table 1-24 Fischer Lake (VTT) Hydraulics Data

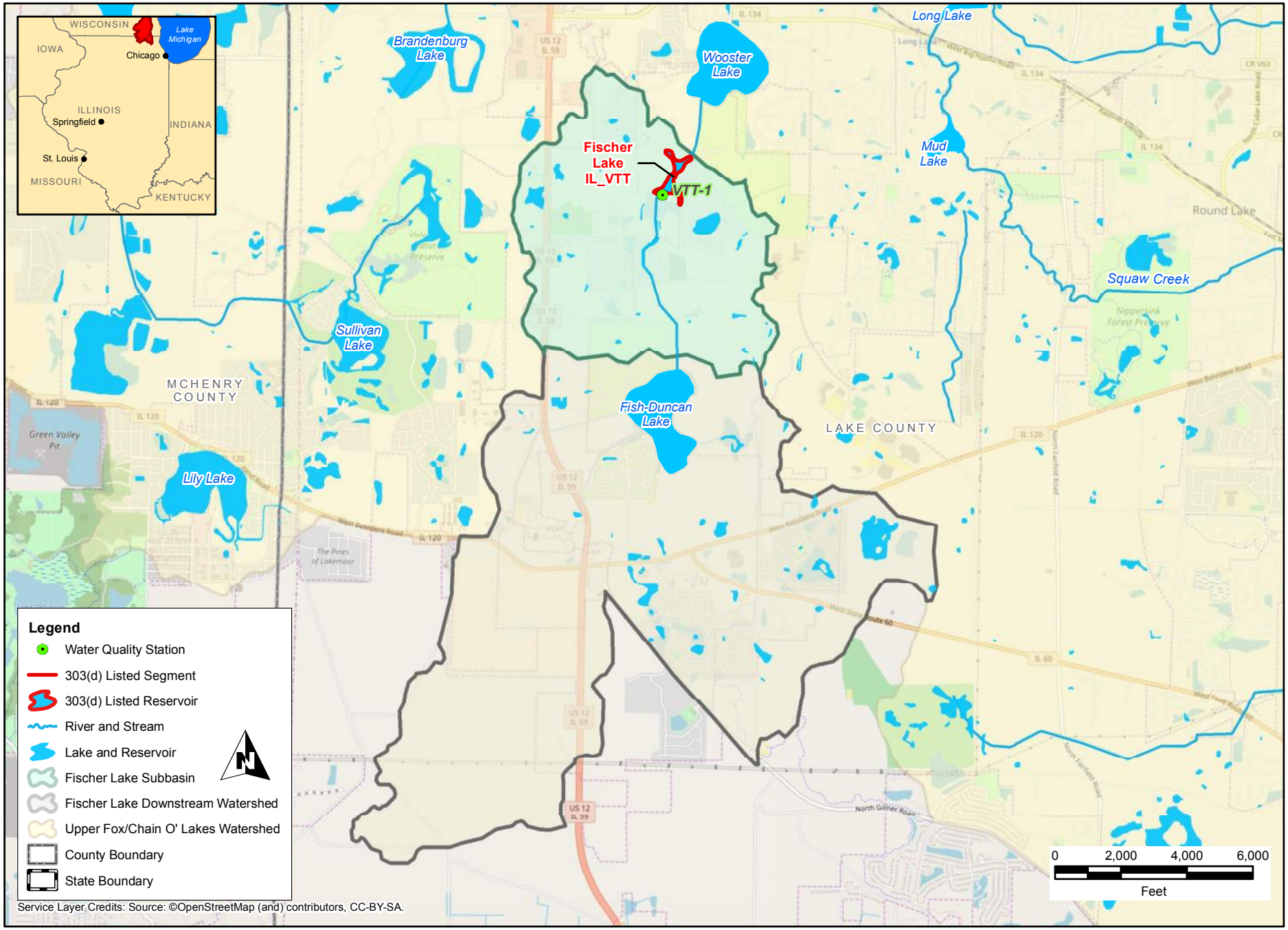
Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
VTT	None	23.4	100%	129	5.5	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.7.3 Watershed Parameters

Watershed inputs to SLAM for the Fischer Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated using modeled outputs from upstream lakes and by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Fischer Lake is estimated to be approximately 523 lbs/year based on flow and land use characteristics. Additionally, Fischer Lake receives flows from the upstream Fish-Duncan Lake, which is discussed further in **Section 1.5.2.7**. Based on calibrated SLAM outputs for the upstream lake, Fish-Duncan Lake outflows contribute approximately 1,162 lbs/yr to Fischer Lake. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates and combined with upstream inflows from Fish-Duncan Lake to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-25.**



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Upper Fox/Chain O' Lakes
Fischer Lake Subbasin

FIGURE 1-10

Table 1-25 Fischer Lake Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Total Annual External Phosphorus Load (lbs)
Fischer Lake	VTT	523	1,162	1,685

[1] The presented phosphorus load reflects the incorporation of Fish-Duncan Lake outflows into the model.

Phosphorus loads from point source discharges can be explicitly included as supplemental water in the watershed inputs to the SLAM. The supplemental water input allows the user to input average monthly discharge and monthly average phosphorus concentrations in the discharge along with the fraction of the load as particulate phosphorus. In the case of Fischer Lake, there are no point sources discharging to the lake or to the watershed upstream of the lake.

1.5.2.7.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Fischer Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Fischer Lake (0.188 mg/L).

1.5.2.7.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Fischer Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Fischer Lake is estimated to be approximately 217 lbs/year.

1.5.2.7.6 SLAM Confirmatory Analysis

Historical water quality data for Fischer Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Fischer Lake included measurements only between the months of May and September for most years, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Fischer Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO levels recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-26**, a strong similarity between observed and predicted in-lake phosphorus values was achieved, lending

significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E**.

Table 1-26 Summary of Model Confirmatory Analysis – Fischer Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
VTT	0.188	0.186	0.8%

1.5.2.8 SLAM Development for Fish-Duncan Lake

Fish-Duncan Lake is a 96-acre glacial lake located in Lake County, Illinois. Fish-Duncan Lake flows to Fischer Lake, which is discussed in **Section 1.5.2.8**. The lake is primarily used for recreation, including fishing, boating, and swimming, and it is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.8.1 Model Segmentation

The SLAM for Fish-Duncan Lake was developed to include one model zone, or lake segment (VTK). The sampling location and watershed boundary for Fish-Duncan Lake are shown on **Figure 1-11**.

1.5.2.8.2 Lake Hydraulics

The Fish-Duncan Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Fish-Duncan Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2016c). A summary of these inputs is shown below in **Table 1-27**.

Table 1-27 Fish-Duncan Lake (VTK) Hydraulics Data

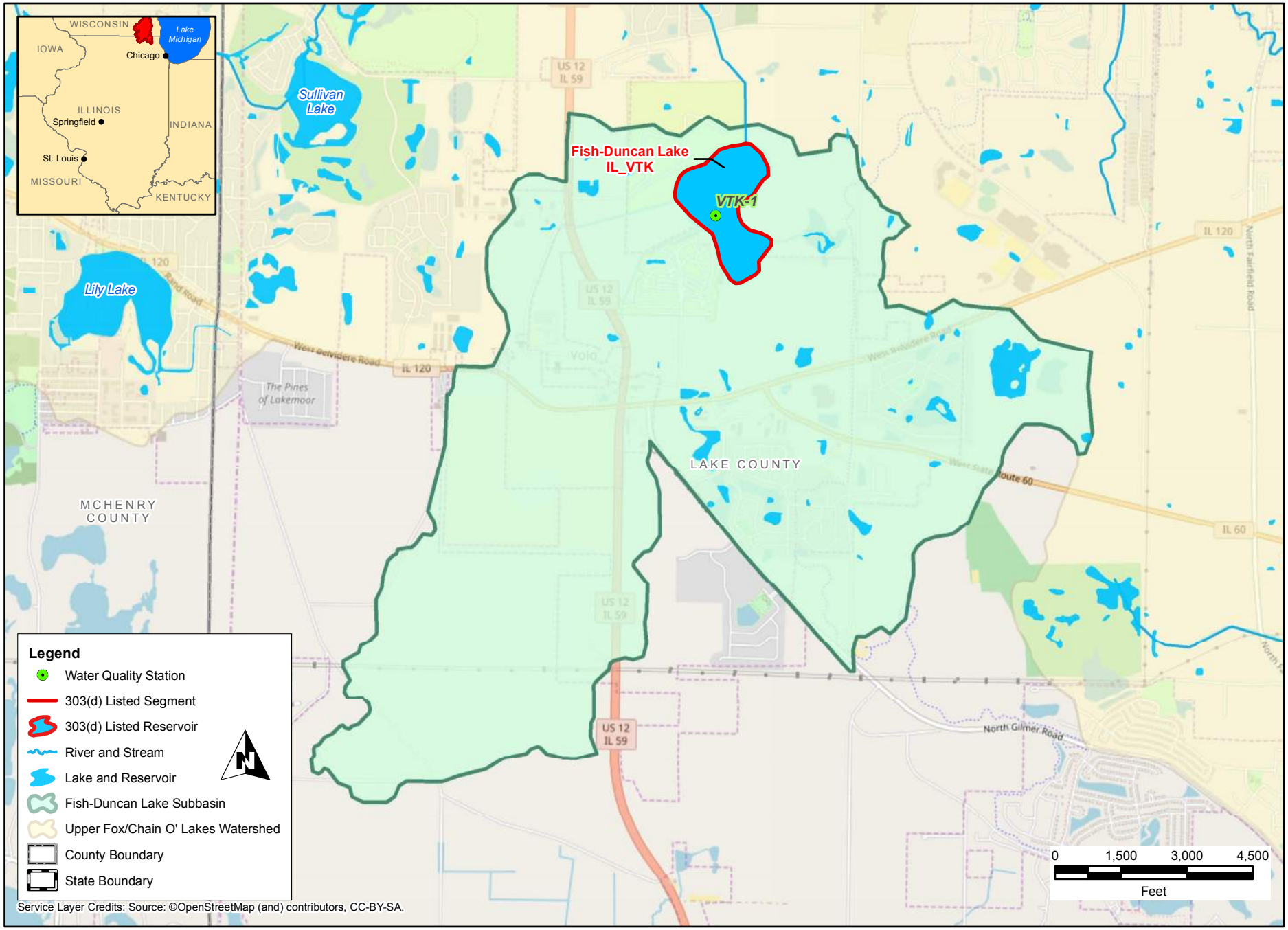
Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
VTK	None	95.6	100%	850	10	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.8.3 Watershed Parameters

Watershed inputs to SLAM for the Fish-Duncan Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Fish-Duncan Lake is estimated to be approximately 1,963 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled



CDM Smith

Upper Fox/Chain O' Lakes
Fish-Duncan Lake Subbasin

FIGURE 1-11

to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-28.**

No NPDES-permitted point sources currently discharge to the lake or to the watershed upstream of the lake.

Table 1-28 Fish-Duncan Lake Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Total Annual External Phosphorus Load (lbs)
Fish-Duncan Lake	VTK	3,219	1,963

1.5.2.8.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Fish-Duncan Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Fish-Duncan Lake (0.157 mg/L).

1.5.2.8.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Fish-Duncan Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Fish-Duncan Lake is estimated to be approximately 627 lbs/year.

1.5.2.8.6 SLAM Confirmatory Analysis

Historical water quality data for Fish-Duncan Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Fish-Duncan Lake included measurements only between the months of May and September, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, as well as more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Fish-Duncan Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO levels recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-29**, a reasonably good match between observed and predicted in-lake phosphorus values

was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E**.

Table 1-29 Summary of Model Confirmatory Analysis – Fish-Duncan Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
VTK	0.157	0.160	2.2%

1.5.2.9 SLAM Development for Fox Lake and Nippersink Lake

Fox Lake (1,856 acres) and Nippersink Lake (526 acres) are adjoining glacial lakes within Lake County, Illinois. Given the relative large interface area between these two lakes and presumed resulting interaction, these waters were modeled together as separate segments of a combined SLAM. Grass Lake drains to both lakes with a split outflow; Petite, Duck, and Long Lakes drain directly to Fox Lake (RTF); and Dunn's Lake drains directly to Nippersink Lake (RTUA). This lake system then drains into Pistakee Lake. Both the Fox Lake and Nippersink Lake are primarily used for recreation, including fishing, boating, and swimming, and they are listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

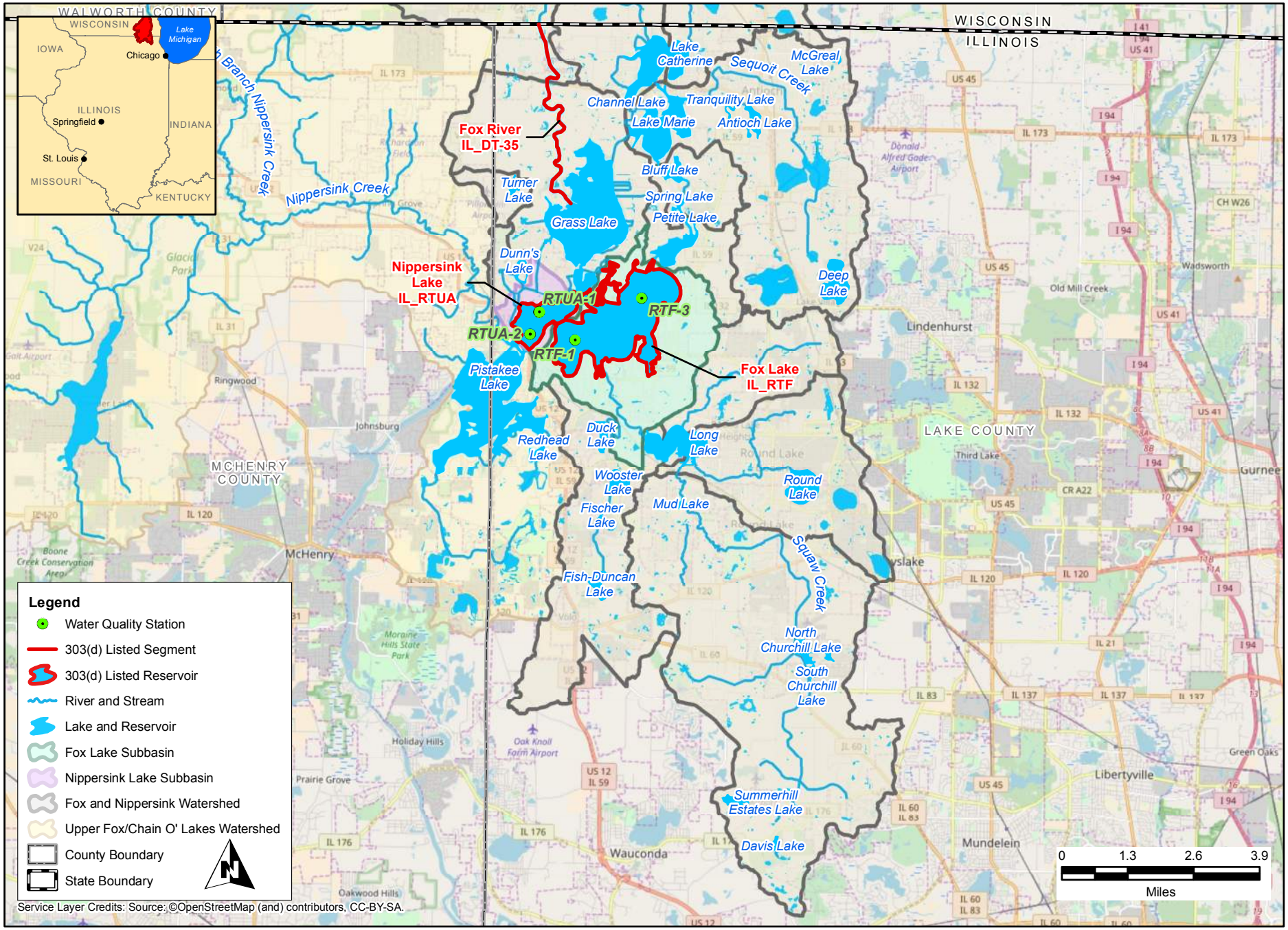
1.5.2.9.1 Model Segmentation

The SLAM for the Fox and Nippersink Lakes system was developed to include two model zones, or lake segments, corresponding to each lake (RTF and RTUA, respectively). The segment boundaries for these zones are shown on **Figure 1-12.** Flow within the lakes generally moves northwest, from Fox Lake (RTF) to Nippersink Lake (RTUA). As a result of the relatively large interface between the two lakes, the estimated longitudinal dispersion rate was set at 300,000 ft^2/day.

1.5.2.9.2 Lake Hydraulics

Due to data availability and the minimal seasonal fluctuation of surface elevations in the Fox and Nippersink Lakes system (±5 inches annually), prescribed lake hydraulics were used in this model setup. Hydraulic parameters were specified for the entire lake system as a whole, and for each of the individual zones. Total lake volumes by month and estimates of each zone's sub-volume were entered into the respective zone input tabs. The downstream zone was also specified for each zone based on morphology of the system and effectively define the system's flow path.

The surface area, volume, and depth of each of the model segments within the system were estimated on an annual basis as the lake system maintains relatively consistent water elevation over the course of a year (Lake County 2014e and 2014f). Segment lengths, interface widths, and surface areas were determined in GIS. Lake depths and volumes were estimated from available sampling and bathymetric data. A summary of these inputs is shown below in **Table 1-30**.



Upper Fox/Chain O' Lakes
Fox Lake and Nippersink Lake Subbasins

CDM Smith

FIGURE 1-12

Table 1-30 Fox Lake (RTF) and Nippersink Lake (RTUA) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RTF	RTUA	1,856	78%	10,392	5.6	5,000	1,500
RTUA	None	526	22%	2,681	5.1	n/a	n/a
Lake Total		**2,381**	**100%**	**13,073**	**5.4**		

1.5.2.9.3 Watershed Parameters

Watershed inputs to SLAM for the Fox and Nippersink Lakes model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated using modeled outputs from upstream lakes and by scaling the available gage data from USGS gage 05548280 Nippersink Creek near Spring Grove, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in each of the lake's subbasins to provide a median annual phosphorus load into the lakes (**Appendix D**). The total phosphorus load from runoff directly into Fox and Nippersink Lakes is estimated to be approximately 1,766 lbs/year based on flow and land use characteristics.

In addition, Fox and Nippersink Lakes receive the bulk of their flows from several upstream lakes that are also modeled as part of the concurrent TMDL effort; therefore, calibrated outputs from upstream lakes were used as additional inputs to the Fox and Nippersink Lakes SLAM. Outflows from Grass, Petite, Duck, and Long Lakes contribute a combined approximate 57,985 lbs/yr to Fox Lake inflows. Grass and Dunn's Lakes contribute a combined approximate 88,640 lbs/yr to Nippersink Lake. Grass Lake has a split outflow contributing to both lakes, which has an estimated distribution of approximately 35% flow to Fox Lake and 65% flow to Nippersink Lake based on the relative size of each interface area (estimated using available GIS and bathymetry data) as data regarding measured flow/discharge values at each interface are not available. The annual total phosphorus load from overland runoff and upstream lake inflows was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The estimated phosphorus load as a function of land use characteristics and upstream lake model outputs is provided in **Table 1-31.**

No NPDES-permitted point sources with potential to contribute phosphorus loads currently discharge directly to either Fox or Nippersink Lake or to the watersheds immediately upstream of the lake. Dischargers in upstream subbasins flowing first to other TMDL lakes in the watershed are assigned WLAs based on the nearest impaired waterbody downstream of the discharge.

Table 1-31 Fox Lake and Nippersink Lake Subbasin Areas and Phosphorus Load Model Inputs

Name	Lake Segment	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)	Annual Phosphorus Load from Upstream Point Sources (lbs)	Total Annual External Phosphorus Load (lbs)
Fox Lake	Zone 1 (RTF)	1,584	57,985	-	59,569
Nippersink Lake	Zone 2 (RTUA)	183	88,640	-	88,823
	TOTAL	**1,766**	**148,391**	**-**	**148,391**

[1] The presented phosphorus load reflects the incorporation of Grass, Petite, Duck, and Long Lakes outflows into the model.
[2] The presented phosphorus load reflects the incorporation of Grass and Dunn's Lakes outflows into the model.

1.5.2.9.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Fox and Nippersink Lakes. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from both lakes (0.120 mg/L).

1.5.2.9.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Fox and Nippersink Lakes. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus loads to Fox and Nippersink Lakes are estimated to be approximately 7,086 and 9,187 lbs/year, respectively.

1.5.2.9.6 SLAM Confirmatory Analysis

Historical water quality data for Fox and Nippersink Lakes were used to help calibrate the model and confirm model calculations. As the data inventory for both lake included measurements only between the months of May and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Fox and Nippersink Lakes SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling and resuspension from bottom sediments. The lakes are both shallow and have high concentrations of suspended sediment suggesting that wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-32**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-32 Summary of Model Confirmatory Analysis –Fox Lake and Nippersink Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
RTF	0.102	0.109	6.7%
RTUA	0.131	0.130	0.7%
Lake Average	**0.120**	**0.117**	**2.6%**

1.5.2.10 SLAM Development for Grass Lake

Grass Lake is a 1,444-acre reservoir located in Lake County, Illinois. Grass Lake receives water from Lake Marie and a segment of the Fox River (DT-35), which are discussed further in **Sections 1.5.2.13** and **1.5.1.2**, and then flows to Fox and Nippersink Lakes, which are discussed in **Section 1.5.2.9**. The lake is primarily used for recreation, including fishing, boating, and swimming, as well as aesthetics, and is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.10.1 Model Segmentation

Due to the simple waterbody morphology and hydraulics of the lake, Grass Lake is expected to be well-mixed and relatively uniform in a variety of features, so the SLAM for Grass Lake was developed to include one model zone, or lake segment (RTQ). The sampling location and watershed boundary for Grass Lake are shown on **Figure 1-13**.

1.5.2.10.2 Lake Hydraulics

The Grass Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Grass Lake were estimated on an annual basis as the reported fluctuation in water surface elevation over the course of a year are relatively minor at ±5 inches and the available bathymetric data is not sufficiently detailed to allow for recalculation of lake volume based on the available surface elevation fluctuation data (Lake County 2014g). Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2014g). A summary of these inputs is shown below in **Table 1-33**.

Table 1-33 Grass Lake (RTQ) Hydraulics Data

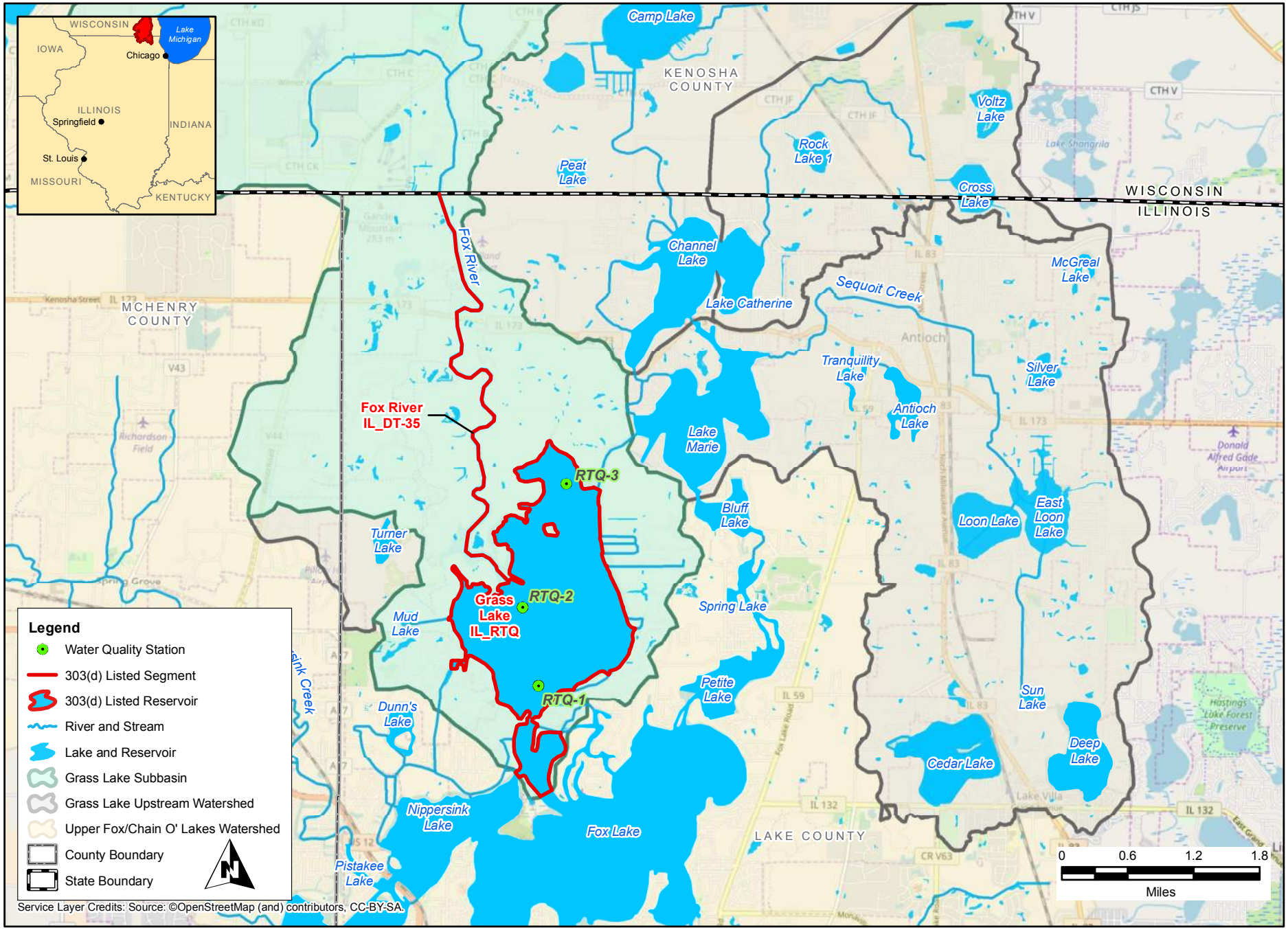
Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RTQ	None	1,444	100%	3,653	2.3	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.10.3 Watershed Parameters

Watershed inputs to SLAM for the Grass Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated using modeled outputs from upstream lakes and by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on measured nutrient and flow data from the Fox River station DT-35 (2000-2016) as well as from land use data and



CDM Smith

Upper Fox/Chain O' Lakes
Grass Lake Subbasin

FIGURE 1-13

the median annual export coefficients for each land use category with the small portion of the watershed that does not drain into the lake via the Fox River. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Grass Lake is estimated to be approximately 1,562 lbs/year based on flow and land use characteristics. Additionally, Grass Lake receives flows from the upstream Lake Marie and a segment of the Fox River (DT-35), which are discussed further in **Sections 1.5.2.13** and **1.5.1.2**. Based on calibrated SLAM outputs for the upstream lake, Lake Marie outflows contribute approximately 2,272 lbs/yr to Grass Lake. Using available discharge data calculated for load duration curve analyses on Fox River segment DT-35 (see **Section 1.5.1**), monthly average flow and concentration were used to approximate the river's average phosphorus load contribution to Grass Lake by month, which totals approximately 140,273 lbs/yr. The annual total phosphorus load from overland runoff and upstream lake and river inflows was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-34.**

There are no point sources discharging directly to Grass Lake or to the watershed immediately upstream of the lake within Illinois.

Table 1-34 Grass Lake Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Annual Phosphorus Load from Fox River DT-35 (lbs)	Total Annual External Phosphorus Load (lbs)
Grass Lake	RTQ	1,562	2,272	140,273	144,107

[1] The presented phosphorus load reflects the incorporation of Lake Marie.

1.5.2.10.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Grass Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Grass Lake (0.129 mg/L).

1.5.2.10.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Grass Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Grass Lake is estimated to be approximately 10,749 lbs/year.

1.5.2.10.6 SLAM Confirmatory Analysis

Historical water quality data for Grass Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Grass Lake included measurements only between the months of May and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and

tributary water quality data, site-specific sediment characterization, as well as more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Grass Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-35**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E**.

Table 1-35 Summary of Model Confirmatory Analysis – Grass Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
RTQ	0.129	0.121	6.6%

1.5.2.11 SLAM Development for Hidden Lake

Hidden Lake is a 19-acre private reservoir located in Lake County, Illinois. The lake is primarily used for fishing and non-motorized boating, and it is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.11.1 Model Segmentation

The SLAM for Hidden Lake was developed to include one model zone, or lake segment (UTM). The sampling location and watershed boundary for Hidden Lake are shown on **Figure 1-14**.

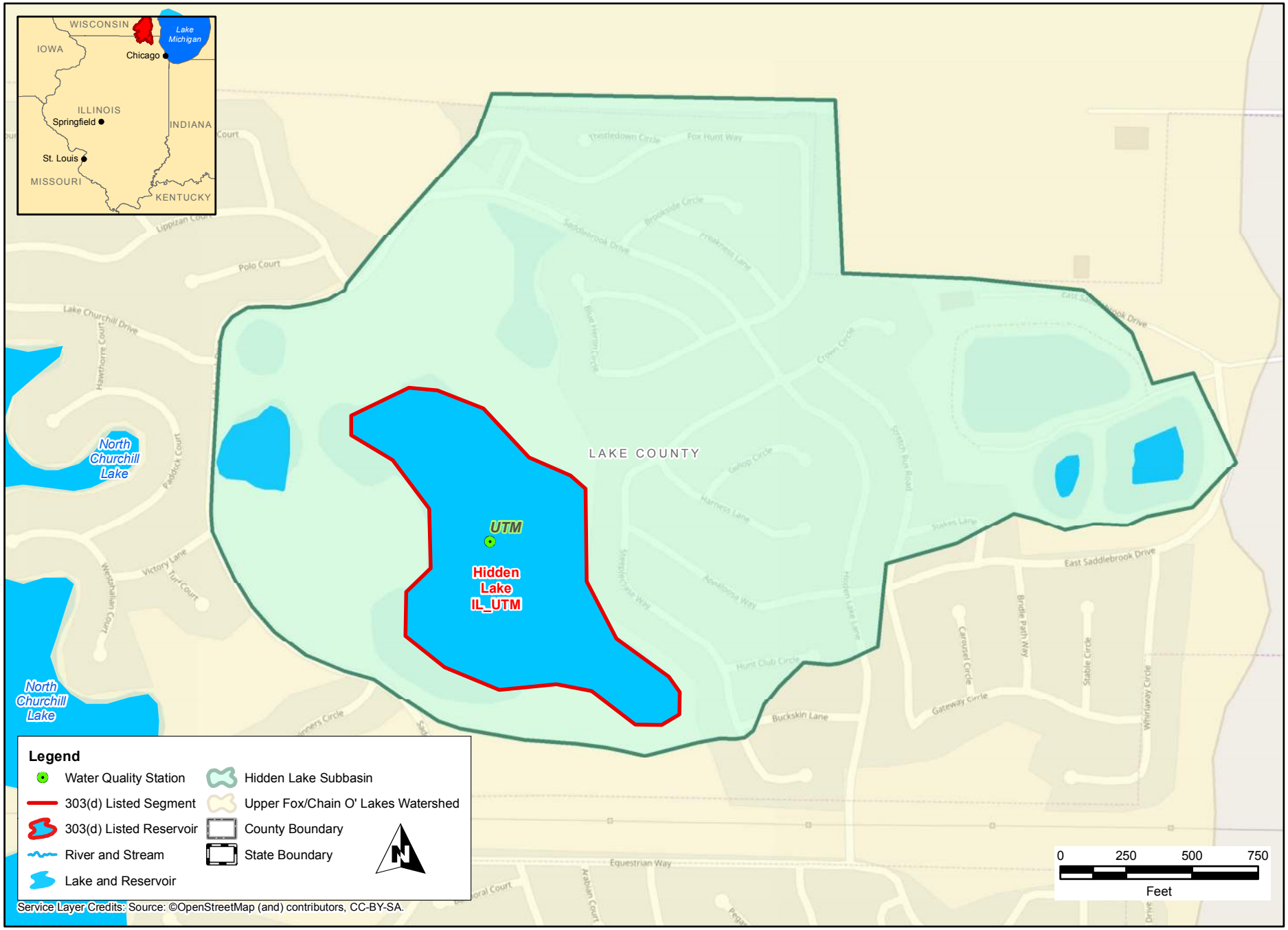
1.5.2.11.2 Lake Hydraulics

The Hidden Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Hidden Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2002a). A summary of these inputs is shown below in **Table 1-36**.

Table 1-36 Hidden Lake (UTM) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
UTM	None	19.3	100%	57.8	3.0	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.



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Upper Fox/Chain O' Lakes
Hidden Lake Subbasin

FIGURE 1-14

1.5.2.11.3 Watershed Parameters

Watershed inputs to SLAM for the Hidden Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing 146-acre watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Hidden Lake is estimated to be approximately 84 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-37.**

There are no point sources discharging to Hidden Lake or to the watershed upstream of the lake.

Table 1-37 Hidden Lake Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Total Annual External Phosphorus Load (lbs)
Hidden Lake	UTM	146	83.7

1.5.2.11.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Hidden Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Hidden Lake (0.224 mg/L).

1.5.2.11.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Hidden Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Hidden Lake is estimated to be approximately 94.6 lbs/year.

1.5.2.11.6 SLAM Confirmatory Analysis

Historical water quality data for Hidden Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Hidden Lake is very limited and only includes monthly measurements collected between the May and September of 2002, the model calibration period was limited to this time period. Although the analyses presented below do lend confidence to the modeling, more recent lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Hidden Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. As expected, the SLAM consistently under-predicted the concentrations when compared to actual water quality data without including internal loading from sediments. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-38**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-38 Summary of Model Confirmatory Analysis – Hidden Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
UTM	0.224	0.223	0.1%

1.5.2.12 SLAM Development for Long Lake

Long Lake is an approximately 390-acre glacial lake located in Lake County, Illinois. The lake is primarily used for recreation, including fishing, boating, and swimming, and it is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.12.1 Model Segmentation

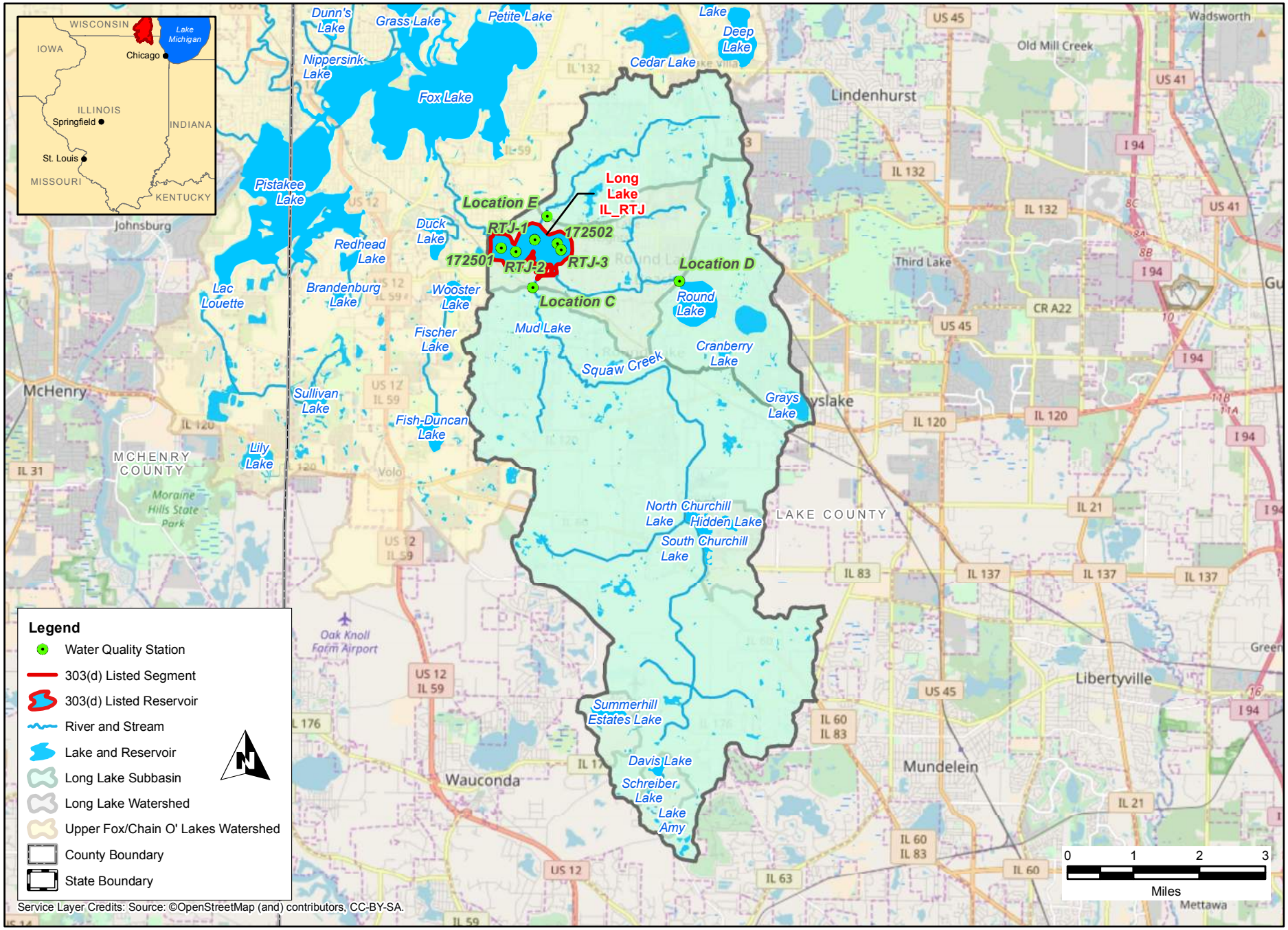
The SLAM for Long Lake was developed to include a single model zone that includes data collected from several stations within the main body of the lake. The sampling locations and watershed boundaries for Long Lake are shown on **Figure 1-15.** Flow within the lake generally moves from east to west and the estimated longitudinal dispersion rate was at 100,000 ft^2/day.

1.5.2.12.2 Lake Hydraulics

Due to data availability, prescribed lake hydraulics were used in this model setup. Hydraulic parameters were specified for the lake as a whole. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Long Lake were estimated on an annual basis as there is no evidence to support modeling water elevation fluctuation over the course of a year. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2008). A summary of these inputs is shown below in **Table 1-39**.

Table 1-39 Long Lake (RTJ) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RTJ	None	383	100%	5,018	13.1	n/a	n/a



CDM Smith

Upper Fox/Chain O' Lakes
Long Lake Subbasin

FIGURE 1-15

1.5.2.12.3 Watershed Parameters

Watershed inputs to SLAM for the Long Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**. An additional USGS gage, Squaw Creek at Round Lake, IL (USGS 05547755) that once existed within the Long Lake subbasin was decommissioned in 2005 and not used for this study.

Phosphorus loads from the contributing watershed were estimated based on a combination of land use data (using the median annual export coefficients for each land use) and empirical data collected as part of an existing study in the watershed. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in each of the lake's subbasins to provide a baseline median annual phosphorus load into the overall lake (**Appendix D**).

As a result of communication with various stakeholder groups in the area, an existing study was identified, *Water Quality Modeling in the Long Lake Watershed*, that includes additional model outputs and measured phosphorus data from several locations within the Long Lake watershed (Stanley Consultants 2002). Further investigation using GIS data and aerial photographs showed that existing wetlands and impoundments upstream of Long Lake that likely serve as sediment and phosphorus sinks in the watershed, are not accounted for in the available land use/land cover datasets employed for runoff export coefficient calculations of phosphorus load resulting in an overestimate of phosphorus loads into Long Lake using the runoff coefficient method. As a result, the available instream phosphorus data collected as part of the 2002 study were used to truth-check and ultimately correct the runoff estimates for phosphorus loading into Long Lake.

Annual phosphorus load estimates for three sampling locations (Stations C, D, and E in the 2002 report) on tributaries immediately upstream of Long Lake were calculated using modeling, sampling data, and measured flow data and compared to phosphorus load estimates calculated using land use runoff coefficients for each of stations' subbasins (see Figure 1-15). Sampling locations form the 2002 study that are upstream of impoundments other than Long Lake were not assessed as the impact of the intermediate impoundment would not be accounted for. These comparisons showed that phosphorus load estimates using the runoff coefficient method underestimated phosphorus loads at two of three locations with existing measured data (Locations C and D). Estimates based on empirical data collected at Location E exceeded those based on runoff coefficients. As the annual phosphorus load estimates calculated using the data provided by the 2002 study are based on a more robust dataset with measured empirical data, these values were used to represent phosphorus load estimates for the subbasin upstream of each sampling location. These loads were then added to loads estimated using runoff coefficients for the remaining areas of the overall Long Lake subbasin.

As a result, the total phosphorus load into Long Lake is estimated to be approximately 10,309 lbs/year. The annual total phosphorus loads were then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The estimated

phosphorus load emanating from each subbasin and the relative percent of the total load is provided in **Table 1-40.**

As the phosphorus load values described above are based on empirical data measured at inlets to the lake, the total includes the loads from point sources upstream of Long Lake. Phosphorus loads from point source discharges can be explicitly included as supplemental water in the watershed inputs to the SLAM. The supplemental water input allows the user to input average monthly discharge and monthly average phosphorus concentrations in the discharge along with the fraction of the load as particulate phosphorus. In the case of Long Lake, there were four point sources discharging to the lake or to the watershed upstream of the lake during the data collection and calibration period. These include the Baxter Healthcare Corporation (IL0024074), Fremont School District#79 (IL0034746), Camp Hickory (IL0046043), and Dayspring (IL0050661), which have daily average flows of about 0.5, 0.01, 0.014, and 0.009 mgd, respectively (see **Section 2.5.2**). One facility, Baxter Healthcare Corporation (IL0024074), has since eliminated their discharge to the Long Lake watershed through connection to a municipal sewer system. This facility's contribution is considered in the initial model setup to most accurately reflect historical conditions during the model calibration and verification process but was removed from the model for TMDL model runs and is not assigned a WLA as it no longer discharges to the watershed. Detailed discussion of WLA calculations is provided in **Section 2.3.1**.

Table 1-40 Long Lake Subbasin Areas and Phosphorus Loads

Name	Subbasin Area (acres)	Annual External Phosphorus Load (lbs)	Percent of Phosphorus Load (%)
Tributary Location C[1]	16,087	5,474	53%
Tributary Location D[1]	3,077	832	8%
Tributary Location E[1]	2,867	2,432	24%
Remaining Long Lake Subbasin	3,007	1,572	15%
Total	**25,038**	**10,309[2]**	**100%**

[1]Additional tributary sampling location, phosphorus loading, and flow data provided in *Water Quality Modeling in the Long Lake Watershed* (Stanley Consultants 2002).

[2]Includes estimated 822 lbs/year of phosphorus emanating from point sources discharging upstream of the lake during the modeled period.

1.5.2.12.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Long Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from all stations within the lake (0.109 mg/L).

1.5.2.12.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Long Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Long Lake is estimated to be approximately 3,773 lbs/year.

1.5.2.12.6 SLAM Confirmatory Analysis

Historical water quality data for Long Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Long Lake included measurements only between the months of April and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Long Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO levels recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-41**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-41 Summary of Model Confirmatory Analysis – Long Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
Lake Average	0.109	0.1085	0.7%

1.5.2.13 SLAM Development for Lake Marie

Lake Marie is an approximately 530-acre glacially formed lake within the Chain O' Lakes system in Lake County, Illinois. The lake is primarily used for recreational boating, fishing, and aesthetics, and is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

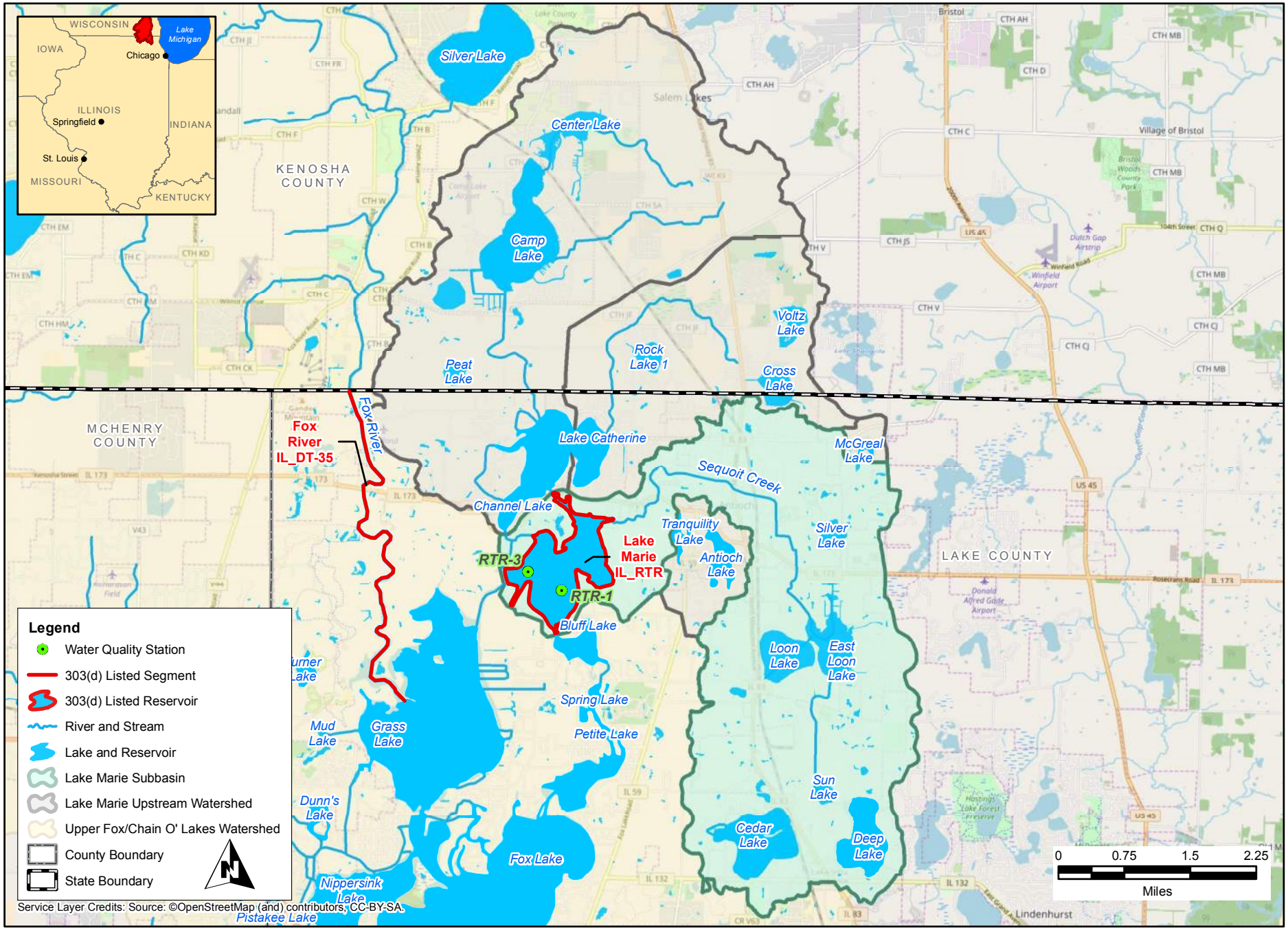
Lake Marie receives water from Channel and Tranquility Lakes, which are discussed in **Sections 1.5.2.3** and **1.5.2.23**. The calibrated SLAM model output for each of these lakes were therefore included in the calculation of estimated input loads for Lake Marie.

1.5.2.13.1 Model Segmentation

The SLAM for Lake Marie was developed to include one model zone, or lake segment (RTR). The sampling location and watershed boundary for Lake Marie are shown on **Figure 1-16**.

1.5.2.13.2 Lake Hydraulics

The Lake Marie SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Lake Marie were estimated on an annual basis as there is minimal lake level fluctuation to support modeling water elevation fluctuation over the course of a year. Surface area was



Upper Fox/Chain O' Lakes
Lake Marie Subbasin

CDM Smith

FIGURE 1-16

determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2014h). A summary of these inputs is shown below in **Table 1-42**.

Table 1-42 Lake Marie (RTR) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RTR	None	527	100%	5,065	8.5	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.13.3 Watershed Parameters

Watershed inputs to SLAM for the Lake Marie model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated using modeled outputs from upstream lakes and by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the overall lake (see **Appendix D**). The total phosphorus load from direct runoff into Lake Marie is estimated to be approximately 4,064 lbs/year based on flow and land use characteristics.

Additionally, Lake Marie receives flows directly from several upstream lakes that are also modeled as part of the concurrent TMDL effort; therefore, calibrated outputs from upstream lakes were used as additional inputs to the Lake Marie SLAM. Based on SLAM outputs for the immediately upstream modeled lakes, Channel Lake (modeled with Lake Catherine) outflows contribute approximately 2,357 lbs/yr, and Lake Tranquility outflows contribute approximately 67 lbs/yr to Lake Marie. The annual total phosphorus load from overland runoff and upstream lake inflows was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The estimated phosphorus loads to the lake from each source is provided in **Table 1-43.**

Phosphorus loads from point source discharges can be explicitly included as supplemental water in the watershed inputs to the SLAM. The supplemental water input allows the user to input average monthly discharge and monthly average phosphorus concentrations in the discharge along with the fraction of the load as particulate phosphorus. In the case of Lake Marie, there is only one point source discharging to the lake system or to the watershed upstream of the lake, which is the Village of Antioch Sewage Treatment Plant (IL0020354), which currently contributes approximately 8.255 lbs/day (3,013 lbs/year) of total phosphorus based on existing flows and effluent concentrations. This facility's contribution to the phosphorus load in the watershed and resulting WLA is discussed in detail in **Section 2.5.2.13** of this report.

Table 1-43 Lake Marie External Phosphorus Loads

Name	Lake Segment	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Annual Phosphorus Load from Upstream Point Sources (lbs)	Total Annual External Phosphorus Load (lbs)
Lake Marie	RTR	4,064	2,424	3,013	9,501

[1] The presented phosphorus load reflects the incorporation of modeled outflows from Lake Catherine, Channel Lake, and Lake Tranquility into the model.

1.5.2.13.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Lake Marie. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Lake Marie (0.097 mg/L).

1.5.2.13.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Lake Marie. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Lake Marie is estimated to be approximately 2,397 lbs/year.

1.5.2.13.6 SLAM Confirmatory Analysis

Historical water quality data for Lake Marie were used to help calibrate the model and confirm model calculations. As the data inventory for Lake Marie included measurements only between the months of May and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, as well as more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Lake Marie SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO levels recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-44**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved given the relatively limited data available. This match supports the presumed degree of predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-44 Summary of Model Confirmatory Analysis – Lake Marie Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
RTR	0.097	0.107	9.7%

1.5.2.14 SLAM Development for McGreal Lake

McGreal Lake is a 24-acre reservoir located in unincorporated Antioch Township in Lake County, Illinois. The lake is primarily used for fishing and aesthetics, and it is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.14.1 Model Segmentation

The SLAM for McGreal Lake was developed to include one model zone, or lake segment (UTX). The sampling location and watershed boundary for McGreal Lake are shown on **Figure 1-17**.

1.5.2.14.2 Lake Hydraulics

The McGreal Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volumes by month were entered into the input tabs. The surface area, volume, and depth of McGreal Lake were estimated on an annual basis as there is no evidence to support modeling water elevation fluctuation over the course of a year. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2002b). A summary of these inputs is shown below in **Table 1-45**.

Table 1-45 McGreal Lake (UTX) Hydraulics Data

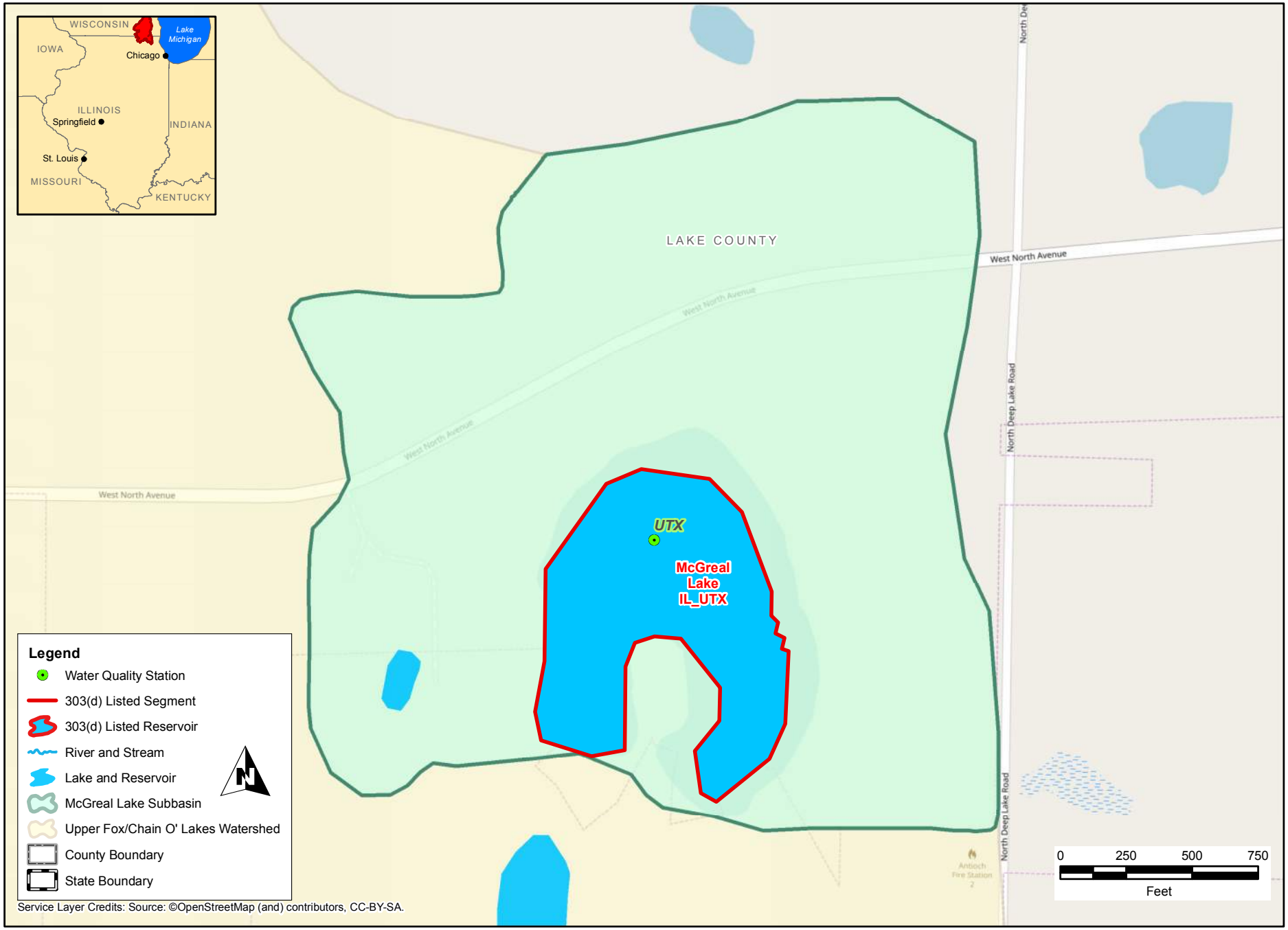
Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
UTX	None	24.3	100%	113	4.6	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.14.3 Watershed Parameters

Watershed inputs to SLAM for the McGreal Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into McGreal Lake is estimated to be approximately 53 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the lake as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-46.**



CDM Smith

Upper Fox/Chain O' Lakes
McGreal Lake Subbasin

FIGURE 1-17

No point sources discharge to the McGreal Lake or to the watershed upstream of the lake.

Table 1-46 McGreal Lake Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Total Annual External Phosphorus Load (lbs)
McGreal Lake	UTX	140	52.9

1.5.2.14.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for McGreal Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from these lakes (0.163 mg/L).

1.5.2.14.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for McGreal Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in McGreal Lake is estimated to be approximately 272 lbs/year.

1.5.2.14.6 SLAM Confirmatory Analysis

Historical water quality data for McGreal Lake were used to help calibrate the model and confirm model calculations. As the data inventory for McGreal Lake included measurements only between the months of May and September, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The McGreal Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO levels recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-47**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-47 Summary of Model Confirmatory Analysis – McGreal Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
UTX	0.163	0.162	0.2%

1.5.2.15 SLAM Development for North Churchill Lake and South Churchill Lake

North Churchill Lake (62.5 acres) and South Churchill Lake (24.8 acres) are reservoirs located in Lake County, Illinois. These lakes are primarily used for recreation, including fishing, non-motorized boating, and aesthetics; and they are listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.15.1 Model Segmentation

As the two lakes are interconnected, a single SLAM was developed for both North and South Churchill Lakes that includes two model zones, or lake segments, corresponding to each lake (STR and STS, respectively). South Churchill Lake was designated as zone 1 as water flows north from that lake into North Churchill Lake, which was designated as zone 2. The segment boundaries for North and South Churchill Lakes are shown on **Figure 1-18.** The estimated longitudinal dispersion rate was set at 500,000 ft^2/day given the relatively large interface between the two zones.

1.5.2.15.2 Lake Hydraulics

Due to data availability and the mostly static nature of North and South Churchill Lakes, prescribed lake hydraulics were used in this model setup. Hydraulic parameters were specified for the entire lake system as a whole and for each of the individual zones. Total lake volumes by month and estimates of each zone's sub-volume were entered into the respective zone input tabs. The downstream zone was also specified for each zone based on morphology of the system and effectively define the system's flow path.

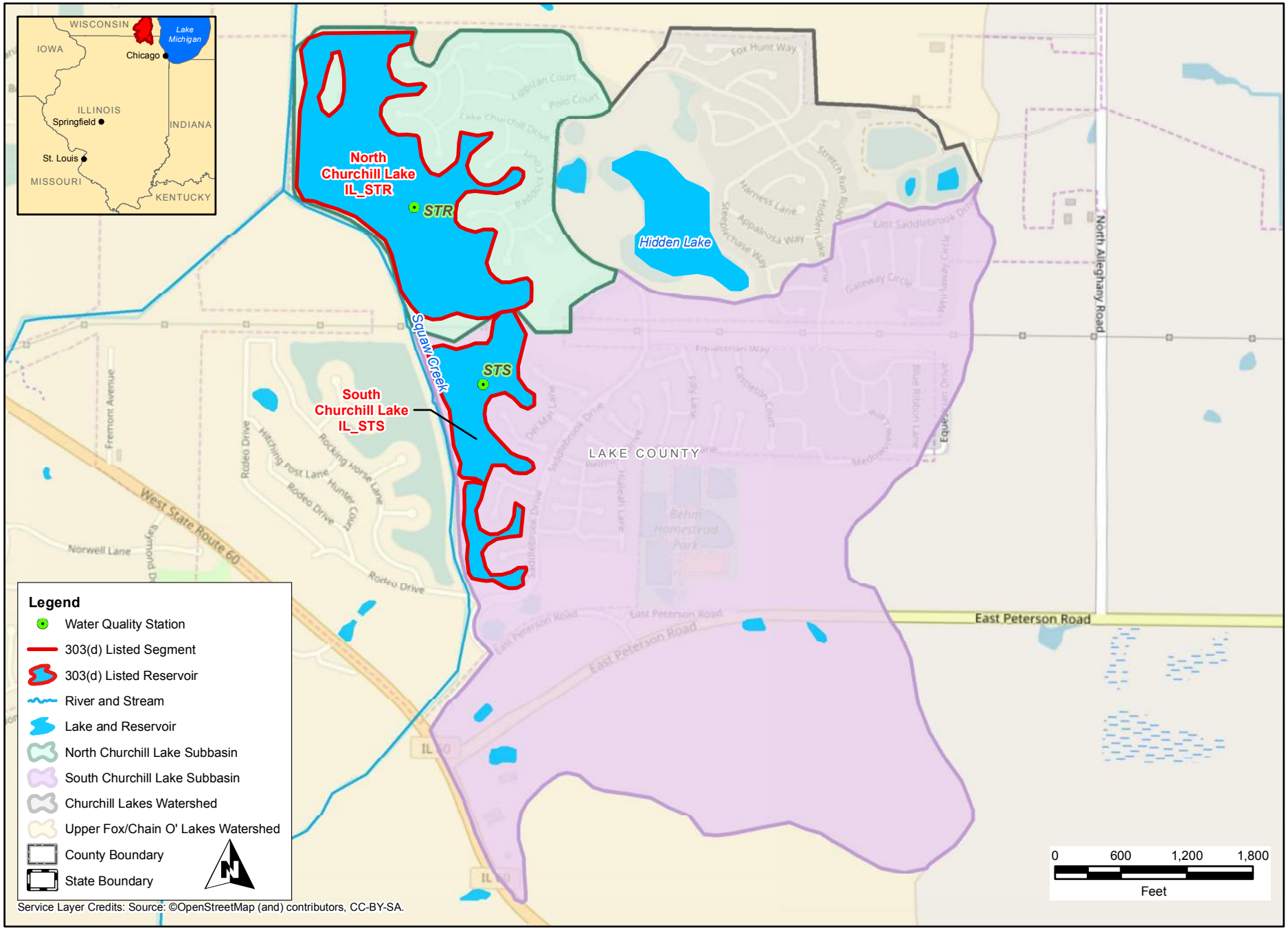
The surface area, volume, and depth of the lake and of each of two model segments within the system were estimated on an annual basis. Segment lengths, interface widths, and surface areas were determined in GIS. Lake depths and volumes were estimated from available sampling and bathymetric data (Lake County 2003). A summary of these inputs is shown below in **Table 1-48**.

Table 1-48 North Churchill Lake (STR) and South Churchill Lake (STS) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
STS (South)	STR	24.8	28%	111.6	4.5	1,932	171
STR (North)	None	62.5	72%	343.2	5.5	n/a	n/a
Lake Total		**87.3**	**100%**	**454.8**	**5.0**		

1.5.2.15.3 Watershed Parameters

Watershed inputs to SLAM for the North and South Churchill Lakes model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.



CDM Smith

Upper Fox/Chain O' Lakes
North and South Churchill Lakes Subbasin

FIGURE 1-18

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in each of the lake's subbasins to provide a median annual phosphorus load into the overall lake and to each segment (**Appendix D**). The total phosphorus load from runoff into North and South Churchill Lakes is estimated to be approximately 460 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics in each lake segment's overland subbasin and the relative percent of the total load is provided in **Table 1-49.**
No point sources discharge to either lake or to the watersheds upstream of the lakes.

Table 1-49 North Churchill Lake and South Churchill Lake Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Total Annual External Phosphorus Load (lbs)	Percent of Phosphorus Load (%)
South Churchill Lake	Zone 1 (STS)	503	394	85%
North Churchill Lake	Zone 2 (STR)	145	67	15%
	TOTAL	**644**	**463**	**100%**

1.5.2.15.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for North and South Churchill Lakes. The initial lake water quality condition of 0.090 mg/L of phosphorus was entered into the model as the average total phosphorus concentration for all available data collected from these lakes (0.090 and 0.089 mg/L for South and North Lake, respectively).

1.5.2.15.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for North and South Churchill Lakes. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in North and South Churchill Lakes is estimated to be approximately 225.9 and 62.6 lbs/year, respectively.

1.5.2.15.6 SLAM Confirmatory Analysis

Historical water quality data for North and South Churchill Lakes were used to help calibrate the model and confirm model calculations. As the data inventory for both lakes included measurements only between the months of June and September, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The North and South Churchill Lakes SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to

actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-50**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E**.

Table 1-50 Summary of Model Confirmatory Analysis – North Churchill Lake and South Churchill Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
STR	0.090	0.091	1.6%
STS	0.089	0.085	5.3%
Lake Average	0.090	0.088	1.9%

1.5.2.16 SLAM Development for Petite Lake

Petite Lake is a 195-acre reservoir located in Lake County, Illinois. Petite Lake receives water from Spring Lake, which is discussed in **Section 1.5.2.19**, and then flows to Fox Lake, which is discussed in **Section 1.5.2.9**. The lake is primarily used for swimming, boating, and aesthetics, and is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.16.1 Model Segmentation

The SLAM for Petite Lake was developed to include one model zone, or lake segment (VTW). The sampling location and watershed boundary for Petite Lake are shown on **Figure 1-19**.

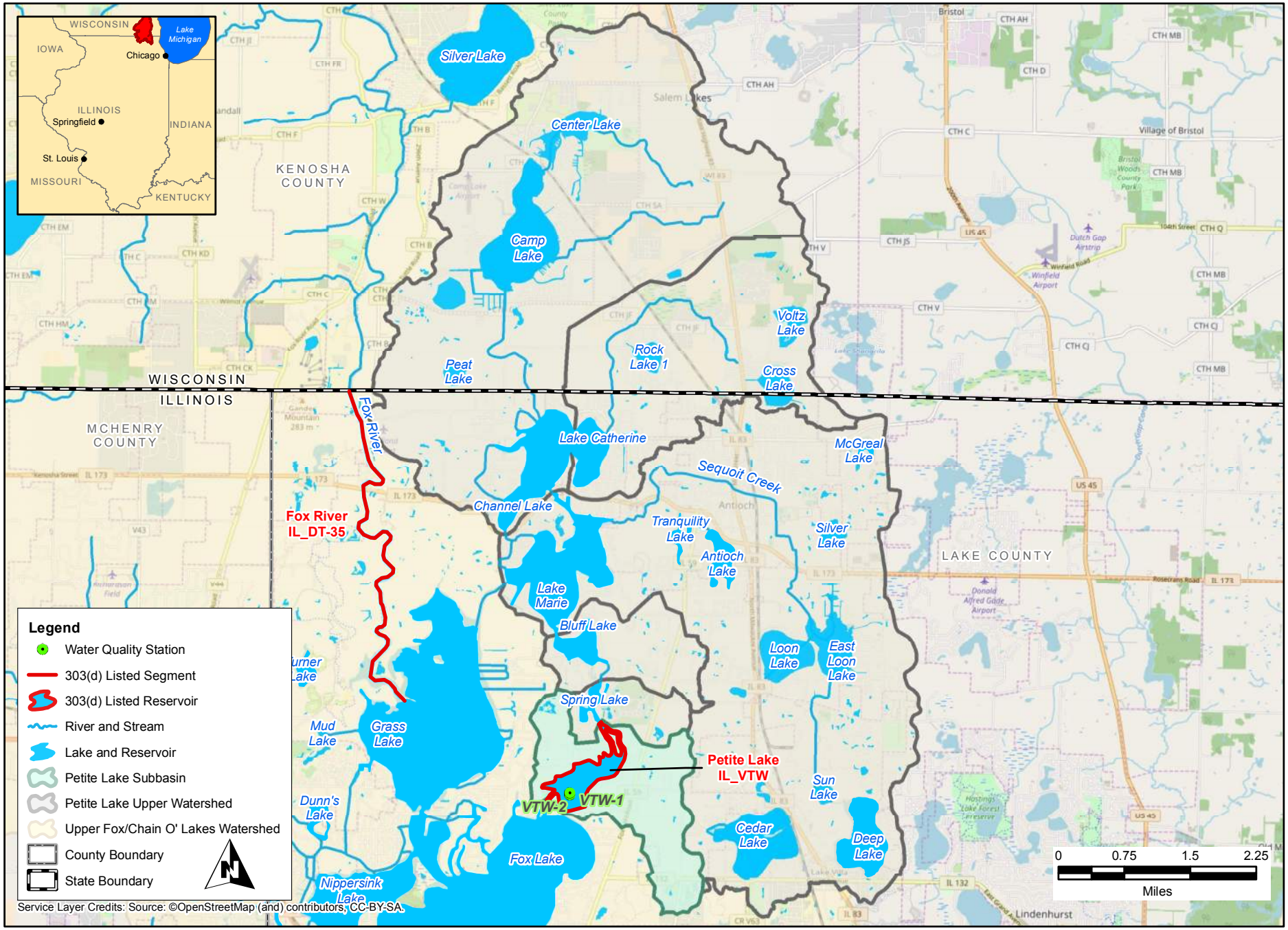
1.5.2.16.2 Lake Hydraulics

The Petite Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Petite Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2014i). A summary of these inputs is shown below in **Table 1-51**.

Table 1-51 Petite Lake (VTW) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
VTW	None	195	100%	1,252	5.2	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.



CDM Smith

Upper Fox/Chain O' Lakes
Petite Lake Subbasin

FIGURE 1-19

1.5.2.16.3 Watershed Parameters

Watershed inputs to SLAM for the Petite Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated using modeled outflows from Spring Lake and by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL to the lake's subbasin using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the overall lake (see **Appendix D**). The total phosphorus load from direct overland runoff into Petite Lake is estimated to be approximately 427 lbs/year based on flow and land use characteristics.

Additionally, Petite Lake receives flows from the upstream Spring Lake, which is discussed further in **Section 1.5.2.19**. Based on calibrated SLAM outputs for the upstream lake, Spring Lake outflows contribute approximately 3,511 lbs/yr to Petite Lake. The annual total phosphorus load from overland runoff and upstream lake inflows was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-52.**

In the case of Petite Lake, there are no point sources discharging directly to the lake or to the watershed immediately upstream of the lake.

Table 1-52 Petite Lake External Phosphorus Loads

Name	Lake Segment	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Total Annual External Phosphorus Load (lbs)
Petite Lake	VTW	427	3,511	3,938

[1] The presented phosphorus load reflects the incorporation of modeled Spring Lake outflows.

1.5.2.16.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Petite Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Petite Lake (0.091 mg/L).

1.5.2.16.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Petite Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Petite Lake is estimated to be approximately 1,759 lbs/year.

1.5.2.16.6 SLAM Confirmatory Analysis

Historical water quality data for Petite Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Petite Lake included measurements only between

the months of May and September, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, as well as more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Petite Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO concentrations recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-53**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E**.

Table 1-53 Summary of Model Confirmatory Analysis – Petite Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
VTW	0.091	0.099	7.6%

1.5.2.17 SLAM Development for Pistakee Lake

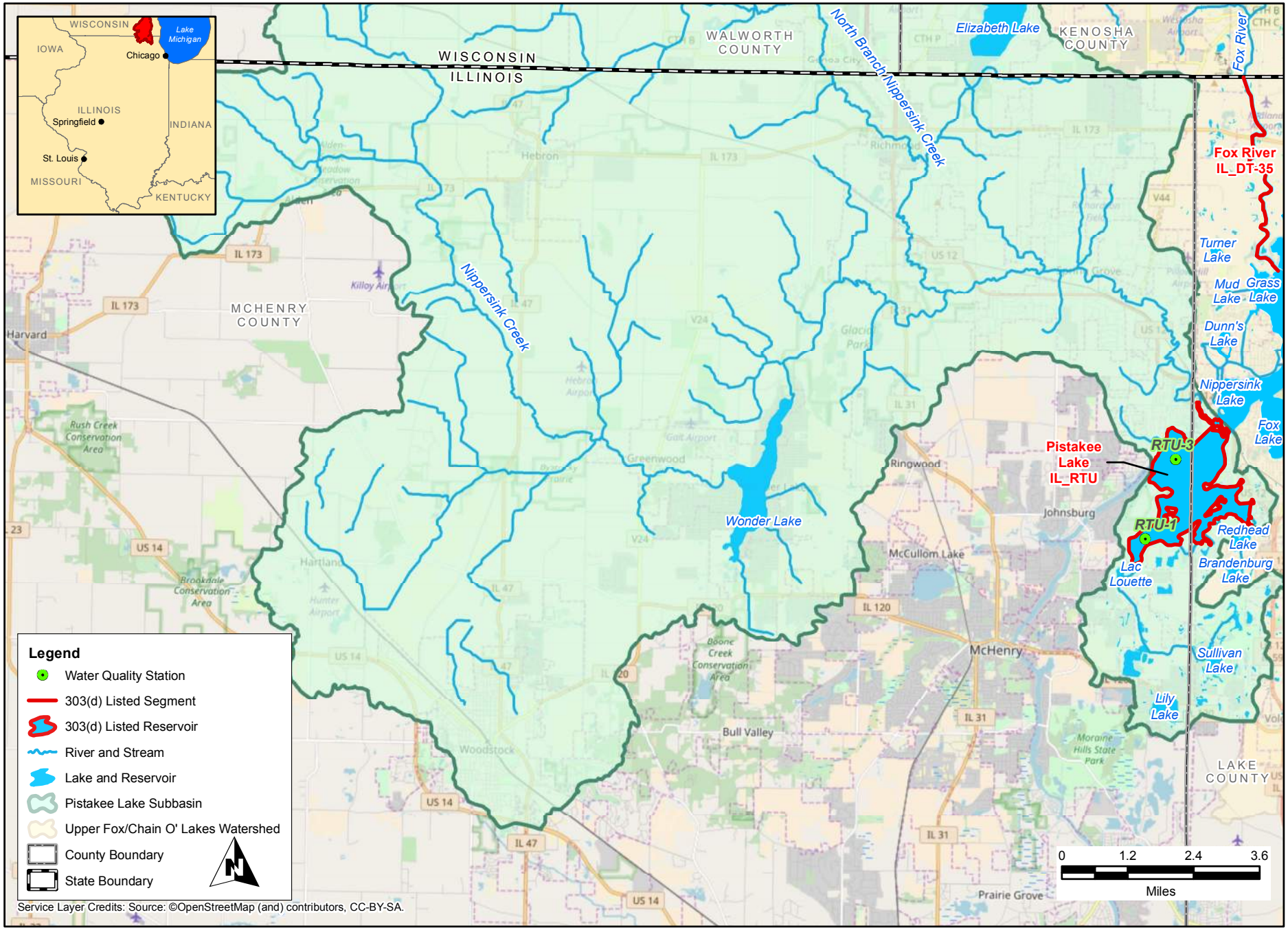
Pistakee Lake is an approximately 1,600-acre glacial lake within Lake County, Illinois. Pistakee Lake receives water from Nippersink Lake as well as Redhead Lake, which are discussed in Sections **1.5.2.9** and **1.5.2.18**, respectively. The primarily used for the lake is recreation, including fishing, boating, and swimming, and is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.17.1 Model Segmentation

The SLAM for Pistakee Lake was developed to include a single model zone for the entire lake basin. The sampling locations and watershed boundary for Pistakee Lake are shown on **Figure 1-20**. Flow within the lake generally moves north, from sampling location RTU-1 to RTU-3. The estimated longitudinal dispersion rate was at 100,000 ft^2/day.

1.5.2.17.2 Lake Hydraulics

The Pistakee Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Pistakee Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2014j). A summary of these inputs is shown below in **Table 1-54**.



CDM Smith

Upper Fox/Chain O' Lakes
Pistakee Lake Subbasin

FIGURE 1-20

Table 1-54 Pistakee Lake (RTU) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RTU	None	1,613	100%	8,385	5.2	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.17.3 Watershed Parameters

Watershed inputs to SLAM for the Pistakee Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated using modeled outputs from Lake Nippersink and Redhead Lakes as well as by scaling the available gage data from USGS gage 05548280 Nippersink Creek Near Spring Grove, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the overall lake (**Appendix D**). The total phosphorus load from runoff into Pistakee Lake is estimated to be approximately 88,239 lbs/year based on flow and land use characteristics. Additionally, Pistakee Lake receives flows from the upstream Nippersink and Redhead Lakes, which are discussed further in **Sections 1.5.2.9** and **1.5.2.18**, respectively. Based on SLAM outputs for the upstream lakes, Nippersink Lake (modeled with Fox Lake) outflows contribute approximately 143,647 lbs/yr and Redhead Lake outflows contribute approximately 189 lbs/yr to Pistakee Lake. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-55.**

Phosphorus loads from point source discharges can be explicitly included as supplemental water in the watershed inputs to the SLAM. The supplemental water input allows the user to input average monthly discharge and monthly average phosphorus concentrations in the discharge along with the fraction of the load as particulate phosphorus. In the case of Pistakee Lake, there are five point sources with reasonable potential to discharge phosphorus to the watershed immediately upstream of the lake.

- Village of Richmond STP (IL0026093); estimated phosphorus load = 1.517 lbs/day
- Village of Hebron WWTP (IL0026433); estimated phosphorus load = 0.328 lbs/day
- City of Woodstock North STP (IL0031861); estimated phosphorus load = 10.48 lbs/day
- Spring Grove STP (IL007498); estimated phosphorus load = 1.777 lbs/day
- Fox Lake NW Regional WRF (IL0020958- outfall 002); estimated phosphorus load = 1.101 lbs/day

Estimated existing phosphorus loads shown above were used for model calibration purposes. These loads are generally based on average measured discharge flow rates and measured

phosphorus concentrations in the effluent based on NPDES reporting requirements. The existing NPDES permit for Spring Grove STP does not include phosphorus limits or monitoring requirements, so the existing phosphorus load is estimated based on the facility's design flow and approximate effluent concentrations based on treatment processes. Note that only outfall 002 in the Fox Lake NW Regional WRF permit discharges to Pistakee Lake. This outfall is only used as an emergency bypass during high runoff events when the lake levels are high (approximately 2-6 times per year) and annual loading into the lake accounts for the intermittent nature of this discharge. Each facilities' contributions to the phosphorus load in the watershed and resulting WLA are discussed in detail in **Section 2.5.2.17** of this report.

Table 1-55 Pistakee Lake External Phosphorus Actual Annual Loads

Name	Lake Segment	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Annual Phosphorus Load from Point Sources (lbs)	Total Annual External Phosphorus Load (lbs)
Pistakee Lake	RTU	88,239	143,836	5,550	239,639

[1] The presented phosphorus load reflects the incorporation of Redhead Lake and Nippersink Lake outflows into the model.

1.5.2.17.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Pistakee Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Pistakee Lake (0.143 mg/L).

1.5.2.17.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Pistakee Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Pistakee Lake is estimated to be approximately 2,710 lbs/year.

1.5.2.17.6 SLAM Confirmatory Analysis

Historical water quality data for Pistakee Lake were used to help calibrate the model and confirm model calculations. As the data inventory for both lake included measurements only between the months of May and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, as well as more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Pistakee Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO levels recorded at depths near the lake bottom suggests

the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-56**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-56 Summary of Model Confirmatory Analysis – Pistakee Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
RTU	0.143	0.152	6.1%

1.5.2.18 SLAM Development for Redhead Lake

Redhead Lake is a 51-acre glacial lake located in unincorporated Grant Township in Lake County, Illinois. The lake is private; however, public access is available through Pistakee Lake. Redhead Lake is listed as impaired by total phosphorus, and the TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.18.1 Model Segmentation

The SLAM for Redhead Lake was developed to include one model zone, or lake segment (RTV). The sampling location and watershed boundary for Redhead Lake are shown on **Figure 1-21**.

1.5.2.18.2 Lake Hydraulics

The Redhead Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volumes by month were entered into the input tabs. The surface area, volume, and depth of Redhead Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2014k). A summary of these inputs is shown below in **Table 1-57**.

Table 1-57 Redhead Lake (RTV) Hydraulics Data

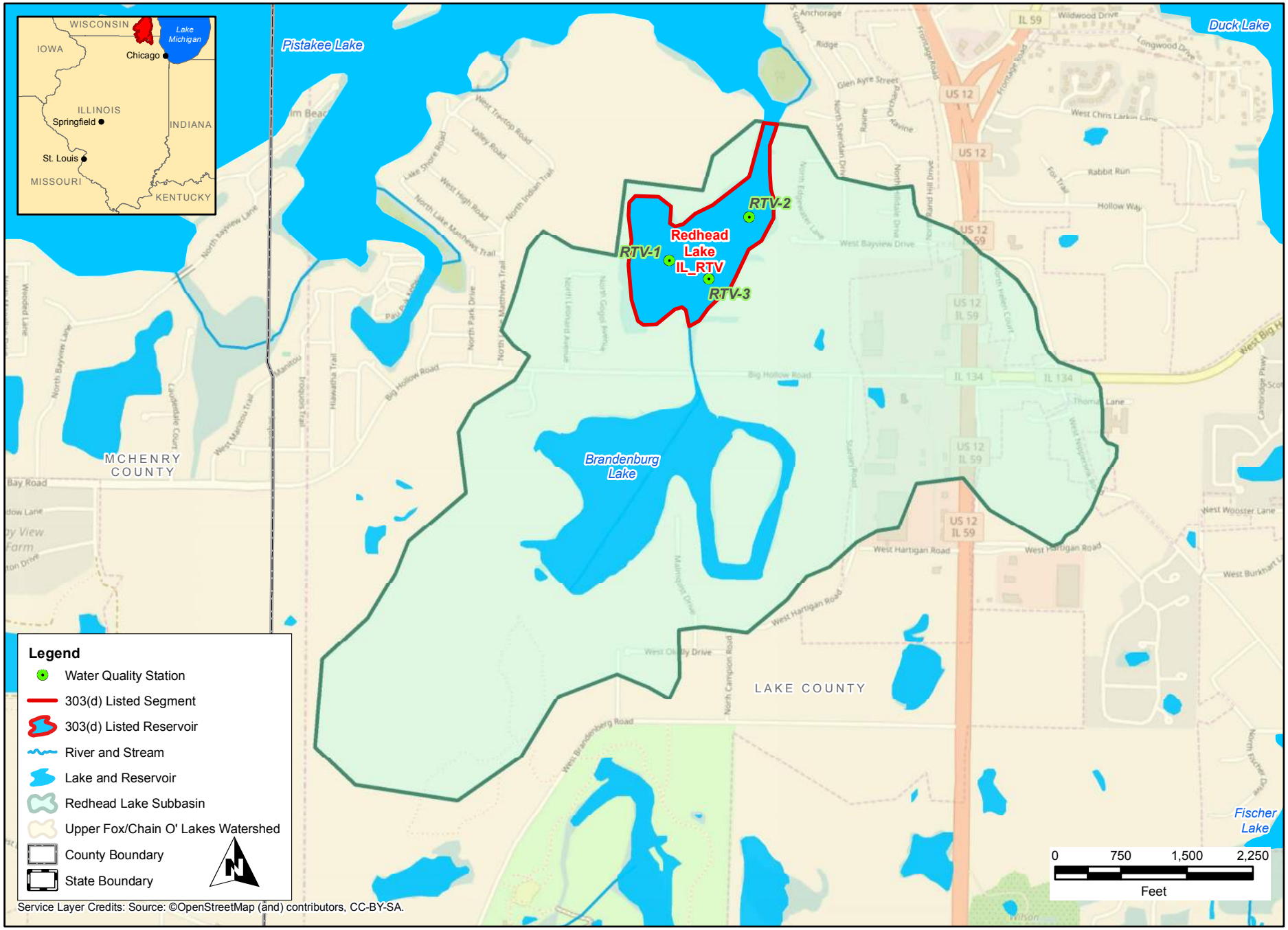
Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RTV	None	51.3	100%	114	2.3	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.18.3 Watershed Parameters

Watershed inputs to SLAM for the Redhead Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land



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Upper Fox/Chain O' Lakes
Redhead Lake Subbasin

FIGURE 1-21

use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Redhead Lake is estimated to be approximately 382 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow.

The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-58.**

No permitted point sources exist in Redhead Lake's watershed.

Table 1-58 Redhead Lake External Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Total Annual External Phosphorus Load (lbs)
Redhead Lake	RTV	1,202	382.2

1.5.2.18.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Redhead Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from the lake (0.065 mg/L).

1.5.2.18.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Redhead Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Redhead Lake is estimated to be approximately 125 lbs/year.

1.5.2.18.6 SLAM Confirmatory Analysis

Historical water quality data for Redhead Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Redhead Lake included measurements only between the months of May and September, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Redhead Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. As can be seen in **Table 1-59**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E**.

Table 1-59 Summary of Model Confirmatory Analysis – Redhead Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
RTV	0.065	0.066	1.66%

1.5.2.19 SLAM Development for Spring Lake

Spring Lake is a 40-acre glacially formed lake within the Chain O' Lakes system in Lake County, Illinois. Spring Lake receives water from Bluff Lake, which is discussed in **Section 1.5.2.2**, and then flows to Petite Lake, which is discussed in **Section 1.5.2.16**. The lake is primarily used for recreation, including boating, fishing, and swimming, as well as aesthetics and is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.19.1 Model Segmentation

The SLAM for Spring Lake was developed to include one model zone, or lake segment (RGZT). The sampling location and watershed boundary for Spring Lake are shown on **Figure 1-22**.

1.5.2.19.2 Lake Hydraulics

The Spring Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Spring Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2014L). A summary of these inputs is shown below in **Table 1-60**.

Table 1-60 Spring Lake (RGZT) Hydraulics Data

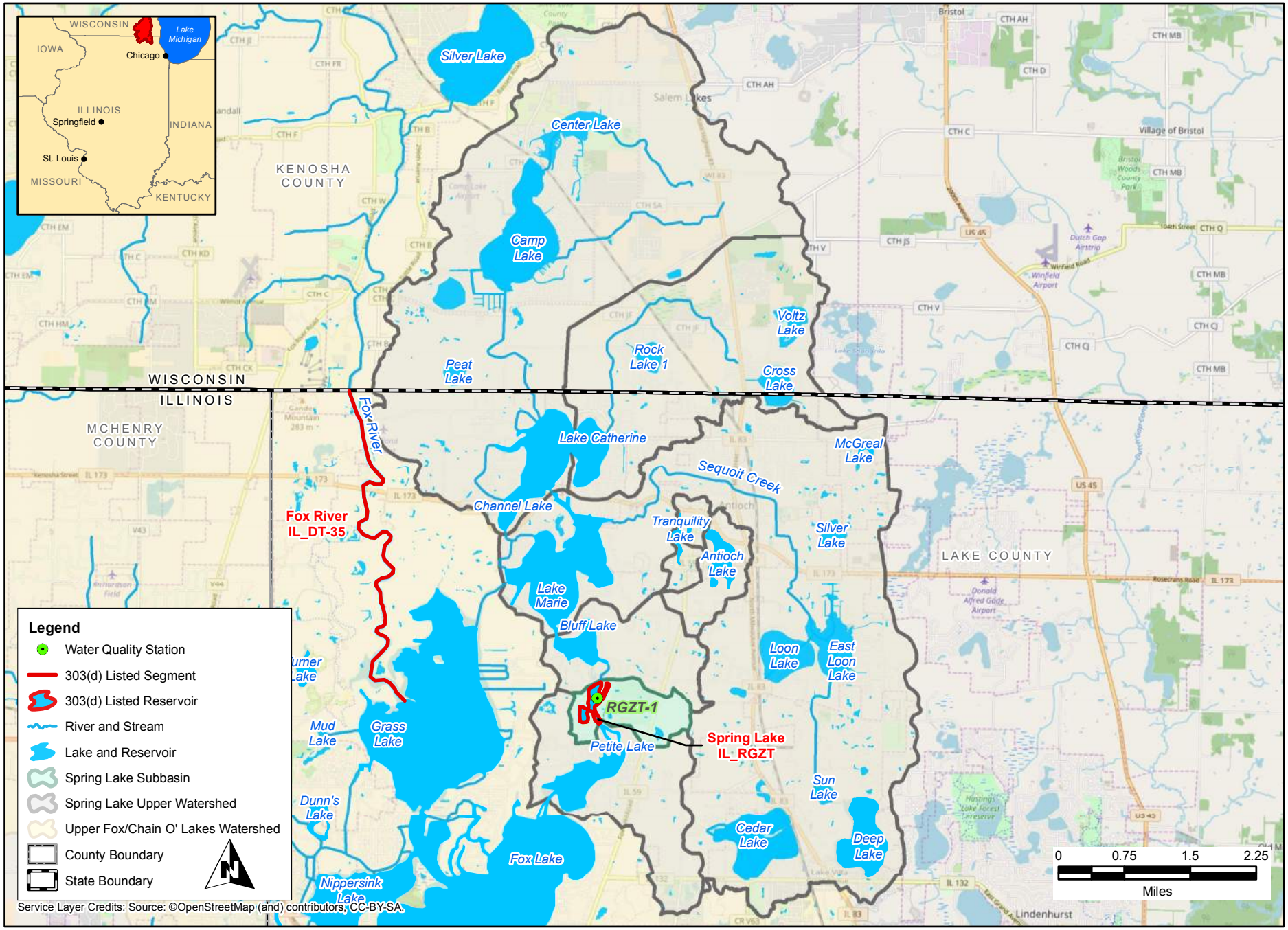
Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RGZT	None	43.0	100%	322.5	7.5	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.19.3 Watershed Parameters

Watershed inputs to SLAM for the Spring Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C)**. The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the overall lake (see **Appendix D**). The total phosphorus load from runoff into Spring Lake is estimated to be approximately 309 lbs/year based on flow and land use characteristics. Additionally, Spring Lake receives flows from the upstream Bluff Lake, which is discussed further in **Section 1.5.2.2**. Based on SLAM outputs for the upstream lake, Bluff Lake outflows contribute approximately 2,769 lbs/yr to Spring Lake. The annual total phosphorus load from overland runoff and upstream lake inflows was then scaled to the daily



Upper Fox/Chain O' Lakes
Spring Lake Subbasin

CDM Smith

FIGURE 1-22

flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-61.** There are no point sources discharging to the lake or to the watershed immediately upstream of the lake.

Table 1-61 Spring Lake External Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Total Annual External Phosphorus Load (lbs)
Spring Lake	RGZT	726	309	2,769	3,077

[1]Includes modeled outflows from Bluff Lake.

1.5.2.19.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Spring Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from Spring Lake (0.086 mg/L).

1.5.2.19.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Spring Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Spring Lake is estimated to be approximately 305 lbs/year.

1.5.2.19.6 SLAM Confirmatory Analysis

Historical water quality data for Spring Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Spring Lake included measurements only between the months of May and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, as well as more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Spring Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is shallow and has high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. As can be seen in **Table 1-62**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E**.

Table 1-62 Summary of Model Confirmatory Analysis – Spring Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
RGZT	0.086	0.094	8.5%

1.5.2.20 SLAM Development for Summerhill Estates Lake

Summerhill Estates Lake is a 54-acre glacial lake located in Fremont Township in Lake County, Illinois. The lake is primarily used for recreation, including boating, swimming, and aesthetics, and is listed as impaired by total phosphorus. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.20.1 Model Segmentation

The SLAM for Summerhill Estates Lake was developed to include one model zone, or lake segment (WTA). The sampling location and watershed boundary for Summerhill Estates Lake are shown on **Figure 1-23**.

1.5.2.20.2 Lake Hydraulics

The Summerhill Estates Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volume by month were entered into the input tabs. The surface area, volume, and depth of Summerhill Estates Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2016d). A summary of these inputs is shown below in **Table 1-63**.

Table 1-63 Summerhill Estates Lake (WTA) Hydraulics Data

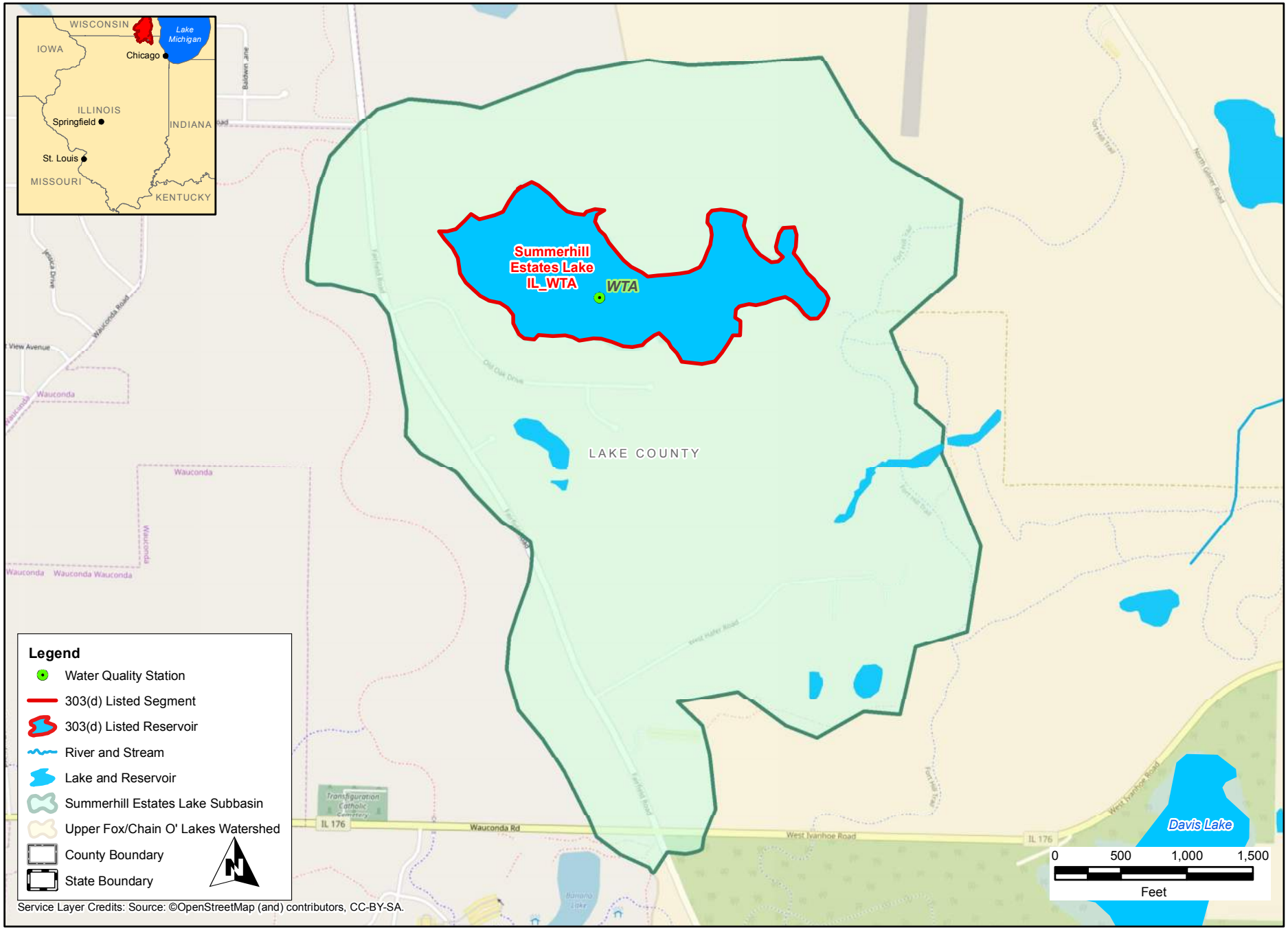
Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
WTA	None	54	100%	152.6	2.8	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.20.3 Watershed Parameters

Watershed inputs to SLAM for the Summerhill Estates Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Summerhill Estates Lake is estimated to be approximately 134 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use characteristics is provided in **Table 1-64.**



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Upper Fox/Chain O' Lakes
Summerhill Estates Lake Subbasin

FIGURE 1-23

In the case of Summerhill Estates Lake, there are no point sources discharging to the lake or to the watershed upstream of the lake.

Table 1-64 Summerhill Estates Lake External Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Annual External Phosphorus Load (lbs)
Summerhill Estates Lake	WTA	289	133.9

1.5.2.20.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Summerhill Estates Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from these lakes (0.199 mg/L).

1.5.2.20.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Summerhill Estates Lake. These rates were later adjusted during model calibration to reflect mixing on a monthly average basis. The total annual internal phosphorus load in Summerhill Estates Lake is estimated to be approximately 236 lbs/year.

1.5.2.20.6 SLAM Confirmatory Analysis

Historical water quality data for Summerhill Estates Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Summerhill Estates Lake included measurements only between the months of May and September, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Summerhill Estates Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. As can be seen in **Table 1-65**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-65 Summary of Model Confirmatory Analysis – Summerhill Estates Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
WTA	0.199	0.217	8.5%

1.5.2.21 SLAM Development for Lake Tranquility

Lake Tranquility is an approximately 25-acre lake, constructed by dredging channels through a slough, located in Lake County, Illinois. This lake is primarily used for recreation, including non-

motorized boating, fishing, and swimming, and is listed as impaired by total phosphorus. Antioch Lake, discussed in **Section 1.5.2.1**, drains into the northern portion of the Lake Tranquility (UTW-1). The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.21.1 Model Segmentation

The SLAM for Lake Tranquility was developed to include two model zones, or lake segments (UTW-1 and UTW-2). The segment boundaries for Lake Tranquility are shown on **Figure 1-24**. Flow within the lake moves north, from UTW-2 to UTW-1. The estimated longitudinal dispersion rate was set at 100,000 ft^2/day.

1.5.2.21.2 Lake Hydraulics

Due to data availability and the mostly static nature of Lake Tranquility, prescribed lake hydraulics were used in this model setup. Hydraulic parameters were specified for the entire lake system as a whole and for each of the individual zones. Total lake volumes by month and estimates of each zone's sub-volume were entered into the respective zone input tabs. The downstream zone was also specified for each zone based on morphology of the system and effectively define the system's flow path.

The surface area, volume, and depth of the lake, and of each of the two model segments within the system were estimated on an annual basis. Surface areas was determined in GIS. Lake depths and volumes were estimated from available sampling and bathymetric data (Lake County 2015b). A summary of these inputs is shown below in **Table 1-66**.

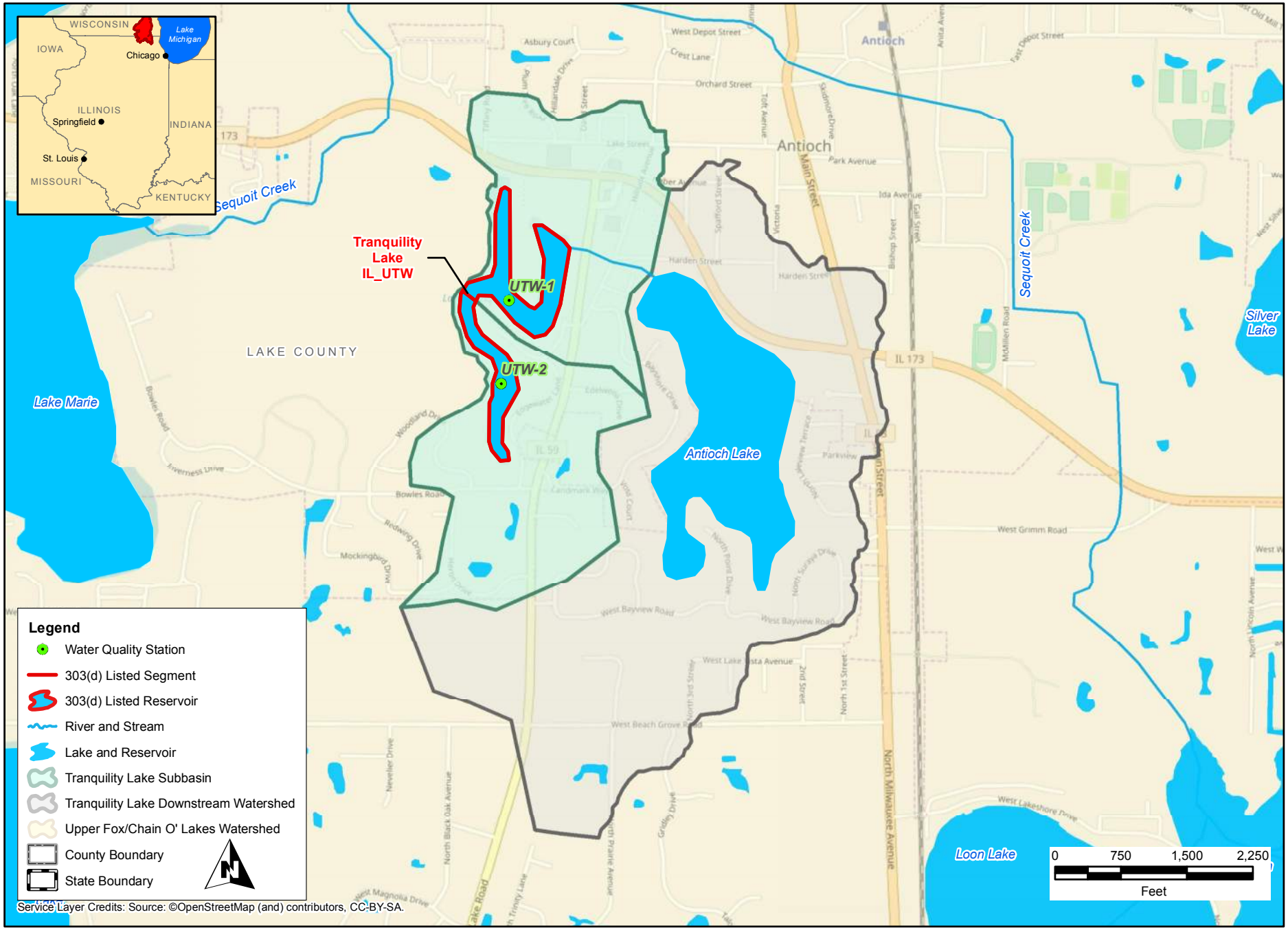
Table 1-66 Lake Tranquility (UTW) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
UTW-2	UTW-1	8.5	33%	47.0	5.5	1,680	210
UTW-1	None	17.2	67%	94.5	5.5	n/a	n/a
Lake Total		**25.7**	**100%**	**141.5**	**5.5**		

1.5.2.21.3 Watershed Parameters

Watershed inputs to SLAM for the Lake Tranquility model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated using modeled outputs from the calibrated Antioch Lake SLAM and by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in each of the lake's subbasins to provide a median annual phosphorus load into the overall lake and to each segment (**Appendix D**). The total phosphorus load from runoff into Lake Tranquility is estimated to be approximately 140 lbs/year based on flow and land use characteristics. Additionally, Lake Tranquility receives flows from the upstream Antioch Lake, which is discussed further in **Section**



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Upper Fox/Chain O' Lakes
Tranquility Lake Subbasin

FIGURE 1-24

1.5.2.1. Based on calibrated SLAM outputs for the upstream lake, Antioch Lake outflows contribute approximately 64.5 lbs/yr to Lake Tranquility, which was incorporated in the UTW-1 segment. The annual total phosphorus load from overland runoff and upstream lake inflows was

then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The estimated non-point phosphorus load as a function of source and land use characteristics in each lake segment's overland subbasin is provided in **Table 1-67.**

There are no point sources discharging to the lake or to the watershed immediately upstream of the lake.

Table 1-67 Lake Tranquility External Phosphorus Loads

Name	Lake Segment	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Total Annual External Phosphorus Load (lbs)
Lake Tranquility	UTW-1	82.2	64.5	146.6
Lake Tranquility	UTW-2	57.5	-	57.5
	TOTAL	**139.7**	**64.5**	**204.1**

[1] The presented phosphorus loads reflect the incorporation of Antioch Lake flows into the model.

1.5.2.21.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Lake Tranquility. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from the lake (0.056 mg/L for the lake as a whole).

1.5.2.21.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Lake Tranquility. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Lake Tranquility is estimated to be approximately 59 lbs/year.

1.5.2.21.6 SLAM Confirmatory Analysis

Historical water quality data for Lake Tranquility were used to help calibrate the model and confirm model calculations. As the data inventory for Lake Tranquility included measurements only between the months of May and September, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Lake Tranquility SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended

sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical thermal stratification information suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-68**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E**.

Table 1-68 Summary of Model Confirmatory Analysis – Lake Tranquility Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
UTW-1	0.053	0.053	0.1%
UTW-2	0.057	0.058	1.3%
Lake Average	**0.056**	**0.055**	**0.6%**

1.5.2.22 SLAM Development for Turner Lake

Turner Lake is an approximately 45-acre glacial lake located near Spring Grove in Lake County, Illinois. The lake is listed as impaired by total phosphorus, and the TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.22.1 Model Segmentation

The SLAM for Turner Lake was developed to include one model zone, or lake segment (VTZA). The sampling location and watershed boundary for Turner Lake are shown on **Figure 1-25**.

1.5.2.22.2 Lake Hydraulics

The Turner Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volumes by month were entered into the input tabs. The surface area, volume, and depth of Turner Lake were estimated on an annual basis as there is no evidence to support modeling water elevation fluctuation over the course of a year. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2002c). A summary of these inputs is shown below in **Table 1-69**.

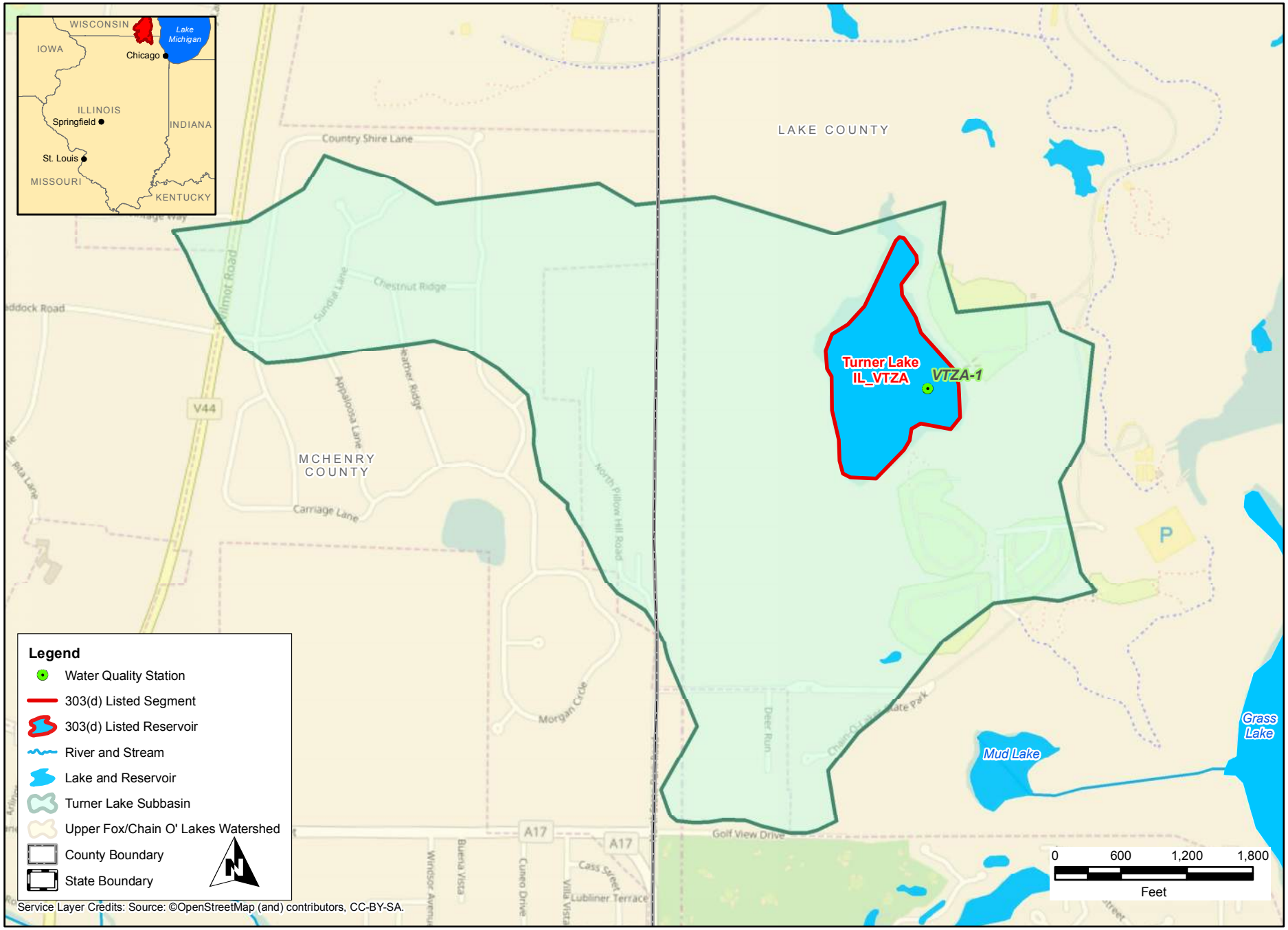
Table 1-69 Turner Lake (VTZA) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
VTZA	None	43.2	100%	228	5.0	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.22.3 Watershed Parameters

Watershed inputs to SLAM for the Turner Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.



Upper Fox/Chain O' Lakes
Turner Lake Subbasin

FIGURE 1-25

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the

USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Turner Lake is estimated to be approximately 176 lbs/year based on flow and land use characteristics. The annual total phosphorus load from overland runoff was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated phosphorus load as a function of land use is provided in **Table 1-70.**

No NPDES permitted point sources discharge to Turner Lake or to the watershed upstream of the lake.

Table 1-70 Turner Lake (VTZA) External Phosphorus Loads

Name	Lake Segment	Subbasin Area (acres)	Total Annual External Phosphorus Load (lbs)
Turner Lake	VTZA	690	176

1.5.2.22.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Turner Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from the lake (0.047 mg/L).

1.5.2.22.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Turner Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Summerhill Estates Lake is estimated to be approximately 101 lbs/year.

1.5.2.22.6 SLAM Confirmatory Analysis

Historical water quality data for Turner Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Turner Lake included measurements only between the months of May and September, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Turner Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were

increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO concentrations recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates well within the range of expected flux as defined in the available literature. As can be seen in **Table 1-71**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

Table 1-71 Summary of Model Confirmatory Analysis – Turner Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
VTZA	0.047	0.051	8.5%

1.5.2.23 SLAM Development for Wooster Lake

Wooster Lake is a 98.5-acre glacial lake located in Lake County, Illinois. The lake is primarily used for recreation, including fishing, swimming, and boating, and is listed as impaired by total phosphorus. Wooster Lake receives water from Fischer Lake, which is discussed in **Section 1.5.2.8**. The calibrated SLAM model output for Fischer Lake was used to estimate additional input loads for Wooster Lake. The TMDL target for total phosphorus is 0.05 mg/L.

1.5.2.23.1 Model Segmentation

The SLAM for Wooster Lake was developed to include one model zone, or lake segment (RTZH). The sampling location and watershed boundary for Wooster Lake are shown on **Figure 1-26**.

1.5.2.23.2 Lake Hydraulics

The Wooster Lake SLAM was developed using prescribed rather than calculated lake hydraulics. Total lake volumes by month were entered into the input tabs. The surface area, volume, and depth of Wooster Lake were estimated on an annual basis. Surface area was determined in GIS. Lake depth and volume were estimated from available sampling and bathymetric data (Lake County 2016e). A summary of these inputs is shown below in **Table 1-72**.

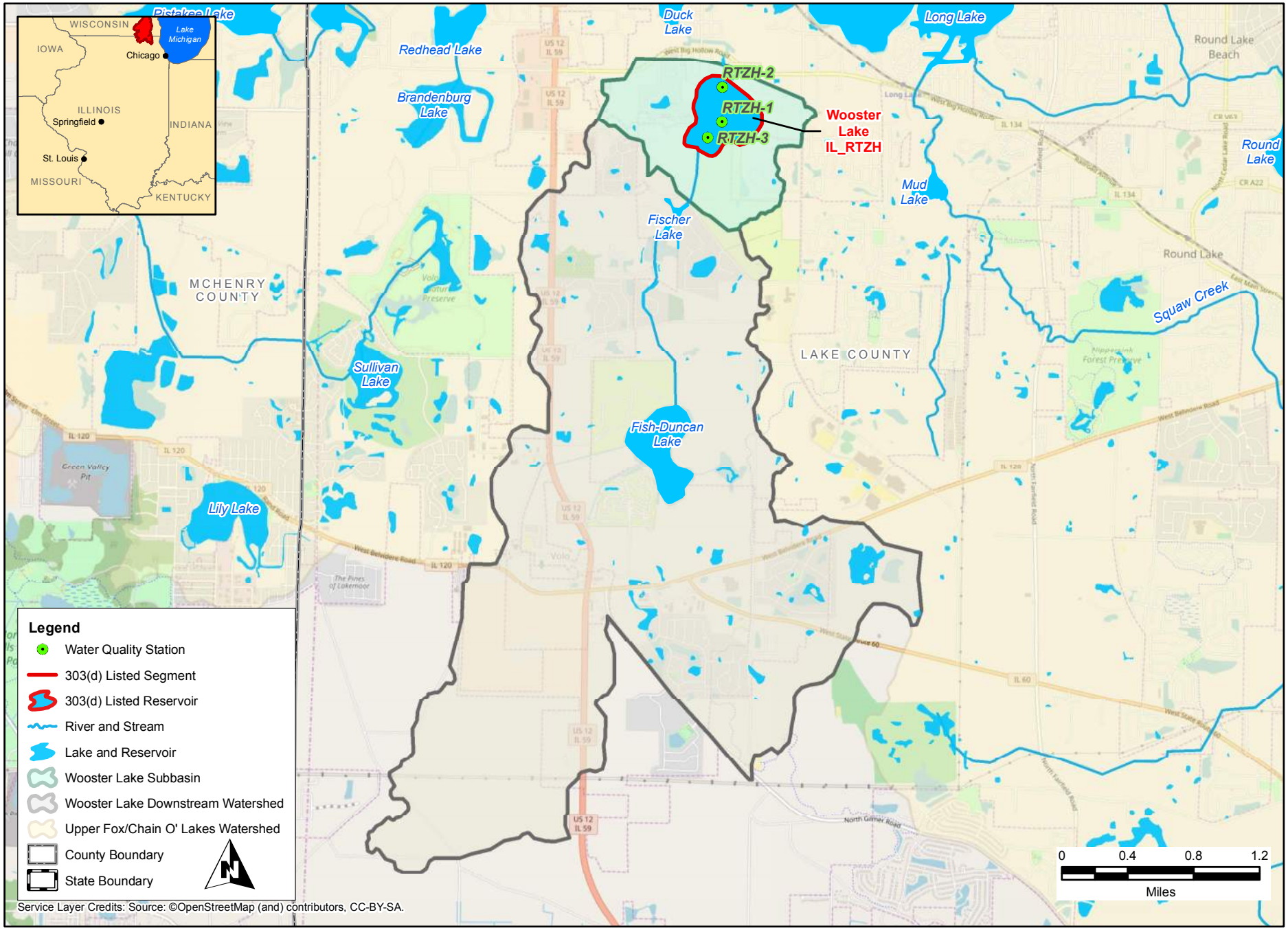
Table 1-72 Wooster Lake (RTZH) Hydraulics Data

Segment	Downstream Zone Within Model	Surface Area (acres)	Surface Area (% of total)	Volume (acre-ft)	Average Depth (ft)	Segment Mixing Length (ft)	Interface Width (ft)
RTZH	None	98.5	100%	1,612	16.3	n/a[1]	n/a[1]

[1]Segment Mixing Length and Interface Width data inputs apply only to segmented lake models.

1.5.2.23.3 Watershed Parameters

Watershed inputs to SLAM for the Wooster Lake model were developed using prescribed flows and loads. Daily flows into the reservoir were estimated using modeled outputs from the Fischer Lake SLAM and by scaling the available gage data from USGS gage 05527950 Mill Creek at Old Mill Creek, IL using the watershed area ratio method as described in **Section 1.5.1.1**.



CDM Smith

Upper Fox/Chain O' Lakes
Wooster Lake Subbasin

FIGURE 1-26

Phosphorus loads from the contributing watershed were estimated based on land use data and the median annual export coefficients for each land use. Export coefficients for each land use category found in the Upper Fox River/Chain O' Lakes watershed were extracted from the

USEPA's PLOAD version 3.0 user's manual (**Appendix C**). The export coefficients for each land use were multiplied by the number of acres of each land use type in the lake's subbasin to provide a median annual phosphorus load into the lake (**Appendix D**). The total phosphorus load from runoff into Wooster Lake is estimated to be approximately 139.5 lbs/year based on flow and land use characteristics. Additionally, Wooster Lake receives flows from the upstream Fischer Lake, which is discussed further in **Section 1.5.2.8**. Based on calibrated SLAM outputs for the upstream lake, Fischer Lake outflows contribute approximately 1,488 lbs/yr to Wooster Lake. The annual total phosphorus load from overland runoff and upstream lake inflows was then scaled to the daily flow estimates to estimate the daily phosphorus load into the reservoir as a function of flow. The subbasin area and estimated non-point phosphorus load as a function of source and land use is provided in **Table 1-73.**

Phosphorus loads from point source discharges can be explicitly included as supplemental water in the watershed inputs to the SLAM. The supplemental water input allows the user to input average monthly discharge and monthly average phosphorus concentrations in the discharge along with the fraction of the load as particulate phosphorus. In the case of Wooster Lake, one point source discharges to the watershed immediately upstream of the lake: Camp Henry Horner STP (IL0054615). Based on existing flow and effluent limits this facility contributes 0.292 lbs/day (107 lbs/year) of total phosphorus to the lake. The facilities' contributions to the phosphorus load in the watershed and resulting WLA are discussed in detail in **Section 2.5.2.23** of this report.

Table 1-73 Wooster Lake Subbasin Areas and Phosphorus Loads

Name	Lake Segment	Annual Phosphorus Load from Overland Runoff (lbs)	Annual Phosphorus Load from Upstream Lake Models (lbs)[1]	Annual Phosphorus Load from Point Sources (lbs)	Total Annual External Phosphorus Load (lbs)
Wooster Lake	RTZH	139	1,488	107	1,734

[1] The presented phosphorus loads reflect the incorporation of Fischer Lake flows in the model.

1.5.2.23.4 Lake Nutrient Parameters

Due to limited availability of site-specific data, the nutrient uptake and settling rates were set to model-default values derived from literature for the SLAM developed for Wooster Lake. The initial lake water quality condition was entered into the model as the average total phosphorus concentration for all available data collected from these lakes (0.055 mg/L).

1.5.2.23.5 Sediment Layer Parameters

Due to lack of site-specific sediment flux data, sediment nutrient flux rates were initially set to zero during the development of the SLAM for Wooster Lake. These rates were later adjusted during model calibration to reflect seasonal lake stratification and mixing on a monthly average basis. The total annual internal phosphorus load in Summerhill Estates Lake is estimated to be approximately 671 lbs/year.

1.5.2.23.6 SLAM Confirmatory Analysis

Historical water quality data for Wooster Lake were used to help calibrate the model and confirm model calculations. As the data inventory for Wooster Lake included measurements only between the months of April and October, the model calibration period was limited to those months. Although the analyses presented below do lend confidence to the modeling, additional lake and tributary water quality data, site-specific sediment characterization, and more precise land use and flow data could potentially contribute to a more thorough calibration of the model.

The Wooster Lake SLAM was initially simulated assuming default phosphorus kinetic parameters (assimilation and decay) and no internal phosphorus loading. When using these loadings, the SLAM consistently under-predicted the concentrations when compared to actual water quality data. To achieve a better match with actual water quality data, the internal loading rates were increased. Internal loading rates reflect nutrient recycling from bottom sediments. Because the lake is relatively shallow and has relatively high concentrations of suspended sediment; wind, precipitation, and waterbody uses likely result in increased resuspension of sediment year-round. Furthermore, a review of historical DO concentrations recorded at depths near the lake bottom suggests the potential for sediment loading of phosphorus as a result of anoxic conditions near the lake bottom. This lends confidence to the potential for internal loading at rates within the range of expected flux as defined in the available literature. As can be seen in **Table 1-74**, a reasonably good match between observed and predicted in-lake phosphorus values was achieved, lending significant support to the predictive ability of this simple model. A printout of the SLAM files is provided in **Appendix E** of this report.

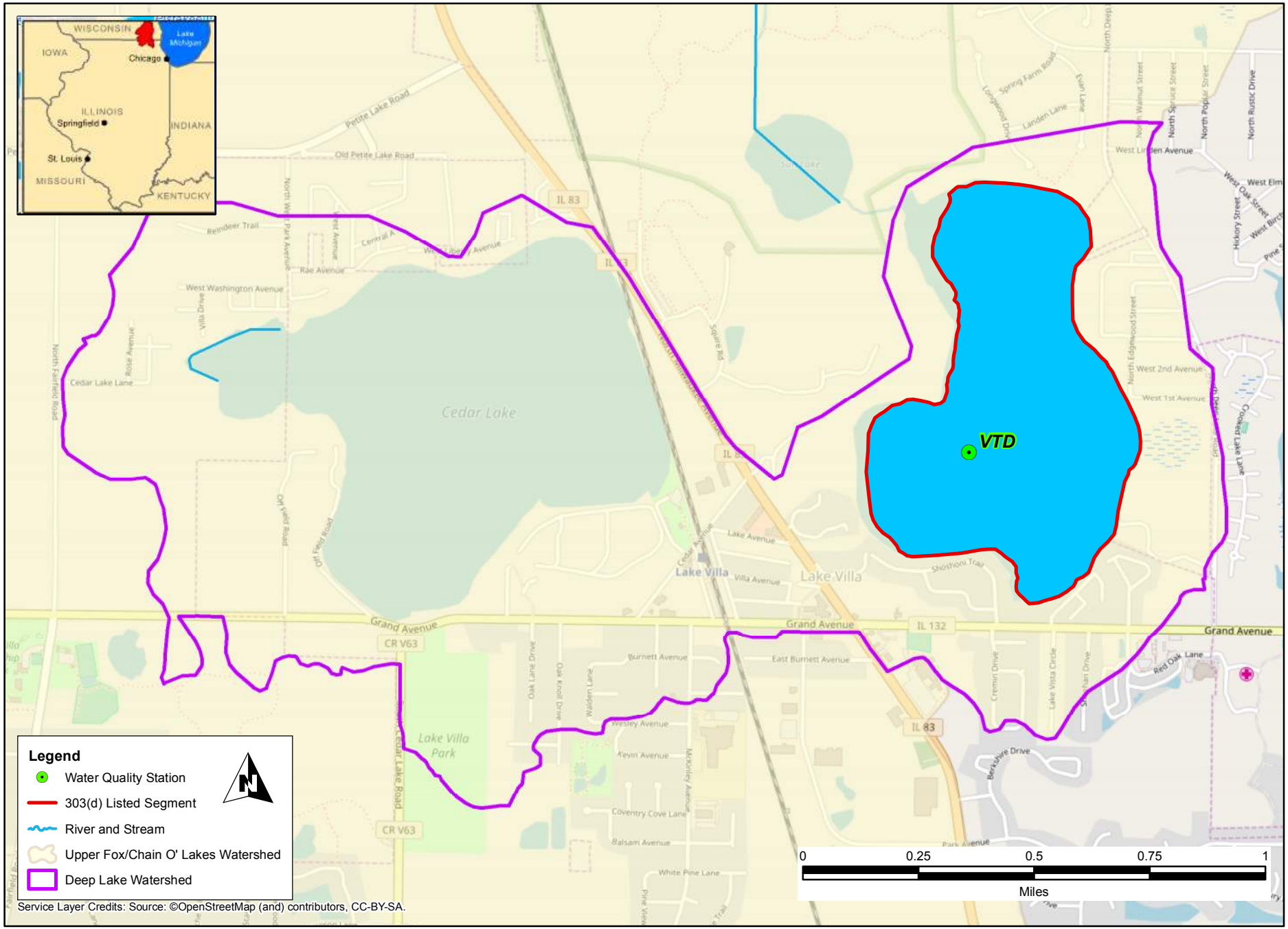
Table 1-74 Summary of Model Confirmatory Analysis – Wooster Lake Annual Total Phosphorus Concentrations (mg/L) During Model Calibration Period

Segment	Observed Concentration (mg/L)	Predicted Concentration (mg/L)	Percent Difference (%)
RTZH	0.055	0.056	3.0%

1.5.3 TMDL Development for Lake Impairments Caused by Fecal Coliform: Deep Lake

Deep Lake is a 226-acre glacial lake located in Lake County, Illinois (**Figure 1-27**). The lake is primarily used for recreation, including fishing, swimming, and boating, and is listed as impaired by fecal coliform bacteria. The available data for Deep Lake are limited to 13 fecal coliform samples collected in 2001 at Deep Lake. Two of the 13 fecal coliform samples exceeded the 200 colony forming units (cfu)/100 mL water quality standard, suggesting that this waterbody may be impaired for fecal coliform. Illinois EPA typically limits assessment for fecal coliform and pathogen impairment to the most recent five-years, so accurate determination of current impairment may warrant additional data collection at for fecal coliform in Deep Lake.

Regardless, spreadsheet calculations were performed using the available data to determine the reductions in fecal coliform loading into the lake required to meet the standard. There are no active NPDES discharge sources in the Deep Lake subbasin. As such, calculation inputs were limited to the target value (200 cfu/100ml of fecal coliform); a watershed flow estimate calculated using surrogate gage data for USGS Gage 05547755 Squaw Creek at Round Lake, IL; and measured in-lake fecal coliform concentrations to calculate the current daily load of fecal coliform into the lake (million colonies/day), the target load (million colonies /day), and the



CDM Smith

Upper Fox/Chain O' Lakes
Deep Lake Subbasin

FIGURE 1-27

percent reduction needed in order to meet the TMDL target. The portion of the allowable load to be applied as WLA for each of two applicable MS4 permittees was also calculated using the proportion of municipal area within he subbasin boundary. Additional information regarding load allocations is provided in **Section 2.5.3**.

1.5.4 LRS Development for Lake Impairments Caused by TSS

Spreadsheet calculations were performed for each of the 21 TSS-impaired lakes (see Table 1-1) to determine the reduction in TSS loading into each lake required to meet the watershed-specific LRS target value established by Illinois EPA of 18.2 mg/L. Spreadsheet inputs included the target value, watershed flow estimates based on watershed areas and surrogate gage calculations similar to those developed as part of the SLAM, the relative proportion of the lake watershed made up by each subbasin, and measured in-lake TSS concentrations to calculate the current daily load of TSS into each lake (lbs/day), the target load (lbs/day), and the percent reduction needed in order to meet the LRS target. WLAs are not calculated for impairments associated with narrative water quality standards for which LRS are developed.

Section 2

Total Maximum Daily Loads for the Upper Fox River/Chain O' Lakes Watershed

2.1 TMDL Endpoints for the Upper Fox River/Chain O' Lakes Watershed

The TMDL endpoints and LRS target values for impairments in the Upper Fox River/Chain O' Lakes watershed are summarized in **Table 2-1**. For all parameters except Dissolved Oxygen (DO) and pH, the concentrations in the waterbody must be less than the TMDL endpoint or LRS target value. The TMDL endpoints for fecal coliform and DO vary seasonally while all other endpoints are consistent throughout the year. Endpoints established for DO and pH are based on protection of aquatic life in the impaired segments/lakes in the Upper Fox River/Chain O' Lakes watershed. The TMDL endpoint for fecal coliform is based on protection of the primary body contact recreational use. The endpoints for total phosphorus in lakes, TSS, and sedimentation/siltation are based on protection of the aesthetic quality designated use.

Parameters with numeric water quality standards are assessed via the TMDL process and the TMDL endpoints directly correlate to the lowest applicable water quality standard established for a given parameter. Parameters without numeric water quality standards were assigned a watershed-specific LRS target value by Illinois EPA. The LRS targets are based on data from all stream segments or lakes within the HUC-10 basins of the watershed, as well as stream segments or lakes which closely border the watershed in neighboring HUC-10 basins, in order to best represent the land use, hydrologic, and geologic conditions unique to the watershed. Load reduction targets were calculated by Illinois EPA using data from waterbodies in which the most current assessment shows full support for aquatic life. Only data that have passed quality assurance and quality checks within Illinois EPA and are in accordance with state and federal laws are used in the LRS target value calculations. The resulting LRS target values are not legally binding, but are intended to serve as planning tools for overall water quality improvement strategies in the watershed.

Table 2-1 TMDL Endpoints for Impaired Constituents in the Upper Fox River/Chain O' Lakes Watershed

Waterbody Name (Segment ID)	Impairment	Assessment Type	TMDL Endpoint or Target Value
Fox River (DT-35)	Sedimentation/Siltation	LRS	13.6 mg/L as NVSS
Antioch Lake (RTT)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Bluff Lake (VTJ)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Lake Catherine (RTD)	**Phosphorus**	**TMDL**	0.05 mg/L
Channel Lake (RTI)	**Phosphorus**	**TMDL**	0.05 mg/L
Davis Lake (STQ)	**Phosphorus**	**TMDL**	0.05 mg/L
Deep Lake (VTD)	**Fecal coliform**	**TMDL**	200 cfu/100 mL
Dunn's Lake (VTH)	**Phosphorus**	**TMDL**	0.05 mg/L

Waterbody Name (Segment ID)	Impairment	Assessment Type	TMDL Endpoint or Target Value
	TSS	LRS	18.2 mg/L
Duck Lake (RTZG)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Fish-Duncan Lake (VTK)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Fischer Lake (VTT)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Fox Lake (RTF)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Grass Lake (RTQ)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Hidden Lake (UTM)	**Phosphorus**	**TMDL**	0.05 mg/L
	Dissolved oxygen[1]	**No TMDL Developed[1]**	5.0 mg/L minimum (March -July) 3.5 mg/L minimum (August-February)
	pH[1]	**No TMDL Developed[1]**	Between 6.5 and 9.0
	TSS	LRS	18.2 mg/L
Long Lake (RTJ)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Lake Marie (RTR)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
McGreal Lake (UTX)	**Phosphorus**	**TMDL**	0.05 mg/L
Nippersink Lake (RTUA)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
North Churchill Lake (STR)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Petite Lake (VTW)	**Phosphorus**	**TMDL**	0.05 mg/L
Pistakee Lake (RTU)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Redhead Lake (RTV)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Round Lake (RTH)	TSS	LRS	18.2 mg/L
South Churchill Lake (STS)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Spring Lake (RGZT)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Summerhill Estates Lake (WTA)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	Recommend Delisting	18.2 mg/L
Tranquility Lake (UTW)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Turner Lake (VTZA)	**Phosphorus**	**TMDL**	0.05 mg/L
	TSS	LRS	18.2 mg/L
Wooster Lake (RTZH)	**Phosphorus**	**TMDL**	0.05 mg/L

[1] DO and pH are directly related to excess nutrients and will be addressed through the total phosphorus TMDL.

2.2 Pollutant Sources and Linkages

Potential pollutant sources for impaired lakes and streams in the Upper Fox River/Chain O' Lakes watershed include both point and nonpoint sources. Pollutants impairing waterbodies in this watershed include fecal coliform, total phosphorus, TSS, and sedimentation/siltation.

Load duration curves were developed for the sedimentation/siltation LRS in the impaired stream segment (DT-35). Load duration curves are useful in that they provide a link between historical sampling values and hydraulic condition. Spreadsheet calculations were also developed for the fecal coliform TMDL in Deep Lake. **Table 2-2** shows the example source area/hydrologic condition consideration developed by USEPA. Pollutant sources for TSS in lakes are similar to those identified for stream segments impaired by these parameters.

Table 2-2 Example Source Area/Hydrologic Condition Considerations (USEPA 2007)

Contributing Source Area	Duration Curve Zone				
	High Flow	Moist	Mid-Range	Dry	Low Flow
Point Source				M	H
Onsite Wastewater System			H	M	
Riparian Areas		H	H	H	
Stormwater: Impervious Areas		H	H	H	
Combined sewer overflows	H	H	H		
Stormwater: Upland	H	H	M		
Bank Erosion	H	M			

Note: potential relative importance of source area to contribute loads under given hydrologic conditions (H: High, M: Medium)

Other pollutant sources and their linkages to the impaired lakes were established through the SLAM efforts discussed in **Section 1**. Model outputs indicate that loads of total phosphorus originate from both internal and external sources. Overall, potential sources of nutrients in the impaired lake watersheds include point and nonpoint sources such as runoff from surrounding neighborhoods and developed areas, agriculture, grassland, forest, and parkland, and internal loading from lake sediments. Nutrients bound in eroded soils and plant materials are introduced to the waterbodies through runoff from precipitation events. Once in the waterbodies, nutrients are introduced to the water column and/or nutrient rich soils and plant materials settle to the bottom perpetuating the internal cycling of nutrients.

Pollutant sources and linkages for the lake impaired by DO and pH (Hidden Lake) were also evaluated through the SLAM effort. Potential sources of nutrients and oxygen demanding materials that can lead to low instream DO and changes in pH include both point sources such as municipal treatment plant discharges and non-point sources such as overland runoff. Further pollutant source discussion is provided throughout this section and implementation activities to reduce loading from the potential sources are outlined in **Section 3**.

Sources of Fecal Coliform

Point sources of fecal coliform in this watershed include permitted MS4 outfalls throughout the watershed. These outfalls are located on tributaries of the Deep Lake and, in some cases, may directly discharge to the lake.

Nonpoint sources of fecal coliform in the watershed include wildlife waste, domestic pet waste, and overland stormwater runoff. Other nonpoint sources for fecal coliform can include septic systems. While the entirety of the watershed is currently within the service area of a municipal sewer system, functional or abandoned septic systems potentially still exist within the watershed, the existence and prevalence of which is not known. Further pollutant source discussion related to fecal coliform impairment in this watershed is provided in Section 2.3.2 below.

Sources of Suspended Sediment

Point sources potentially contributing to TSS and sedimentation/siltation impairments in the watershed include MS4s. None of the NPDES permitted facilities in this watershed currently have discharge monitoring requirements for TSS that would suggest they are a significant source of this pollutant. Note that both TSS and sedimentation/siltation impairments are based on narrative (i.e. non-numeric) standards and are addressed through the LRS process which does not include development of WLAs.

Non-point and stormwater-related inputs of sediments into the impacted waterbodies in the watershed include urban runoff; runoff from agricultural, undeveloped, and park lands; runoff from temporarily disturbed areas during construction processes; and stream bank erosion during high flow conditions. Further pollutant source discussion related to TSS and sedimentation/siltation impairments in this watershed is provided in Section 2.4.1 and 2.4.2 below.

Sources of Nutrients and Oxygen Demanding Materials

Point sources of nutrients and oxygen demanding materials contributing to DO impairments in the watershed include individually NPDES permitted facilities and MS4s. **Table 2-4** below contains permit information on the treatment facilities, as well as model input parameters used in the lake modeling discussed throughout this section of this report.

Potential stormwater-related inputs of phosphorus and other nutrients to the impacted lakes in the watershed include MS4 and non-MS4 urban runoff, and runoff from agricultural, undeveloped, and park lands. In addition, inputs are often caused by nutrient applications in urban settings, such as fertilizer inputs on lawns, golf courses, and other intensively used and maintained landscapes. Nutrients adsorb to soils and enters waterways with runoff and erosion, resulting in excessive growth of algae and other aquatic plants, which impairs aesthetics, water quality, and recreational potential. Additional pollutant source discussion related to phosphorus in this watershed is provided in Section 3 as well as in the remainder of Section 2.

2.3 TMDL Allocation

The TMDLs for impaired segments in the Upper Fox River/Chain O' Lakes watershed are addressed using the following equation:

$$\mathbf{TMDL = LC = \Sigma WLA + \Sigma LA + MOS + RC}$$

where:	LC	=	Loading capacity - the maximum amount of pollutant loading a water body can receive without violating water quality standards
	WLA	=	Waste load allocation - the portion of the TMDL allocated to existing or future point sources

LA	=	Load allocation – the portion of the TMDL allocated to existing or future nonpoint sources and natural background
MOS	=	Margin of safety - an accounting of uncertainty about the relationship between pollutant loads and receiving water quality
RC	=	Reserve capacity – the portion of the load explicitly set aside for future population growth and additional development in the watershed

Each of these elements will be discussed in this section as well as consideration of seasonal variation in the TMDL calculation.

2.3.1 Total Phosphorus TMDL for Lakes

2.3.1.1 Loading Capacity

TMDLs were developed for the 26 phosphorus-impaired lakes within the Upper Fox River/Chain O' Lakes watershed to estimate the pounds of total phosphorus that can be allowed as input to each lake per day and still meet the applicable water quality standard. The lowest applicable water quality standard and TMDL target for total phosphorus is 0.05 mg/L. The allowable phosphorus loads that can be generated in the watershed and still maintain water quality standards were determined using the SLAMs discussed in **Section 1**.

The total allowable loads of total phosphorus into Upper Fox River/ Chain O' Lakes watershed lakes, calculated through SLAM, are shown in **Table 2-3**. To calculate the LC, the current total phosphorus load into each lake was first calculated in the model using values from the historical data. The current calculated loads from internal and external sources were then iteratively reduced in the model until the water quality standards were met by the 90th percentile of all projected daily concentrations within a lake. The SLAM calculates daily concentrations of total phosphorus for each modeled segment based on a depth-integrated average concentration while lakes are assessed for impairment of total phosphorus based only on the concentrations reported for the surface of the lake. As surface and epilimnetic concentrations are typically lower than the hypolimnetic and depth-integrated average concentration, LCs calculated

Table 2-3 Estimated Phosphorus Loading Capacities for Each Phosphorus-Impaired Lake in the Upper Fox River/Chain O' Lakes Watershed

Waterbody	Segment	Current Loading (lbs/day)	Loading Capacity (lbs/day)
Antioch Lake	RTT	1.45	0.60
Bluff Lake	VTJ	8.25	2.88
Lake Catherine	RTD	5.22	4.83
Channel Lake	RTI	13.4	6.80
Davis Lake	STQ	2.03	0.30
Duck Lake	RTZG	3.46	2.98
Dunn's Lake	VTH	1.34	0.79
Fischer Lake	VTT	5.21	1.22
Fish-Duncan Lake	VTK	7.09	1.77
Fox Lake	RTF	183	54.4
Grass Lake	RTQ	424	101.1
Hidden Lake	UTM	0.49	0.10
Long Lake	RTJ	38.6	13.2
Lake Marie	RTR	32.7	11.3
McGreal Lake	UTX	0.89	0.19
Nippersink Lake	RTUA	269	49.1
North Churchill Lake	STR	1.25	0.51
Petite Lake	VTW	15.6	4.73
Pistakee Lake	RTU	748	149
Redhead Lake	RTV	1.39	0.54
South Churchill Lake	STS	0.80	0.39
Spring Lake	RGZT	9.27	1.72
Summerhill Estates Lake	WTA	1.01	0.20
Lake Tranquility	UTW	0.72	0.41
Turner Lake	VTZA	0.76	0.60
Wooster Lake	RTZH	6.12	3.69

using the 90th percentile of depth integrated concentrations will result in compliance with standards assessed at the surface and will therefore be protective of all designated uses of the impaired waterbody.

2.3.1.2 Seasonal Variation

A season is represented by changes in weather; for example, a season can be classified as warm or cold as well as wet or dry. Seasonal variation is accounted for in the total phosphorus TMDLs by developing the model and performing all calculations of load on an annual basis. Modeling was performed for an approximate 16.5-year period (January 1, 2000- July 31, 2016) for each lake and takes into account the seasonal effects each lake will undergo during a given year. Since the pollutant source can be expected to contribute loadings in different quantities during different time periods (e.g., seasonal changes in precipitation result in different runoff characteristics at different times of year), the loadings for this TMDL are focused on average annual loadings converted to daily loads rather than specifying different loadings by season. Each lake will each experience critical conditions pertaining to phosphorus concentrations every year based on the growing season. Available sampling data are primarily collected during the growing season and allow for model calibration to focus on the critical condition periods of the year. Because an average annual basis was used for TMDL development, the critical condition for each waterbody is accounted for within the analysis.

2.3.1.3 Margin of Safety

The MOS can be implicit (incorporated into the TMDL analysis through conservative assumptions), explicit (expressed in the TMDL as a portion of the loadings), or a combination of both. The MOS for the lake TMDLs are both implicit and explicit. An explicit MOS of 10% was included to account for the relative lack of site-specific data and overall uncertainty associated with physical (flow, bathymetry, mixing, temperature variation, etc.) and chemical data (water quality parameters) available for sites within these watersheds.

In addition to the explicit MOS of 10%, the analyses completed for these waterbodies were conservative as a result of the default coefficients and conservative calculations used in each SLAM, which were developed to be conservative in nature in the absence of site-specific information. Default model values, such as dispersion rates, are based on scientific data accumulated from literature and represent a broad-reaching survey of lakes. Wherever site-specific data are not available, default model rates and ranges are used which are based on error analysis calculations. SLAM and the default values incorporated within the model provide a conservation range of where the predictions could fall and provide confidence in the predicted values.

2.3.1.4 Waste Load Allocation

WLAs for phosphorus TMDLs are applied to individually permitted facilities and MS4s areas that exist in the Upper Fox River/Chain O' Lakes watershed in Illinois, as described below. No CSO discharges exist within any of the impaired lakes' subbasins in Illinois.

Individual NPDES permitted facilities

Within the Illinois portion of the Upper Fox River/Chain O' Lakes watershed, there are currently 11 National Pollutant Discharge Elimination System (NPDES) permitted facilities with existing

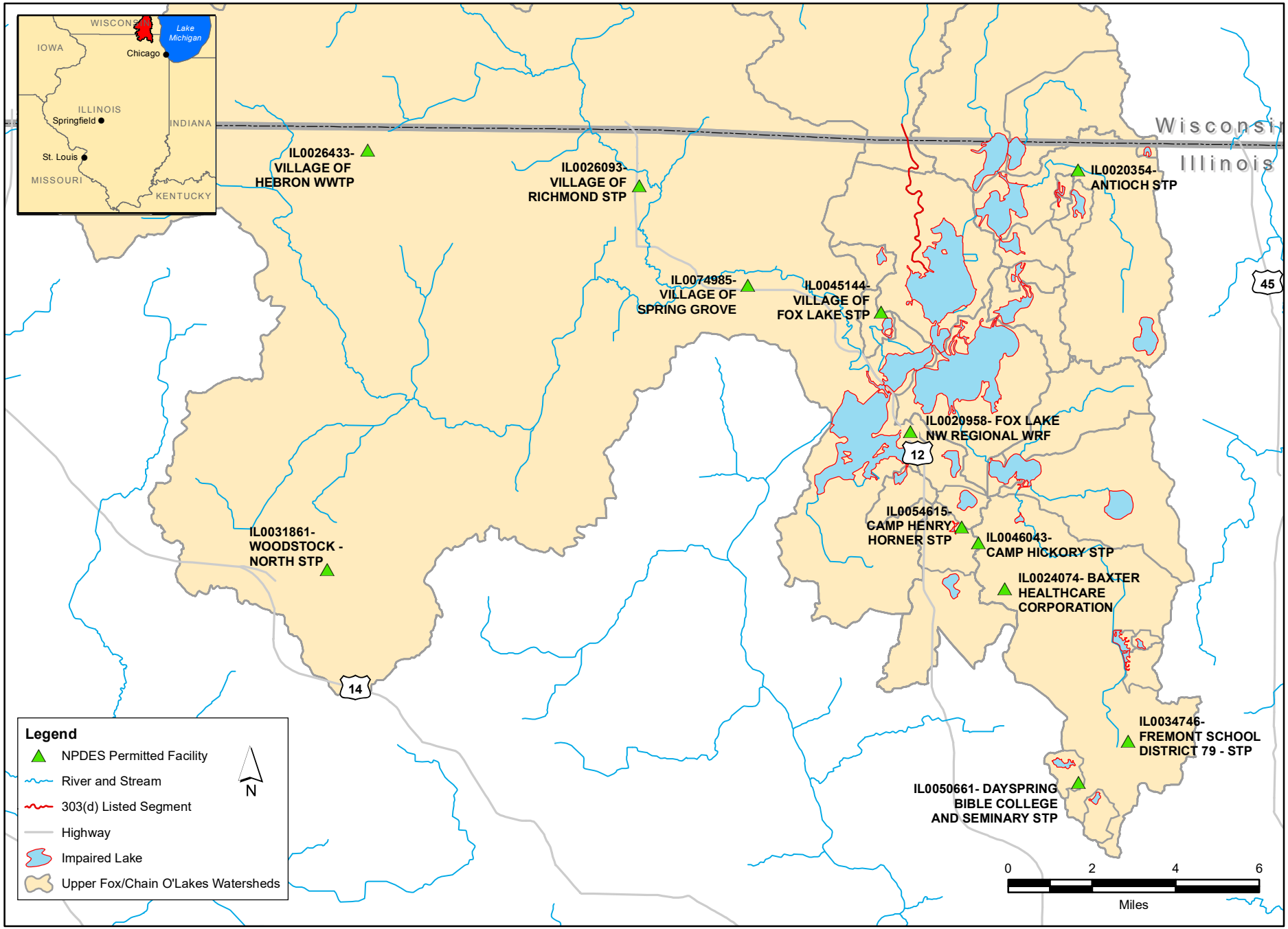
permit limits for phosphorus and/or reasonable potential to discharge effluent with elevated phosphorus concentrations (**Figure 2-1**). Each of these dischargers contributes only a small proportion of the total flow into their respective receiving waters, but the cumulative effect of the phosphorus load from point sources can be significant and warrants the development of WLAs in the TMDL calculations.

In order to estimate total phosphorus loading for each facility, a review of effluent data and permit language for similar facilities in the region was performed and coupled with best professional knowledge of effluent concentrations expected for each type of treatment facility. Using a value near the upper limit of the expected range serves as a conservative measure for the overall modeling process.

Where available, the total phosphorus effluent limit was used as the input concentration for the facility's WLA. For facilities currently without phosphorus limits, phosphorus concentrations in effluent were approximated based on the treatment process in use at the facility. Following a thorough review of similar NPDES Permits, Discharge Monitoring Reports for facilities with total phosphorus (TP) effluent limits and "Monitoring Only" requirements (see Appendix F), and using best professional judgement, facilities that are described as using domestic lagoon or Imhoff tank and sand filtration treatment in their NPDES permit were assigned an estimated average total phosphorus concentration of 5.0 mg/L. Facilities using septic tanks and recirculating sand filtration were assigned average total phosphorus concentrations of 7.0 mg/L. As stated above, these values were at the upper range of estimated concentrations for these types of facilities and were used in calculations with the intent that current permits will not require nutrient removal technologies to be implemented at this time. However, future plant expansions and new facilities may be subject to applicable Water Quality Standards (WQS) or technologically achievable Water Quality Based Effluent Limits (WQBELs).

Actual facility flow and effluent concentrations often differ considerably from the permitted flows (design flows) and concentrations (effluent limits). In order to facilitate more accurate calibration of the models using measured historical water quality data, flow and loading estimates were based on measured flow and concentration from each facility's discharge monitoring data during the model calibration process. However, as a conservative measure designed to reflect the impact of phosphorus loads in lakes downstream of dischargers, the current permit effluent limits and design average flows (DAFs) were used to calculate loads for WLA calculations, where available. Treatment process-based estimates of effluent concentrations were used as model inputs for facilities without permit limits or monitoring requirements.

WLA allocations for each facility are applied to the nearest downstream lake and model as the loads to these waters will involve the least dilution (compared to waterbodies further downstream) and will provide the most protective WLA for all lakes. The current estimated phosphorus load, the calculated phosphorus WLAs based on applicable permits, and the nearest downstream waterbody for each facility within the Upper Fox River/Chain O' Lakes watershed are provided in **Table 2-4.** WLAs developed for each facility in a lake's subbasin are summed during the TMDL calculation process to provide an estimate of the total WLA for total phosphorus for the lake.



Upper Fox River/ Chain O'Lakes Watershed

NPDES Facilities Potentially Contributing to Total Phosphorus in Lakes

CDM Smith

FIGURE 2-1

Additional future monitoring of total phosphorus concentrations in effluent from each of these facilities may provide greater certainty to relative impact of point sources on total phosphorus concentrations in the Upper Fox River/Chain O' Lakes watershed.

Table 2-4 WLAs for Total Phosphorus Loads

NPDES Permit Number	Facility Name	Impacted Lake/Model	Model Calibration		TMDL/WLA Calculations		
			Current Average Measured Flow (MGD)	Current Average Effluent Concentration (mg/L of P)	DAF (MGD)	Permit Effluent Limit (mg/L of P)	WLA (lbs/day)
IL0045144	Village of Fox Lake-Tall Oaks STP	Dunn's Lake	0.152	0.480	0.5	1.0	0.63[1]
IL0034746	Fremont School District #79[2]	Long Lake	0.005	5.0[3]	0.01	n/a	0.42
IL0046043	Camp Hickory[2]	Long Lake	0.014	5.0[3]	0.014	n/a	0.58
IL0050661	Dayspring Bible College and Seminary STP[2]	Long Lake	0.009	5.0[3]	0.03	n/a	1.25
IL0054615	Camp Henry Horner STP	Wooster Lake	0.0014	3.872	0.014	n/a	0.45[4]
IL0020354	Village of Antioch STP	Lake Marie	1.32	0.752	2.0	1.0	8.26[1]
IL0020958	Fox Lake NW Regional WRF (Outfall 002)[5]	Pistakee Lake	Intermittent	0.081	8.0	1.0	67
IL0026093	Village of Richmond STP	Pistakee Lake	0.311	0.586	0.5	1.0	4.17
IL0026433	Village of Hebron WWTP	Pistakee Lake	0.078	0.502	0.33	1.0	2.75
IL0031861	City of Woodstock-North STP	Pistakee Lake	2.175	0.578	3.5	1.0	29.2
IL0074985	Spring Grove STP	Pistakee Lake	0.042	5.0[3]	0.075	n/a	3.13

[1] WLA for this facility based on current condition. Model outputs show that receiving water will not be able to attain WQS with discharge at permit limit and DAF, regardless of other internal or external loading sources.

[2] Facility upstream of measured stream flow and concentration data collection, effluent loads captured in stream data and not explicitly input into model.

[3] Current permit does not include effluent limits or discharge monitoring requirements for total phosphorus, effluent concentrations estimated based on facility type and treatment processes.

[4] No numerical effluent limit for phosphorus at this facility, total WLA based on measured phosphorus concentrations and facility design flows (DAF).

[5] Outfall 002 is used only under high runoff conditions when lake levels are high (approximately 1-6 times per year)

MS4 Discharges

MS4 discharges represent runoff from municipal areas with separate stormwater sewer systems. MS4 discharges are regulated discharges and therefore, are allocated through WLAs, rather than LAs. WLAs for MS4s are calculated by first determining the total area within a municipality's boundaries that lies within the target watershed using GIS analyses and geographic data for municipal boundaries from the U.S. Census Department (2013). The total municipal area within the watershed serves as an approximation of the total MS4 area in the watershed.

The proportion of total MS4 area to total watershed area was then calculated for each lake's watershed. Due to the cumulative nature of assigning WLAs for MS4 based on proportion of watershed area, in cases where a given MS4 area is partially contained within multiple TMDL subbasins, the WLAs for the MS4 are calculated for the total permitted municipal area target lake's subbasin exclusive of subbasins upgradient included in other models. Thus, the total WLA for a given MS4 permittee for the entire Upper Fox River Chain O'Lakes Watershed is the sum of WLAs for the permit from the tables below. This proportion was then used to migrate loads from previously calculated LAs for overland runoff to WLAs for MS4 areas. This process effectively transfers MS4 load allocations for overland runoff from non-regulated sources described as LAs to the WLA for regulated sources of contaminants. The total MS4 load allocations for phosphorus that are applied to the proportion of each municipality within each impaired lake's watershed are shown in **Tables 2-5** through **2-23**. There are no MS4s in the Bluff Lake, Petite Lake, Summerhill Estates Lake or Spring Lake subbasins.

Table 2-5 Allocation Summary for MS4s in the Antioch Lake Watershed

Source	NPDES ID	Municipal Area in Watershed (acres)	Percent of Total Watershed Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	147	33.2%	0.079
Total MS4		**147**	**33.2%**	**0.079**

Table 2-6 Allocation Summary for MS4s in the Lake Catherine and Channel Lake Watersheds

Subbasin	Source	NPDES ID	Municipal Area in Watershed (acres)	Percent of Total Watershed Area	Total Phosphorus WLA (lbs/day)
Catherine	Antioch Village	ILR400281	353	9.8%	0.31
Channel	-		-	-	-
Total MS4			**353**	**2.9%**	**0.31**

Table 2-7 Allocation Summary for MS4s in the Davis Lake Watershed

Source	NPDES ID	Municipal Area in Watershed (acres)	Percent of Total Watershed Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	1.5	0.35%	0.0004
Total MS4		**1.5**	**0.35%**	**0.0004**

Table 2-8 Allocation Summary for MS4s in the Duck Lake Watershed

Source	NPDES ID	Municipal Area in Watershed (acres)	Percent of Total Watershed Area[1]	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	550	10.0%	0.060
Total MS4		**550**	10.0%	0.060

[1] Subbasin area contributing to direct runoff into the lake, excludes portions of the watershed flowing to upstream modeled lakes.

Table 2-9 Allocation Summary for MS4s in the Dunn's Lake Watershed

Source	NPDES ID	Municipal Area in Watershed (acres)	Percent of Total Watershed Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	329	72.2%	0.048
Total MS4		**329**	**72.2%**	**0.048**

Table 2-10 Allocation Summary for MS4s in the Fischer Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Volo Village	ILR400657	559	48.6%	0.144
Total MS4		**559**	**48.6%**	**0.144**

Table 2-11 Allocation Summary for MS4s in the Fish-Duncan Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Island Lake Village	ILR400632	4.8	0.2%	0.002
Lakemoor Village	ILR400371	287	9.0%	0.109
Volo Village	ILR400657	1,358	42.6%	0.516
Total MS4		**1,650**	**51.8%**	**0.627**

Table 2-12 Allocation Summary for MS4s in the Fox and Nippersink Lakes Watershed

Subbasin	Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Municipal Area in Subbasin[1]	Total Phosphorus WLA (lbs/day)
Fox	Fox Lake Village	ILR400339	1,147	20.2%	0.199
	Lake Villa Village	ILR400369	174	3.1%	0.030
Nippersink	Fox Lake Village	ILR400339	433	41.0%	0.011
Total Fox Lake			**1,321**	**23.5%**	**0.230**
Total Nippersink Lake			**433**	**41.0%**	**0.011**
Total MS4			**1,754**	**24.3%**	**0.240**

[1] Subbasin area contributing to direct runoff into the lake, excludes portions of the watershed flowing to upstream modeled lakes.

Table 2-13 Allocation Summary for MS4s in the Grass Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	1,529	0.28%	0.0021
Spring Grove Village	ILR400520	150	0.03%	0.0002
Total MS4		**1,679**	**0.31%**	**0.0024**

Table 2-14 Allocation Summary for MS4s in the Hidden Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Round Lake Park Village	ILR400242	138	98.4%	0.051
Total MS4		**138**	**98.4%**	**0.051**

Table 2-15 Allocation Summary for MS4s in the Long Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Grayslake Village	ILR400202	8623	3.7%	0.259
Hainesville Village	ILR400205	1,160	5.0%	0.348
Hawthorn Woods Village	ILR400209	438	1.9%	0.131
Lake Villa Village	ILR400369	1,413	6.0%	0.424
Mundelein Village	ILR400395	404	1.7%	0.121
Round Lake Beach Village	ILR400439	2,941	12.6%	0.883
Round Lake Heights Village	ILR400241	390	1.7%	0.117
Round Lake Park Village	ILR400242	927	4.0%	0.278
Round Lake Village	ILR400243	3,557	15.2%	1.067
Volo Village	ILR400657	9.5	0.04%	0.003
Wauconda Village	ILR400501	225	1.0%	0.067
Total MS4		**12,326**	**52.7%**	**3.699**

Table 2-16 Allocation Summary for MS4s in the Lake Marie Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	2,491	26.9%	0.161
Lake Villa Village	ILR400369	2,548	27.6%	0.164
Lindenhurst Village	ILR400276	3.0	0.03%	0.0002
Total MS4		**5,041**	**54.5%**	**0.326**

Table 2-17 Allocation Summary for MS4s in the McGreal Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	2.0	1.5%	0.001
Total MS4		**2.0**	**1.5%**	**0.001**

Table 2-18 Allocation Summary for MS4s in the North and South Churchill Lakes Watershed

Subbasin	Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
North Churchill	Round Lake Park Village	ILR400242	136	100.0%	0.388
South Churchill	Round Lake Park Village	ILR400242	207	41.1%	0.034
Total MS4			**343**	**53.5**	**0.422**

Table 2-19 Allocation Summary for MS4s in the Pistakee Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	1,705	1.2%	0.157
Johnsburg Village	ILR400489	819	0.6%	0.075
Lakemoor Village	ILR400371	2,646	1.9%	0.243
McHenry City	ILR400385	639	0.5%	0.059
Richmond Village	ILR400732	2,706	1.9%	0.249
Spring Grove Village	ILR400520	5,454	3.8%	0.502
Volo Village	ILR400657	198	0.1%	0.018
Wonder Lake Village	ILR400503	3,630	2.6%	0.334
Woodstock City	ILR400499	4,792	3.4%	0.441
Total MS4		**19,883**	**14.0%**	**2.078**

Table 2-20 Allocation Summary for MS4s in the Redhead Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	119	14.9%	0.042
Volo Village	ILR400657	28	3.6%	0.010
Total MS4		**148**	**18.5%**	**0.052**

Table 2-21 Allocation Summary for MS4s in the Tranquility Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	220	88.1%	0.156
Total MS4		**220**	**88.1%**	**0.156**

Table 2-22 Allocation Summary for MS4s in the Turner Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	151	26.3%	0.153
Spring Grove Village	ILR400520	2.5	0.4%	0.002
Total MS4		**154**	**26.7%**	**0.155**

Table 2-23 Allocation Summary for MS4s in the Wooster Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Total Phosphorus WLA (lbs/day)
Fox Lake Village	ILR400339	132	25.0%	0.047
Round Lake Village	ILR400243	78.9	15.0%	0.028
Volo Village	ILR400657	6.3	1.2%	0.002
Total MS4		**217**	**41.1%**	**0.078**

Many of the MS4 permittees areas overlap multiple impaired lake subbasins and are therefore assigned WLAs for multiple impaired waterbodies. The total WLA for total phosphorus for each MS4 permittee in the Upper Fox River/Chain O'Lakes is presented in **Table 2-24**.

Table 2-24 Combined Total Phosphorus Allocation Summary for MS4s in the Upper Fox River/Chain O'Lakes Watershed

Source	NPDES ID	Combined Total Phosphorus WLA (lbs/day)
Antioch Village	ILR400281	0.71
Fox Lake Village	ILR400339	1.05
Grayslake Village	ILR400202	0.26
Hainesville Village	ILR400205	0.35
Hawthorn Woods Village	ILR400209	0.13
Island Lake Village	ILR400632	0.002
Johnsburg Village	ILR400489	0.23
Lake Villa Village	ILR400369	0.59
Lakemoor Village	ILR400371	0.86
Lindenhurst Village	ILR400276	0.0002
McHenry City	ILR400385	0.19
Mundelein Village	ILR400395	0.12
Richmond Village	ILR400732	0.25
Round Lake Beach Village	ILR400439	0.88
Round Lake Heights Village	ILR400241	0.12
Round Lake Park Village	ILR400242	0.75
Round Lake Village	ILR400243	1.10
Spring Grove Village	ILR400520	1.55
Volo Village	ILR400657	0.73
Wauconda Village	ILR400501	0.07
Wonder Lake Village	ILR400503	1.03
Woodstock City	ILR400499	1.36

2.3.1.5 Reserve Capacity

A portion of a TMDL's LC may be set as a RC to allow for future population growth and development potentially leading to increased pollutant loads in the future. In the case of the TMDLs for total phosphorus in Antioch lake, Bluff Lake, Lake Catherine, Channel Lake, Davis Lake, Duck Lake, Fischer Lake, Fish-Duncan Lake, Fox Lake, Nippersink Lake, Grass Lake, Hidden Lake, McGreal Lake, North and South Churchill Lakes, Petite Lake, Redhead Lake, Spring Lake, Summerhill Estates Lake, and Lake Tranquility; an explicit RC was not included in the TMDL calculations due to the lack of publicly owned treatment works (POTWs) or other sources in the watershed that may be expected to increase discharge as a result of projected population growth in the area. Flow estimates used to develop the WLAs for each source and for estimating nonpoint source runoff concentrations were conservative and allow for implicit RC should population growth become a factor in the future.

Implicit RCs are included in the SLAM calculations for Long Lake, Pistakee Lake, and Wooster Lake through the use of conservative measures in the WLA calculations. All of the permitted facilities assigned a WLA for total phosphorus in these subbasins currently have average

measured discharges flows and/or phosphorus concentrations well below their DAFs and permitted effluent limit values (as shown in the above tables). While the models were setup and calibrated using measured values, the inputs used for the model runs developed to calculate TMDL and WLAs were based on the permitted values. Thus, considerable reserve capacity is provided through the existing NPDES permit.

Reserve capacities could not be calculated for the remaining lake models with POTWs and other phosphorus-discharging facilities due limitations within the existing NPDES permits and model inputs. NPDES permits for POTWs contributing to Lake Marie (IL0020354 Antioch WWTF) and Dunn's Lake (IL0045144 Fox Lake Tall Oaks STP) currently include effluent limits that are not protective of the in-lake phosphorus standards. Multiple iterations of the TMDL model runs suggest that even in the absence of all other phosphorus loads, these waterbodies will not meet the applicable water quality standard if these facilities were to operate at the currently permitted DAFs and effluent limits for total phosphorus. However, both facilities currently discharge phosphorus loads well below their permitted limits.

2.3.1.6 Load Allocation and TMDL Summary

Summaries of the total phosphorus TMDLs developed for each of the phosphorus-impaired lakes are provided in **Tables 2-24** through **2-46**. Percent reductions presented under these scenarios are for the overall reductions to current internal and external loads and do not specify if reductions should be focused on the WLA or LA. While the overall load reduction for each segment is needed to meet the target, the relative proportion of the load reduction coming from internal or external sources can be modified and still result in compliance. Potential means of reducing both internal and external phosphorus loads into these waterbodies are discussed in detail in Section 3 of this report.

Table 2-25 TMDL Summary for Antioch Lake (RTT)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTT	Internal	0.33	-	-	0.30	0.033	0.92	0.59	64%
	External	0.26	0.079	-	0.16	0.026	0.53	0.27	50%
	Total	0.60	0.079	-	0.46	0.060	1.45	0.85	59%

Table 2-26 TMDL Summary for Bluff Lake (VTJ)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTJ	Internal	1.15	-	-	1.04	0.12	1.36	0.21	15%
	External	1.72	-	-	1.55	0.17	6.89	5.17	75%
	Total	2.88	-	-	2.59	0.29	8.25	5.37	65%

Table 2-27 TMDL Summary for Lake Catherine (RTD) and Channel Lake (RTI)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
Catherine	Internal	1.32	-	-	1.19	0.13	1.32	-	0%
	External	3.51	0.31	-	2.85	0.35	3.90	0.39	10%
	Total	4.83	0.31	-	4.04	0.48	5.22	0.39	7%
Channel	Internal	2.24	-	-	2.02	0.22	2.80	0.56	20%
	External	4.56	-	-	4.10	0.46	10.6	6.04	57%
	Total	6.80	-	-	6.12	0.68	13.4	6.60	49%
Combined Total	Internal	3.57	-	-	3.21	0.36	4.13	0.56	14%
	External	8.06	0.31	-	6.95	0.81	14.5	6.43	44%
	Total	11.6	0.31	-	10.2	1.16	18.6	6.99	38%

Table 2-28 TMDL Summary for Davis Lake (STQ)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
STQ	Internal	0.18	-	-	0.16	0.018	1.79	1.61	90%
	External	0.12	0.0004	-	0.11	0.012	0.24	0.12	50%
	Total	0.30	0.0004	-	0.27	0.030	2.03	1.73	85%

Table 2-29 TMDL Summary for Duck Lake (RTZG)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTH	Internal	0.27	-	-	0.24	0.027	0.27	-	0%
	External	2.72	0.06	-	2.38	0.27	3.19	0.48	15%
	Total	2.98	0.06	-	2.62	0.30	3.46	0.48	14%

Table 2-30 TMDL Summary for Dunn's Lake (VTH)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTZG	Internal	0.02	-		0.022	0.002	0.38	0.36	94%
	External	0.77	0.048	0.63[(1)]	0.011	0.077	0.96	0.19	20%
	Total	0.79	0.048	0.63	0.033	0.079	1.34	0.55	41%

[1] WLA-Facilities calculation based on existing load. Maximum permitted load exceeds assimilative capacity of the waterbody.

Table 2-31 TMDL Summary for Fischer Lake (VTT)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTK	Internal	0.16	-	-	0.14	0.015	0.60	0.44	74%
	External	1.06	0.14	-	0.81	0.11	4.62	3.55	77%
	Total	1.22	0.14	-	0.95	0.12	5.21	4.00	77%

Table 2-32 TMDL Summary for Fish-Duncan Lake (VTK)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTT	Internal	0.43	-	-	0.39	0.04	1.72	1.29	75%
	External	1.34	0.63	-	0.58	0.13	5.38	4.03	75%
	Total	1.77	0.63	-	0.97	0.18	7.10	5.32	75%

Table 2-33 TMDL Summary for Fox (RTF) and Nippersink Lakes (RTUA)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
Fox Lake	Internal	13.6	-	-	12.2	1.36	19.4	5.80	30%
	External	40.8	0.23	-	36.5	4.08	163	122	75%
	Total	54.4	0.23	-	48.7	5.44	183	128	70%
Nippersink Lake	Internal	12.6	-	-	11.3	1.26	25.2	12.6	50%
	External	36.5	0.01	-	32.8	3.65	243	207	85%
	Total	49.1	0.01	-	44.2	4.91	269	219	82%
Combined Total	Internal	26.2	-	-	23.6	2.62	44.6	18.4	41%
	External	77.3	0.24	-	69.3	7.73	407	329	81%
	Total	104	0.24	-	92.9	10.5	451	348	77%

Table 2-34 TMDL Summary for Grass Lake (RTQ)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTQ	Internal	22.1	-	-	19.9	2.21	29.4	7.30	25%
	External	79.0	0.002	-	71.1	7.90	395	316	80%
	Total	101	0.002	-	90.9	10.1	424	323	76%

Table 2-35 TMDL Summary for Hidden Lake (UTM)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
UTM	Internal	0.047	-	-	0.042	0.005	0.26	0.21	82%
	External	0.057	0.051	-	0.001	0.006	0.23	0.17	75%
	Total	0.104	0.051	-	0.043	0.011	0.49	0.38	79%

Table 2-36 TMDL Summary for Long Lake (RTJ)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTJ	Internal	3.10	-	-	2.79	0.31	10.3	7.24	70%
	External	10.3	3.70	2.25	3.32	1.03	28.2	17.9	64%
	Total	13.4	3.70	2.25	6.11	1.34	38.6	25.2	66%

Table 2-37 TMDL Summary for Lake Marie (RTR)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTR	Internal	1.05	-	-	0.95	0.11	6.57	5.52	84%
	External	10.2	0.33	8.26[1]	0.63	1.02	26.2	15.9	61%
	Total	11.3	0.33	8.26	1.58	1.13	32.7	21.5	65%

[1] WLA-Facilities calculation based on existing load. Maximum permitted load exceeds assimilative capacity of the waterbody.

Table 2-38 TMDL Summary for McGreal Lake (UTX)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
UTX	Internal	0.142	-	-	0.128	0.014	0.746	0.604	81%
	External	0.051	0.001	-	0.045	0.005	0.145	0.094	65%
	Total	0.193	0.001	-	0.173	0.019	0.891	0.698	78%

Table 2-39 TMDL Summary for North (STR) and South Churchill (STS) Lakes

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
North Churchill Lake	Internal	0.082	-	-	0.074	0.008	0.17	0.09	52%
	External	0.43	0.39	-	-	0.043	1.08	0.65	60%
	Total	0.51	0.39	-	0.074	0.051	1.25	0.74	59%
South Churchill Lake	Internal	0.30	-	-	0.27	0.030	0.62	0.32	52%
	External	0.091	0.034	-	0.049	0.009	0.18	0.09	50%
	Total	0.39	0.034	-	0.32	0.039	0.80	0.41	52%
Combined Total	Internal	0.38	-	-	0.34	0.038	0.79	0.41	52%
	External	0.52	0.42	-	0.049	0.052	1.26	0.74	59%
	Total	0.90	0.42	-	0.39	0.090	2.05	1.15	56%

Table 2-40 TMDL Summary for Petite Lake (VTW)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTW	Internal	2.89	-	-	2.60	0.29	4.82	1.93	40%
	External	1.83	-	-	1.65	0.18	10.8	8.96	83%
	Total	4.73	-	-	4.25	0.47	15.6	10.9	70%

Table 2-41 TMDL Summary for Pistakee Lake (RTU)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTU	Internal	0.33	-	-	0.30	0.03	5.52	5.19	94%
	External	156.1	2.08	106.2	32.3	15.5	742.1	586	79%
	Total	156.4	2.08	106.2	32.6	15.5	747.6	591	79%

Table 2-42 TMDL Summary for Redhead Lake (RTV)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTV	Internal	0.22	-	-	0.20	0.02	0.34	0.12	35%
	External	0.31	0.052	-	0.23	0.03	1.05	0.73	70%
	Total	0.54	0.052	-	0.43	0.05	1.39	0.85	61%

Table 2-43 TMDL Summary for Spring Lake (RGZT)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RGZT	Internal	0.71	-	-	0.64	0.07	0.84	0.13	15%
	External	1.01	-	-	0.91	0.10	8.43	7.42	88%
	Total	1.72	-	-	1.55	0.17	9.27	7.55	81%

Table 2-44 TMDL Summary for Summerhill Estates Lake (WTA)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
WTA	Internal	0.11	-	-	0.10	0.01	0.65	0.54	83%
	External	0.09	-	-	0.08	0.009	0.37	0.28	75%
	Total	0.20	-	-	0.18	0.02	1.01	0.81	80%

Table 2-45 TMDL Summary for Tranquility Lake (UTW)

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
UTW-1	Internal	0.06	-	-	0.05	0.006	0.08	0.02	20%
	External	0.20	0.10	-	0.08	0.020	0.40	0.20	50%
	Total	0.26	0.10	-	0.13	0.026	0.48	0.22	45%
UTW-2	Internal	0.07	-	-	0.06	0.007	0.09	0.02	20%
	External	0.08	0.05	-	0.02	0.008	0.16	0.08	50%
	Total	0.15	0.05	-	0.08	0.015	0.24	0.10	39%
Lake Total	Internal	0.13	-	-	0.12	0.013	0.16	0.03	20%
	External	0.28	0.16	-	0.10	0.028	0.56	0.28	50%
	Total	0.41	0.16	-	0.21	0.041	0.72	0.31	43%

Table 2-46 TMDL Summary for Turner Lake (VTZA)

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTZA	Internal	0.28	-	-	0.25	0.028	0.28	-	0%
	External	0.32	0.16	-	0.14	0.032	0.48	0.16	33%
	Total	0.60	0.16	-	0.39	0.060	0.76	0.16	21%

Table 2-47 TMDL Summary for Wooster Lake (RTZH)

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% of LC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTZH	Internal	0.79	-	-	0.71	0.08	1.21	0.42	35%
	External	2.90	0.08	0.45	2.13	0.29	4.91	2.01	41%
	Total	3.69	0.08	0.45	2.84	0.37	6.12	2.43	40%

2.3.2 Fecal Coliform TMDL: Deep Lake

Deep Lake is listed for impairment of the primary contact use caused by fecal coliform. Spreadsheet calculations were developed (see **Section 1**) to determine load reductions needed to meet the water quality standards.

2.3.2.1 Loading Capacity

The LC is the maximum amount of fecal coliform that Deep Lake can receive and still maintain compliance with the water quality standards. The allowable fecal coliform load that can be generated in the watershed and still maintain the geometric mean standard of 200 cfu/100mL was determined with the methodology discussed in **Section 1**. The fecal coliform LC is presented in **Table 2-48**.

2.3.2.2 Seasonal Variation

Table 2-48 Fecal Coliform Loading Capacity for Deep Lake

Waterbody	Current Load (mil col/day)	Load Capacity (mil col/day)
Deep Lake (VTD)	22,625	1,986

Consideration of seasonality is inherent in the load duration analysis. Because the load duration analysis represents the range of expected stream and overland flows, the TMDL has been calculated to meet the standard during all flow conditions. In addition, seasonality is addressed because the TMDL has been calculated to address loading only when the seasonal standard is applicable (May through October).

The critical period for fecal coliform is the primary contact recreation season which is May through October each year. There is no one critical flow condition during the recreation season. The fecal coliform standard must be met under all flow scenarios. By using the spreadsheet calculation method, all of these "critical conditions" are accounted for in the loading allocations.

2.3.2.3 Margin of Safety

The MOS can be implicit (incorporated into the TMDL analysis through conservative assumptions) or explicit (expressed in the TMDL as a portion of the loadings) or a combination of both. The MOS for the lake TMDL is implicit as the analysis used the more conservative 200 cfu/100mL standard and did not consider die-off of bacteria which is likely occurring in the system but unquantified.

2.3.2.4 Waste Load Allocation

There are no NPDES permitted facilities in the Deep Lake watershed; however, two municipal areas with NPDES permits for MS4s do exist in the Deep Lake watershed: Lake Villa Village (ILR400369) and Lindenhurst Village (ILR400276). The proportion of total MS4 area to total watershed area was calculated for the lake's watershed using GIS. This proportion was then used

to migrate loads from LAs for overland runoff to WLAs for MS4 areas. This process effectively transfers MS4 load allocations for overland runoff from non-regulated sources described as LAs to the WLA for regulated sources of contaminants. The total MS4 load allocations for fecal coliform that are applied to the proportion of each municipality within each impaired lake's watershed are shown in **Table 2-49.**

Table 2-49 Fecal Coliform Allocation Summary for MS4s in the Deep Lake Watershed

Source	NPDES ID	Municipal Area in Subbasin (acres)	Percent of Total Subbasin Area	Fecal Coliform WLA (mil col/day)
Lake Villa Village	ILR400369	1,114	77.8%	1,391
Lindenhurst Village	ILR400276	3.0	0.2%	3.8
Total MS4		**1,117**	78.0%	**1,395**

2.3.2.5 Reserve Capacity

A portion of the fecal coliform TMDL's LC may be set as a RC to allow for future population growth and development. In this case an explicit RC was not included in the TMDL calculations due to the lack of publicly owned treatment works (POTWs) or other point sources in the watershed that may be expected to increase discharge as a result of projected population growth in the area. Flow estimates used to develop the WLAs for each source and for estimating nonpoint source runoff concentrations were conservative and allow for implicit RC should population growth become a factor in the future.

2.3.2.6 Load Allocation and TMDL Summary

Table 2-50 shows a summary of the fecal coliform TMDL for Deep Lake developed using the limited available data.

Table 2-50 Fecal Coliform TMDL for Deep Lake (VTD)

Segment ID	LC (mil col/day)	LA (mil col/day)	WLA (mil col/day)	MOS (mil col/day)	Current Load[1] (mil col/day)	Percent Reduction Needed (%)
VTD	1,986	393	1,395	199	22,625	91%

[1] Actual Load was calculated using the 90th percentile of observed concentrations (EPA 2007)

2.4 LRS Allocation

Impairments based on narrative water quality standards are assessed through the development of LRSs. Watershed-specific numeric target values have been developed by Illinois EPA for LRS impairment parameters in the Upper Fox River/Chain O' Lakes watershed. The target values were used to develop target LCs for each impairment. The target LCs were then compared to current actual loads to develop percent reductions needed to meet the target value, as discussed in the following sections. WLAs are not calculated or assigned for LRS parameters. The information provided by the development of these LRSs is intended to serve as a guide for future implementation activities to improve water quality throughout the Upper Fox River/Chain O' Lakes watershed.

2.4.1 Sedimentation/Siltation LRS: Fox River Segment DT-35

Fox River segment DT-35 is listed for impairment of the aquatic life use caused by sedimentation/siltation. As no numeric water quality standard exists for sedimentation/siltation

in streams in Illinois, a numeric target of 13.6 mg/L of NVSS was developed by Illinois EPA for use in assessing sedimentation/siltation impairments in the DT-35 subbasin. Load duration curves were developed (see **Section 1**) for the impaired segment to determine load reductions needed to meet the instream water quality target under a full range of flow scenarios.

NVSS is a measurement of the non-volatile suspended solids that inhibits natural light from penetrating the surface water column. Excessive NVSS within the water column can negatively impact fish and macroinvertebrates within the ecosystem. Excess NVSS may create turbid conditions within the water column and may increase the costs of treating surface waters used for drinking water or other industrial purposes (e.g., food processing). Excessive sediment can reduce spawning and rearing areas for certain fish species. Excess suspended sediment can clog the gills of fish, stress certain sensitive species by abrading their tissue, and thus reduce fish health. When in suspension, sediment can limit visibility and light penetration which may impair foraging and predation activities by certain species.

Excessive fine sediment also may degrade aquatic habitats by altering natural flow conditions in stream environments and adding organic materials to the water column. The potential addition of fine organic materials may lead to nuisance algal blooms that may prevent a waterbody from supporting aquatic life, aesthetic, and recreation uses. Algal decomposition depletes oxygen levels which stresses benthic macroinvertebrates and fish. Excess algae can shade the water column and limit the distribution of aquatic vegetation. Established aquatic vegetation stabilizes bottom sediments and provides important habitat areas for healthy macroinvertebrates and fish communities.

2.4.1.1 Target Loading Capacity

The LC is the maximum NVSS load the impaired waters can receive and still meet the LRS target value for NVSS or sedimentation/siltation in this subbasin. The allowable loads that may be generated in the subbasin were determined using estimated flow conditions and the numeric LRS target of 13.6 mg/L of NVSS, as discussed in **Section 1**. The NVSS and sedimentation/siltation LC according to flow is presented in **Table 2-51**.

Table 2-51 NVSS and Sedimentation/ Siltation Loading Capacity in Fox River DT-35

Estimated Mean Daily Flow (cfs)	Target Load Capacity (lbs/day of NVSS)
1	73.3
10	733
50	3,666
100	7,331
500	36,656
1,000	73,312
10,000	733,118

2.4.1.2 Percent Reduction and LRS Summary for Sedimentation/Siltation in Fox River Segment DT-35

Table 2-52 summarizes the LRS and percent reductions from current conditions needed to meet the sedimentation/siltation targets under various flow conditions in Fox River segment DT-35. Measurements of instream NVSS concentrations have been collected in DT-35 during each flow condition category presented in the table. NVSS loads in this reach exceed the LRS target value across a wide range of flow conditions. Overall load reductions of 0% to 62% are needed to meet the instream target.

Table 2-52 LRS Targets for Sedimentation/Siltation in Fox River DT-35

Zone	Flow Exceedance Range (%)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Percent Reduction Needed (%)
High	0 - 10	148,363	390,296	62%
Moist	10 - 20	91,771	231,699	60%
	20 - 30	65,425	147,699	56%
	30 - 40	49,633	97,318	49%
Mid-Range	40 - 50	39,997	46,965	15%
Dry	50 - 60	33,114	37,344	11%
	60 - 70	28,143	19,292	0%
	70 - 80	23,402	27,917	16%
	80 - 90	18,889	38,037	50%
Low Flow	90 - 100	12,618	21,688	42%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

2.4.2 LRS for TSS in Lakes

Twenty-one of the 28 impaired lakes in the Upper Fox River/Chain O' Lakes watershed are listed for impairment of the aesthetic quality use caused by TSS. No numeric water quality standard exists for TSS in lakes in Illinois, so a watershed-specific numeric target of 18.2 mg/L of TSS was developed by Illinois EPA to aid in assessment of these impairments. Determination of the reduction in TSS loads needed to meet the water quality target was performed using a simplified spreadsheet calculation approach.

The spreadsheet approach incorporated the available TSS data for each segment of each impaired lake and estimates of the average daily overland and tributary flow from each subbasin to produce an estimate of the current average daily TSS load into each lake segment. The current load is then compared to the maximum daily load possible without exceeding the watershed-specific TSS target concentration value to calculate the overall percent reduction in daily TSS load into each segment of the lake necessary to meet the target value.

A summary of percent reductions in TSS necessary to meet the target value in each lake are presented in **Tables 2-53** through **2-73**. Among lakes that are in exceedance of the target value within the watershed, percent reductions of between 2% and 85% are required. The 90th percentile of TSS concentrations reported for Fish-Duncan Lake, Long Lake, Round Lake, Summerhill Estates Lake, and Lake Tranquility are below the target value. Additionally, none of the TSS measurements collected at Summerhill Estates Lake exceed the target concentration (maximum reported TSS of 15 mg/L).

Future data collection is necessary to support assessment of these impairments. However, due to the close relationship between nonpoint source loads of total phosphorus and TSS, measures discussed in **Section 3** of this report to address total phosphorus impairment in the watershed will be directly applicable to reduction of TSS loads to the lakes as well.

Table 2-53 LRS Summary for TSS in Antioch Lake (RTT)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTT	18.2	17	0.6	60	56	0	0%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-54 LRS Summary for TSS in Bluff Lake (VTJ)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTJ	18.2	18.6	1.3	129	132	2.8	2%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-55 LRS Summary for TSS in Duck Lake (RTZG)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTZG	18.2	26.0	7.6	743	1,061	338	30%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-56 LRS Summary for TSS in Dunn's Lake (VTH)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTH	18.2	52.2	0.8	76	217	141	65%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-57 LRS Summary for TSS in Fischer Lake (VTT)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTT	18.2	36.2	5.9	582	1,157	575	50%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-58 LRS Summary for TSS in Fish-Duncan Lake (VTK)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTK	18.2	18.0	4.5	437	432	0	0%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-59 LRS Summary for TSS in Fox Lake (RTF)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTF	18.2	36.2	353.4	34,675	68,968	34,293	50%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-60 LRS Summary for TSS in Grass Lake (RTQ)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTQ	18.2	56.2	19.1	1,877	5,791	3,914	68%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-61 LRS Summary for TSS in Hidden Lake (UTM)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
UTM	18.2	94.8	0.19	19	99	80	81%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-62 LRS Summary for TSS in Long Lake (RTJ)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTJ	18.2	16.8	34.7	3,402	3,133	0	0%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-63 LRS Summary for TSS in Lake Marie (RTR)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTR	18.2	20.0	2.31	227	249	22.4	9%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-64 LRS Summary for TSS in Nippersink Lake (RTUA)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTUA	18.2	48.3	32.4	3,177	8,432	5,255	62%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-65 LRS Summary for TSS in North Churchill Lake (STR)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
STR	18.2	123.2	0.89	87	588	501	85%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-66 LRS Summary for TSS in Pistakee Lake (RTU)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTU	18.2	32.8	236.4	23,195	41,803	18,608	45%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-67 LRS Summary for TSS in Redhead Lake (RTV)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTV	18.2	33.1	1.1	109	198	89	45%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-68 LRS Summary for TSS in Round Lake (RTH)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RTH	18.2	10.0	3.5	345	190	0	0%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-69 LRS Summary for TSS in South Churchill Lake (STS)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
STS	18.2	54.8	0.70	68	206	138	67%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-70 LRS Summary for TSS in Spring Lake (RGZT)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
RGZT	18.2	21.4	1.83	180	212	32	15%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-71 LRS Summary for TSS in Summerhill Estates Lake (WTA)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
WTA	18.2	14.9	0.55	54	44	0	0%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-72 LRS Summary for TSS in Tranquility Lake (UTW)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
UTW	18.2	13.1	0.35	34	25	0	0%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Table 2-73 LRS Summary for TSS in Turner Lake (VTZA)

Location	Target Concentration (mg/L)	Existing Concentration[1] (mg/L)	Average Overland and Tributary Flow (cfs)	Target Loading Capacity (lbs/day)	Current Load[1] (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
VTZA	18.2	23.1	0.95	94	119	25	21%

[1] Existing Concentration was calculated using the 90th percentile of observed TSS concentrations in a given location (EPA 2007)

Section 3

Implementation Plan for the Upper Fox River/Chain O'Lakes watershed

3.1 Implementation Overview

The goal of this watershed plan is to identify BMPs to be implemented in the Upper Fox River/Chain O'Lakes watershed that will provide reasonable assurance that impaired waters in the watershed will meet water quality criteria developed to ensure waterbodies are able to support their designated uses.

The USEPA has identified nine minimum elements that a watershed plan for impaired waters is required to include. A watershed plan is expected to:

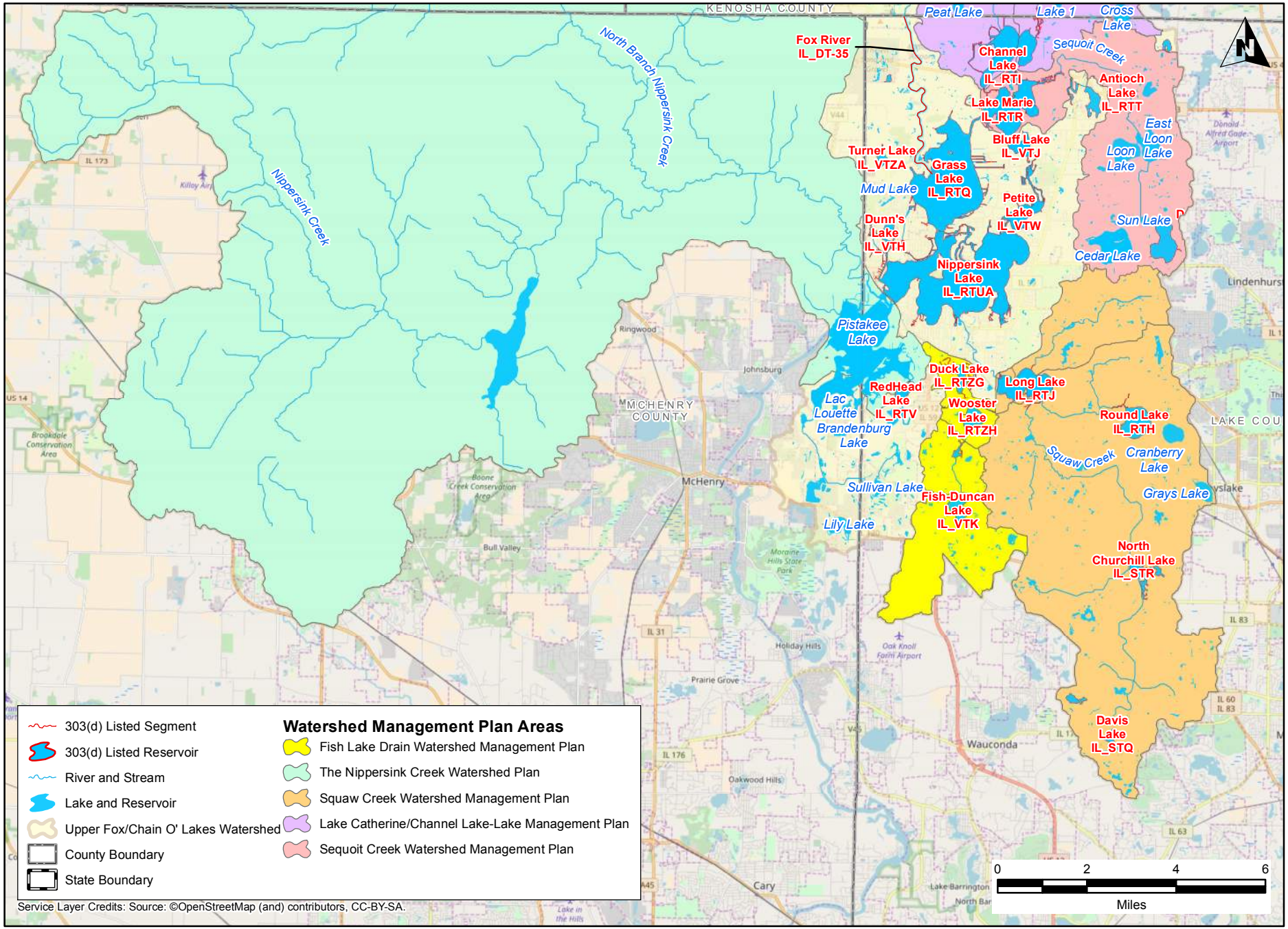
1. Identify causes and sources of pollution which will need to be controlled to achieve pollutant load reduction requirements estimated within the watershed plan (see Section 2.2).
2. Estimate pollutant load reductions expected as a result of implementation of the management measures described in #3 below (see Section 2.3).
3. Describe the nonpoint source management measures that will need to be implemented in order to achieve the load reduction estimates and identify the critical areas where measures need to be implemented for maximum effectiveness (see Section 3.3).
4. Identify the potential sources that will drive implementation of the prescribed management measures needed for project success; then determine the technical assistance needed for implementation and quantify its associated costs (see Section 3.9).
5. Include a public information/education component designed to change social behavior; then identify the indicators of the success of this component (see Section 3.8).
6. Develop an implementation schedule for the plan (see Section 3.11).
7. Develop a description of interim, measurable milestones; then identify what a successful milestone looks like (see Section 3.11.1).
8. Identify indicators that can be used to determine whether pollutant loading reductions are being achieved over time.
9. Develop monitoring components required to evaluate the effectiveness of the implementation efforts over time.

Element 1 has been addressed in Sections 1 and 2 of this report. The remaining elements are addressed in this section as denoted for each item above. Additional and more detailed information on implementation actions in the watershed can be found in a number of existing watershed-based plans already developed for portions of the Upper Fox River/Chain O'Lakes watershed, as shown in **Figure 3-1**:

- *Fish Lake Drain Watershed Management Plan* (Lake County Stormwater Management Commission [LCSMC] 2008)
- *Squaw Creek Watershed Management Plan* (LCSMC 2004a)
- *Letter to IEPA regarding stakeholder priority projects for Long Lake* (Illinois Sierra Club 2017)
- *Sequoit Creek Watershed Management Plan* (LCSMC 2004b)
- *Lake Catherine/Channel Lake-Lake Management Plan* (Friends of Lake Catherine & Channel Lakes 2017)
- *The Nippersink Creek Watershed Plan* (Watershed Resource Consultants, Inc. Fluid Clarity, Ltd, and The Nippersink Creek Watershed Planning Committee 2008)

The Lake County Stormwater Management Commission's (LCSMC) *Fish Lake Drain Watershed Management Plan* (LCSMC 2008) details specific actions required to reduce pollutant and nutrient loading to a portion of the Upper Fox River/Chain O'Lakes watershed, including four of the 28 lakes addressed in this report (Duck Lake, Fish-Duncan Lake, Fischer Lake, and Wooster Lake). The plan was initially developed to identify actions to reduce the risk of flooding and to protect water quality. The plan is intended to address preventative needs to avoid negative impacts from new development and remedial needs to resolve or alleviate current issues. Prioritized actions were listed from one to three, with one having the greatest priority, as follows: Priority 1) ordinance modifications to prevent negative development impacts, protection of existing natural areas (Green Infrastructure Plan), and remediation of existing significant water quality impairment sources (e.g. shoreline buffers and categorized "high" streambank erosion); Priority 2) remediation of existing floodplain problem areas identified in the Flood Problem Area Inventory (FPAI) and remediation of water quality issues such as source controls and "moderate" streambank erosion; and Priority 3) remediation of floodplain problems that are within the floodplain or hydric soils yet not part of the FPAI, and restoration of existing stream and wetland areas that are not considered a significant source of impairment in the Fish Lake Drain Watershed or lakes (vegetation management that would improve biodiversity or remediation for "low" streambank erosion). The complete text of the *Fish Lake Drain Watershed Management Plan,* and associated documentation, can be found at the Lake County, Illinois government website: http://www.lakecountyil.gov/2437/Watershed-Management-Plans.

The LCSMC's *Squaw Creek Management Plan* (LCSMC 2004a) was initially developed to provide a "blueprint" for reducing flood damages, improving water quality, and protecting natural resources in the watershed and details specific actions required to improve water quality in Long Lake, located within the Upper Fox River/Chain O'Lakes watershed. The action plan discusses five main lake improvement categories: Increase Water Resources Monitoring, Soil Erosion and



CDM Smith

Upper Fox/Chain O' Lakes
Areas Covered by Existing Watershed Plans

FIGURE 3-1

Sediment Control (SESC), Implement Stormwater National Pollutant Discharge Elimination System (NPDES) Phase II, Urban Stormwater Management Retrofit Projects, and Lake Diagnostic Studies. Water resources monitoring entails developing a River Watch program, attaining full participation in the Volunteer Lakes Monitoring Program (VLMP), monitoring lakes on a 5-yr schedule, performing additional stream water quality monitoring annually, and performing annual benthic surveys and fish surveys every three years. Soil erosion and sediment control is comprised of training and certifying SESC inspectors, increasing Watershed Development Ordinance (WDO) and NPDES review and inspection efforts, and evaluating 10-yr Zero-Release SESC, enrolling farms in conservation tillage and CRP, and developing riparian zones and grassed waterways. Urban stormwater management retrofit projects include retrofit of Non-WDO detention in Round Lake, Highland Lake and Long Lake watersheds; implementation of Round Lake drain COE 206 restoration project, and evaluation of Grant Woods for Eagle Creek water quality management; and evaluation of Mud Lake for water quality management. The lake diagnostic study involves studying phosphorus control for Long Lake. The complete text of the *Squaw Creek Management Plan,* and associated documentation, can be found at the Lake County, Illinois government website: http://www.lakecountyil.gov/2437/Watershed-Management-Plans.

The Long Lake Improvement and Sanitation Association (LLISA), along with the Illinois Sierra Club's Woods & Wetlands Group, have detailed multiple objectives to improve water quality, based on review of the Squaw Creek Watershed Management Plan (Illinois Sierra Club 2017). These objectives aim to address sedimentation in the watershed by encouraging farmers within the floodplain to voluntarily participate in soil erosion programs, by developing buffer zones and grassed waterways, and by installing a riffle structure for online sediment storage in Mud Lake. In addition, these objectives aim to address phosphorus loading by minimizing homeowner and municipal use of phosphorus by initiating a Lake County ordinance that would ban phosphorus-containing lawn fertilizer, and limit road salt application. They would also like to obtain Audubon Certification for Renwood, Stonewall Orchard, and Steeplechase golf courses, and establish shoreline stabilization.

The LCSMC's *Sequoit Creek Watershed Management Plan* (LCSMC 2004b) details specific actions required to improve water quality in Deep Lake, located within the Upper Fox River/Chain O'Lakes watershed. The plan was developed to address concerns about flooding problems, water quality conditions, threats to natural resources, diminishing open spaces, and the need to take proactive action to prevent such problems from worsening as the watershed continues to develop. Development and associated construction site runoff in growing Antioch and Lake Villa were identified as likely contributions of nonpoint source pollutants. Implementation of the NPDES Phase II pollution prevention program in these areas is expected to help reduce such nonpoint sources through public education and outreach, illicit discharge elimination, good housekeeping, retrofitting outfalls causing local erosion, mapping Antioch storm sewer system, and construction/postconstruction runoff control. Other key actions identified in the management plan include utilizing land use planning as a tool to reduce imperviousness; enforcement of the countywide Watershed Development Ordinance (WDO); identifying open space for greenway creation and preservation, restoring wetland, streams, and shorelines; conducting detention basin retrofits; floodplain buyouts and flood proofing; and implementing monitoring programs.

Deep Lake was noted for having fecal coliform bacteria, nutrients, and shoreline erosion water quality issues. LCSMC 2004b suggests that failing septic systems in un-sewered residential areas south of the lake, runoff from residential lots, and increasing lake conductivity from shoreline development contribute to fecal coliform loads. Corrective actions listed include using wider (greater than 100ft) riparian buffers, preserving open space, initiating a program to replace the failing septic system, continuing fecal coliform monitoring and reporting, beginning community outreach efforts to reduce fertilizer use, and increasing communication among residents (including homeowner and lake management associations).

LCSMC 2004b also discussed the high nutrient loads in McGreal Lake, which is eutrophic. The predominantly residential development in its subwatershed suggests nutrient excess is likely caused by runoff from residential lands in combination with fertilizer use. LCSMC 2004b indicates that the nutrient impairment is exacerbated by the fact that McGreal Lake is shallow and has high mixing due to a relatively low lake volume compared to the runoff volume draining into it. Preventative actions listed for McGreal Lake include community outreach to reduce fertilizer use, conservation tillage practices, use of vegetative buffers around the lake during construction, and increased communication with residents (including homeowner and lake management associations).

The complete text of the *Sequoit Creek Watershed Management Plan,* and associated documentation, can be found at the Lake County, Illinois government website: http://www.lakecountyil.gov/2437/Watershed-Management-Plans.

The Friends of Catherine & Channel Lakes' (FCCL 2017) *Lake Catherine/Channel Lake- Lake Management Plan* was initially developed to synthesize the needs of the lake, which is located within the Upper Fox River/Chain O'Lakes watershed, and to provide a pragmatic road map that will lead to improved water quality for Lake Catherine/Channel Lake. The report identifies nuisance aquatic plant grown, specifically Eurasian Water Milfoil (EWM), and increased algae growth as contributing factors to the lakes' water quality deterioration. The Fox Waterway Agency (FWA) is identified as an agency created to maintain these lakes as part of the Chain O' Lakes; however, it is reported than funding for the program has not matched the pace of eutrophication. The implementation plan laid out in this report include targeted chemical control and/or harvesting of EWM; water quality monitoring consisting of continuous dissolved oxygen (DO) monitoring, lake vegetation mapping, and chemical and biological indictor testing; nutrient deactivation/aeration; increase in the percentage of native plants; dredging/sediment removal; and implementation of an awareness program. The complete text of the *Lake Catherine/Channel Lake- Lake Management Plan* can be found at the FCCL website: https://catherineandchannellakes.org.

The Watershed Resource Consultants, along with Fluid Clarity and the Nippersink Creek Watershed Planning Committee, developed the *Nippersink Creek Watershed Plan* for the watershed, which was subdivided into 14 subbasins, draining into Nippersink Lake. The watershed plan for this drainage area identified fecal coliform, nutrients and sediment as pollutants of concern. It is worth noting that Nippersink Creek was listed in the Illinois EPA's 303(d) list for fecal coliform impairment, but Nippersink Lake is only listed for Phosphorus and Total suspended solids (TSS); fecal coliform impairment has not been identified for the lake. As

the watershed is mostly rural, pollutants of concern are likely from non-point sources, specifically agricultural runoff. Urban runoff from developed areas in Woodstock, Richmond, Spring grove, Hebron, and Wonder Lake may also contribute to these pollutant loadings. BMPs for urban runoff reduction for areas experiencing urbanization and runoff volume increases over 15% (i.e. Wonder Lake and The Lower Elizabeth Lake Drain) include incorporation of rain gardens, preserving open lands, practicing Low Impact Development (LID), wetland conversion and restoration, and modification of tile systems. Site-specific BMPs, which are detailed in Chapter 5.3 through 16.3 of the report, include the following: preserving open lands; wetland conversion/restoration; removal/abandonment of agricultural tile systems; use of riparian buffers; retrofitting existing ponds and restoring wetland systems; retrofitting outfalls and shoreline stabilization; using sand filters, and filter strips; utilizing a Water Quality Inlet/oil separator; and streambank stabilization.

The complete text of the *Nippersink Creek Watershed Plan* can be found at the Nippersink Creek Watershed Planning Committee website: http://nippersink.org/plan.htm.

3.2 Adaptive Management

An adaptive management or phased approach is recommended for the implementation of management practices designed to meet the TMDLs and LRSs developed for the Upper Fox River/Chain O'Lakes watershed. Adaptive Management is a process for continually improving management policies and practices by learning from the in-progress results of the operational programs. Because it is driven by real-world results, Adaptive Management complies with the USEPA guidelines described above in **Section 3.1**. Some of the defining characteristics of adaptive management include:

- Acknowledgement of uncertainty about what policy or practice is "best" for the particular management issue
- Thoughtful selection of the policies or practices to be applied to each management issue during the assessment and design stages
- Careful implementation of a plan of action designed to identify the critical knowledge needed but not available during the Adaptive Management phase, and to establish the missing information
- Monitoring of key response indicators
- Analysis of the management outcomes in consideration of the original objectives and incorporation of the results into future decisions (British Columbia Ministry of Forests 2000)

Implementation actions, point source controls, management measures, and/or BMPs are used to control the generation or distribution of pollutants within a watershed. BMPs are either structural; such as wetlands, filtration basins, or filter strips; or managerial, such as land use management, effective street sweeping programs, lawn fertilizer restrictions, public outreach and education, and in-lake management measures. Both structural and managerial BMPs require

effective management to be successful in reducing pollutant loading to water resources (Osmond et al. 1995).

It is typically most effective to install a combination of point source controls and BMPs or a BMP system. A BMP system is a combination of two or more individual BMPs that are used to control pollutants from a single critical source. If the watershed has more than one identified pollutant, but the transport mechanism is the same, then a BMP system that establishes controls for the transport mechanism can be employed (Osmond et al. 1995).

To assist in development of an adaptive management program; implementation actions, management measures, available assistance programs, and recommended continued monitoring are all discussed throughout the remainder of this section. The point source contributions are addressed through the NPDES permitting program. Permit limits will be reviewed upon each permits' renewal process. The nonpoint source BMPs are entirely voluntary based on the landowner's preference.

A successful adaptive management approach is also a key to providing reasonable assurance that the potential implementation measures presented in this plan will ultimately lead to the stated goal of all waterbodies coming into compliance with water quality standards and meeting the needs of each water body's specific designated uses. All of the potential BMPs presented in this document may or may not be feasible or suitable at each location within the watershed and the document should be viewed as potential menu of options for implementation. Through regular and planned re-evaluation of the implementation measures, as prescribed in any adaptive management protocol, BMPs and other implementation measures can be reevaluated for efficacy and additional avenues toward compliance may be identified and pursued.

3.3 BMP Recommendations for Reducing Sedimentation/Siltation in Fox River Segment DT-35

Sedimentation/siltation load reductions are needed for the DT-35 impaired stream segment in order to meet the watershed-specific LRS target value. Overall load reductions of 0% to 62% are needed to meet the sedimentation/siltation targets for various flow conditions in Fox River segment DT-35. Percent reduction needs for DT-35 are discussed in **Section 2.4.1**. As indicated in Figure 6-1 of the Stage 1 report (AECOM 2010), land use around the DT-35 impaired stream segment is primarily urban. The limited amount of wetland, forested, and agricultural areas are upstream of the DT-35 impaired stream segment, within the state of Wisconsin. Only 22.4% of the Upper Fox River/Chain O' Lakes Watershed is located within Illinois, which is the only portion of the watershed addressed by this TMDL.

Nonpoint source runoff from urban areas, decreased infiltration associated with the prevalence of impervious surfaces, and increased overland flow are the main contributors to high sediment loads in the impaired stream segment. Most modern developments route runoff from impervious surfaces directly into storm sewers or paved channels which effectively convey the pollutants, including sediments and suspended solids, into receiving waterbodies with little to no opportunity for infiltration or filtering. The storm sewers and lined channels then convey the runoff water downstream at a much faster rate than would normally occur in a natural, non-urbanized, setting. The increased flow rate leads to several issues including stream channel

erosion and/or downcutting of the channel, both of which contribute to sedimentation/siltation and suspended solid loads. Alterations to natural storage and conveyance functions (e.g., stream channel modification) can also result in increased flow velocities and volumes subsequently causing stream channel erosion and increased flooding.

In addition to flow and conveyance concerns, building and road construction activity in and adjacent to waterbodies and wetlands create both short-term and long-term effects on water quality. Although erosion on construction sites often affects only a relatively small acreage of land in a watershed, it can be a major source of sediment because the potential for erosion on highly disturbed land is commonly 100 times greater than on agricultural land (Brady and Weil 1999). As a means of monitoring construction practices and encouraging the use of BMPs and stormwater pollution prevention plans (SWPPs), the Illinois EPA requires an ILR10 general NPDES permit for construction stormwater. The minimum project size is 1 acre. The primary short-term effect is erosion in the denuded areas, those lacking vegetation, with potential deposition of sediment in nearby waterbodies. The long-term effects of urban development upon waterbodies and wetlands relate primarily to the elimination of vegetation and other natural materials. The typical consequences of these alterations include reduced shading and a resultant increase in water temperature, reduced capacity for pollutant filtering, and increased stream instability and erosion.

Given these factors, nonpoint source controls designed to control erosion sources and/or to reduce TSS/NVSS and sedimentation/siltation in streams and lakes as well as provide a secondary benefit of reducing other contaminants, such as total phosphorus, that may be entering waterways via erosive processes. The BMPs discussed below are applicable to TSS and/or sedimentation/siltation impairments within the DT-35 subbasin.

- Filter strips
- Critical Area Planting
- Urban Reforestation/Riparian Buffer Restoration
- Wetlands
- Stormwater Retention Basins (dry and wet ponds)
- Vegetated Swales
- Grassed Waterways
- Permeable Pavement
- Sand Filters
- Compost Blankets, Filter Berms, and Filter Socks
- Stormwater Reduction Techniques
- Bio-Retention Cells

- Streambank Stabilization and Erosion Control
- Street Sweeping

Filter Strips: Filter strips, applicable to both rural and urban settings, are vegetative areas of land, planted along waterways, used to intercept runoff before it can enter a waterbody. The vegetation in a filter strip slows and filters runoff, thereby serving as a control to reduce both pollutant loads from runoff and sedimentation to the impaired waterbody. Filter strips also provide bank stabilization, thereby decreasing erosion and re-sedimentation. Grass filter strips have been shown to remove as much as 65 percent of sediment and 75 percent of total phosphorus loads from runoff (USEPA 2003).

The Natural Resources Conservation Service (NRCS) Illinois Urban Manual, Practice Standard 835 indicates that in urban areas the minimum length of a filter strip should be determined by the drainage area being treated and the width of the filter strip. The minimum filter strip length should be 5 feet, except on construction sites, where the minimum length should be 25 feet. The width of the filter strip, or the dimension perpendicular to the flow path, determines the required length. The wider the filter strip is, the shorter the required length of the filter strip; and the width should be near the same width as the impervious area being treated (NRCS 1999).

The Illinois NRCS Conservation Practice Standard 393 describes filter strip requirements on agricultural land, based on land slope. The requirements are designed to achieve a minimum flow through time of 15 to 30 minutes at a one-half inch depth. **Table 3-1** provides a summary of the guidance for filter strip width, or flow length, as a function of slope, on agricultural land (NRCS 2003).

Table 3-1 Filter Strip Flow Lengths Based on Land Slope

Percent Slope	0.5%	1.0%	2.0%	3.0%	4.0%	5.0% or greater
Minimum (feet)	36	54	72	90	108	117
Maximum (feet)	72	108	144	180	216	234

GIS land use data were used to provide an estimate of acreage within the Upper Fox River/Chain O'Lakes watershed where filter strips could be installed. In conjunction with the available land use, topography, and soil information discussed in the Stage 1 report (AECOM 2010), mapping software was used to identify potential buffer areas for the impaired stream segment and its major tributaries to an appropriate and reasonable width, described in **Table 3-1** above, to determine the total area found in the subbasin. Due to the diversity of soil types and slopes found throughout the watershed, the appropriate buffer widths estimated in GIS were based on the average slope of land, within the subbasin, along the impaired segment's major tributaries. These average slopes were then used to calculate approximate buffer distances based on the Illinois Urban Manual guidance using a best-fit equation to interpolate between the slope percentages to buffer width relationships provided in the NRCS guidance.

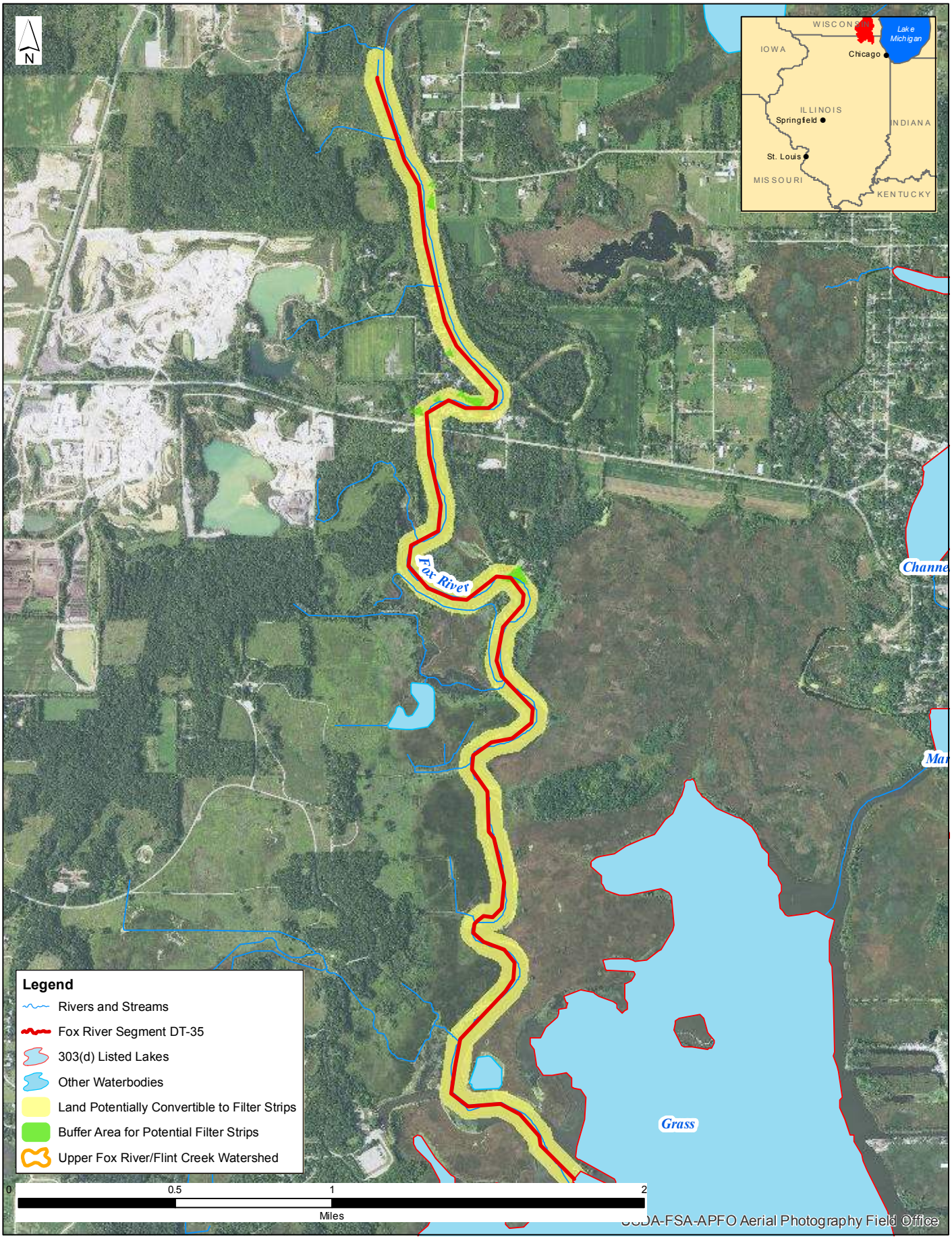
Not all land use types within the buffer areas are candidates for conversion to buffer strips. Existing forests and wetlands already function as filter strips or riparian buffers and conversion of developed residential or commercial lands is often infeasible. Because the primary land use

within the buffer zones is urban, the greatest benefit to water quality may be installation of filter strips where there are semi-developed pervious land areas, e.g., parks or open areas within the stream buffers. Therefore, GIS software was used to calculate the approximate acreage of non-forested lands within the appropriate buffer area for each impaired stream segment and its tributaries. These calculated buffer areas and acreages of convertible land within the buffer distances for the impaired stream segment and its tributaries are provided in **Table 3-2**. These data represent an approximation of the maximum acreage of land potentially available for conversion to filter strips. More detailed assessment of a given property is necessary to determine the exact size and extent of convertible lands likely to provide the greatest benefit to instream water quality following conversion to filter strips. Some factors that may determine the degree to which a site can reasonably be converted to filter strips may include localized topography and slope; adjacent facilities, buildings, or infrastructure; zoning and land uses; substrate; flood plain assessments; and other physical and regulatory drivers. Each potential conversion site would require specific site reconnaissance prior to planting and grading in order to assess the degree of suitability for conversion, a process beyond the scope of this document.

The average slope in areas adjacent to DT-35 and its tributaries is approximately 4.64%, resulting in a maximum recommended buffer length of 216 feet used in calculations. There are approximately 334 total acres in the 216-foot buffer of impaired stream segment DT-35 and its tributaries within the Upper Fox River/Chain O'Lakes watershed, an estimated 24 acres of which are agricultural or developed open space lands where filter strips could potentially be installed to improve water quality. The maximum buffer width of 216 feet is not likely to be feasible in more developed areas, but landowners and managers should be encouraged to evaluate their land adjacent to the impaired stream and its tributaries on a site-by-site basis to determine the practicality of installing or extending filter strips to achieve effective flow lengths, as described in the NRCS guidance provided in **Table 3-1**. Much of the riparian buffer within the Illinois portion of the DT-35 watershed is currently vegetated, but small areas of additional land potentially suitable for conversion to filter strips in this watershed are shown in **Figure 3-2**. The riparian buffer as a whole could benefit from an assessment of potential measures to improve filtering capacity through grading, re-vegetation, and plant community enhancement. Note that the land area estimates only include buffers of tributaries to DT-35 that are within both the Fox River/Chain O'Lakes watershed and within the state of Illinois. Additional tributaries to DT-35 exist upstream of the segment within the state of Wisconsin.

Table 3-2 Calculated Buffer Areas and Acreages of Convertible Land for DT-35 and its Major Tributaries within Illinois.

		Stream Reach		
Attribute	**Units**	**Fox River (DT-35)**	**Major Tributaries**	**Total for Subbasin**
Average Slope Adjacent to Streams	%	4.7	4.6	4.6
Minimum Filter Strip Flow Length	Feet	108	108	108
Maximum Filter Strip Flow Length	Feet	216	216	216
Minimum Area in Buffer	Acres	38.0	98.1	136
Maximum Area in Buffer	Acres	120	214	334
Minimum Convertible Land in Buffer	Acres	1.4	5.4	6.8
Maximum Convertible Land in Buffer	Acres	4.7	19.1	23.8



Upper Fox River/Chain O'Lakes Watershed
Fox River Segment DT-35
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

Figure 3-2

Conservation Cover: Conservation cover is the practice of establishing and maintaining permanent vegetative cover to: reduce sheet, rill, and wind erosion and sedimentation; and reduce ground and surface water quality degradation by nutrients, and surface water quality degradation by sediment. This practice applies on all lands needing permanent herbaceous vegetative cover and can be applied on only a portion of a field; however, it does not apply to plantings for forage production or to critical area plantings.

When using conservation cover, the amount of plant biomass and cover needed to reduce wind and water erosion to the planned soil loss objective should be calculated using the current approved wind and/or water erosion prediction technology. The selected plant species should be suitable for the planned purpose, as well as adapted to the soil, ecological, and climatic conditions of the area. Planting dates, planting methods, and care in handling and planting of the seed or planting stock shall ensure that planted materials have an acceptable rate of survival. No-till seeding methods are preferred where erosion concerns are present. Periodic removal of some products such as high value trees, medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.

When using conservation cover, a separate plan should be prepared for each field that will use this practice. Additional guidance and minimum plan elements are discussed in NRCS CPS 327 (NRCS 2010a), including seeding periods; seed quality; seedbed preparation and seeding; use of temporary and/or nurse crops (if necessary); native species; seed mixtures; soil testing; fertilizer, lime, and pesticide requirements; weed and companion crop control; and maintenance of the vegetative cover. Mowing after the establishment period (except for noxious weed control) shall be done prior to April 15 or after August 1 to protect nesting wildlife. Exceptions can be made to allow mowing, burning, and/or chemical treatments, when necessary, to maintain the health and diversity of the plant community.

Critical Area Planting: Critical area planting is the establishment of permanent vegetation on sites that have or are expected to have high erosion rates, and/or on sites that have physical, chemical, or biological conditions that prevent the establishment of vegetation using normal practices. This practice can be used to stabilize a variety of areas, including areas with existing or expected high rates of soil erosion by wind or water; riparian areas; sand dunes; stream and channel banks; and pond, lake, and other shorelines. In addition, critical area planting applies to highly disturbed areas such as active or abandoned mined lands; urban restoration sites; construction areas; conservation practice construction sites; areas needing stabilization before or after natural disasters such as floods, hurricanes, tornados and wildfires; and other areas degraded by human activities or natural events. Use of the area should be managed as long as necessary to stabilize the site and achieve the intended purpose.

To use this practice, a site investigation should be conducted to identify any physical, chemical, or biological conditions that could affect the successful establishment of vegetation. Plant species should then be selected based on any identified factors and should have the capacity to achieve adequate density and vigor within an appropriate period to stabilize the site sufficiently to permit suited uses with ordinary management activities. The amount of plant biomass and cover needed to reduce wind and water erosion to the planned soil loss objective should be determined using the current approved wind and/or water erosion prediction technology. Seeding or planting

should be done at a time, and in a manner, that best ensures establishment and growth of the selected species. See NRCS CPS 342 (NRCS 2010b) for additional guidance on this and other considerations.

When using a critical area planting, a separate plan should be prepared for each treatment unit that will use this practice. Additional guidance and minimum plan elements are discussed in NRCS CPS 342 (NRCS 2010b), including species selection, seeding, restoring degraded areas such as gullies and deep rills, amending the soil if needed to ameliorate or eliminate physical or chemical conditions that inhibit plant establishment and growth, and shaping stream/channel banks and pond/lake shorelines so they are stable and allow for the establishment and maintenance of desired vegetation. Planted areas should be protected from damage by farm equipment, vehicular traffic, and livestock. Inspections should be performed on a regular basis, and reseeding or replanting, fertilization, pest control, and repair of damaged or scoured areas performed as needed to ensure that this practice continues to function as intended throughout its expected life.

Urban Reforestation/Riparian Buffer Restoration: Riparian buffers are applicable to both rural and urban settings. Urban reforestation is the practice of planning and planting large areas of trees to increase the urban canopy and decrease impervious area. Riparian buffers are vegetated areas of land used to intercept runoff before it can enter a waterbody. The buffers slow and filter runoff, thereby serving as controls to reduce both pollutant loads from runoff and sedimentation to the impaired waterbody. Maintaining and/or restoring riparian buffers with trees helps to filter pollutants out of runoff from roads, parking lots, and other paved areas. The trees provide shade to moderate soil and stream temperatures. Additionally, the rooting systems of the vegetation serve as reinforcements in streambank soils, which help to hold streambank material in place and minimize erosion. Due to the increase in stormwater runoff volume and peak rates of runoff associated with urban development, stream channels are subject to greater erosional forces during stormflow events. Preserving natural vegetation along stream channels therefore minimizes the potential for water quality and habitat degradation due to streambank erosion as well as that additional pollutant or sediment load entering the stream.

Converting land adjacent to streams for the creation of riparian buffers will provide stream bank stabilization, stream shading, and nutrient uptake and trapping from adjacent areas. Minimum buffer widths of 25 feet area required for water quality benefits and phosphorus removal rates of approximately 25 to 30 percent for 30-foot wide buffers and 70 to 80 percent for 60- to 90foot wide buffers have been reported (USEPA 2003). Riparian corridors can typically treat a maximum of 300 feet of adjacent land before runoff forms small channels that short circuit treatment. Land use data for the DT-35 watershed were clipped to 25-footbuffer zones created around the impaired stream segment. Existing grassland, forest, and agricultural areas within the minimum 25-foot buffer zones are shown in **Table 3-3** for all tributaries to Fox River segment DT-35 within the subbasin. Landowners should assess parcels adjacent to the stream channels and maintain or improve existing riparian areas or potentially convert cultivated lands.

Table 3-3 Total Area and Area of Grassland, Forest, and Agricultural Land Within 25-Foot Buffer, DT-35 and Major Tributaries

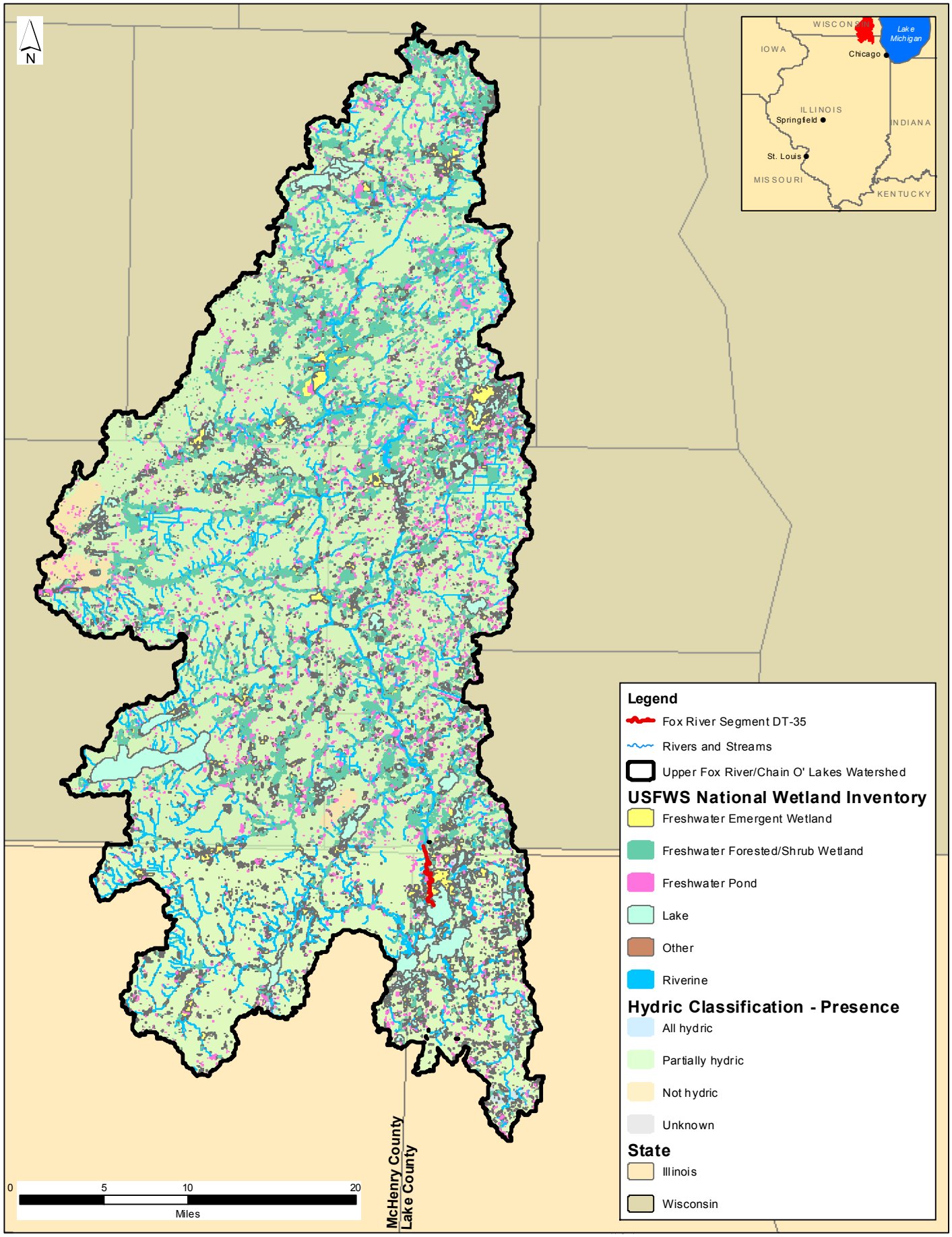
Stream Name	**Segment ID**	**Area in 25 ft. Buffer** (Acres)	**Grassland in 25 ft. Buffer** (Acres)	**Forest in 25 ft. Buffer** (Acres)	**Agricultural Land in 25 ft. Buffer** (Acres)
Fox River	DT-35	24.8	0	6.3	0.6

Implementation of an urban reforestation/riparian buffer restoration program requires a coordinated effort and sites should be prioritized for best results. For guidance on agricultural land, the Illinois NRCS Practice Standard Code 391: Riparian Forest Buffer (2003) should be used, while guidance on urban land should be informed by the Illinois NRCS Urban Manual Practice Standard Code 995: Vegetative Streambank Stabilization (1994).

Wetlands: The use of wetlands as a structural control is applicable to sediment and nutrient reduction from urbanization in the Upper Fox River/Chain O'Lakes watershed. Even in urban settings, wetlands serve as an important buffer between terrestrial activities and aqueous environments. Existing wetlands should be maintained, and additional wetlands could be constructed to treat loads from runoff at select locations where more focused runoff occurs and land use allows; e.g., at the downstream end of a drainage channel. Wetlands are effective BMPs for phosphorus and sediment control because they filter sediment and slow overland flow thereby reducing soil erosion (NRCS 2014).

A properly designed and functioning wetland can provide very efficient treatment of pollutants, such as phosphorus. Design of wetland systems is critical to the sustainable functionality of the system and should consider soils in the proposed location, hydraulic retention time, and space requirements. In general, soils classified as hydric are most suitable for wetland construction. The current extent of soils classified as hydric by the NRCS, as well as the current extent of existing U.S. Fish and Wildlife classified wetlands in the Fox River segment DT-35 watershed are shown in **Figure 3-3**. Areas near waterways that are not currently classified as wetlands but have hydric soils present are typically strong candidates for potential wetland construction. Existing wetland areas may also be candidates for reconstruction or enhancement to improve their nutrient uptake capacity, and may be a less expensive option, in some instances, than the creation of new wetlands. These data layers are developed on a large-scale and onsite soil investigation and wetland delineation is typically necessary for verification of the suitability of a given area for wetland construction.

Constructed wetlands, which comprise the second or third stage of a nonpoint source treatment system, can be very effective at improving water quality. Studies have shown that artificial wetlands designed and constructed specifically to remove pollutants from surface water runoff have removal rates of greater than 90 percent for suspended solids, up to 90 percent for total phosphorus, 20 to 80 percent of orthophosphate, and 10 to75 percent for nitrogen species (Johnson, Evans, and Bass 1996; Moore 1993; USEPA 2003; Kovosic et al. 2000). Although the removal rate for phosphorus is low in long-term studies, the rate can be improved if sheet flow is maintained to the wetland and vegetation and substrate are monitored to ensure the wetland is operating optimally. Sediment or vegetation removal may be necessary if the wetland removal efficiency is lessened over time (USEPA 2003). Guidelines for wetland design suggest a wetland to watershed ratio of 0.6 percent for nutrient and sediment removal from agricultural runoff.



Upper Fox River/Chain O'Lakes Watershed
Fox River Segment DT-35
Existing Wetlands and Hydric Soils

CDM Smith

Figure 3-3

Stormwater Retention Basins (Dry and/or Wet Ponds): Control basins and ponds ("dry" or "wet") may be used for flood control and treatment of stormwater. Both systems function to settle suspended sediments and other solids typically present in stormwater runoff.

Stormwater ponds are also called retention ponds or "wet" ponds and are used to hold back water behind a dam. The pond has a permanent pool of water that fluctuates in response to precipitation and runoff from the contributing areas. Maintaining a pool discourages resuspension and keeps deposited sediments at the bottom of the holding area. USEPA's 1993 Nationwide Urban Runoff Program indicated that up to two-thirds of the sediment, nutrients, and trace metals could be removed via sedimentation within 24 hours, while two weeks are required to remove a significant amount of phosphorus. A wet detention basin must receive and retain enough water from rain, runoff, and groundwater to maintain a permanent pool in the deeper areas of the basin. Most sources recommend a minimum drainage area of 10 to 25 acres to sustain a constant inflow. Wet detention basins should be sized to treat the water quality volume and detain and release the 100-year event. The permeability of hydrologic soil groups "C" and "D" is suitable for a wet basin without modification. The side slopes of a wet detention basin should be no steeper than 5:1 above the normal water level (DuPage County 2008).

Dry ponds which may also be referred to as extended detention basins, detention ponds, and/or extended detention ponds are basins whose outlets are designed to detain the stormwater runoff from a water quality "storm" for some minimum duration (e.g., 24 hours) which allow sediment particles and associated pollutants to settle out. Unlike wet ponds, dry extended detention ponds do not have a permanent pool. However, dry extended detention ponds are often designed with small pools at the inlet and outlet of the pond and can also be used to provide flood control by including additional detention storage above the extended detention level.

Although the Fox River segment DT-35 watershed is highly urbanized, both wet and dry ponds can be very useful stormwater retrofits with two primary applications as a retrofit design. In many communities, detention basins have been designed for flood control in the past. It is possible to modify these basins to incorporate features that encourage water quality control, and/or channel protection, such as conversion into vegetated basins, which slows the flow of stormwater, filters and traps common runoff pollutants, and promotes soil saturation and groundwater recharge. It is also possible to construct new dry extended detention ponds in open areas of a watershed to capture existing drainage or create them above a road crossing or culvert.

In general, dry extended detention ponds should be used at sites with a minimum drainage area of 10 acres. On smaller sites, it may be difficult to provide channel or water quality control because the orifice diameter at the outlet becomes very small and is thus prone to clogging. In addition, it is generally more cost-effective to control larger drainage areas due to the economies of scale in pond construction. Dry ponds can be used on sites with slopes up to about 15 percent, although the local slope needs to be relatively flat to maintain reasonably flat side slopes. While there is no minimum slope requirement, enough elevation drop is needed from the pond inlet to the pond outlet to ensure that flow can move through the system (Stormwater Manager's Resource Center 2016).

Vegetated Swales: Vegetated swales are an effective infiltration-based technique in an urban setting. These swales use an open channel designed to attenuate runoff. As runoff or stormwater

discharge enters these channels, it is slowed by the vegetation; this subsequently reduces sediment suspension, promotes filtration through soil, and increases infiltration into groundwater. Pollutants are removed by settling, infiltration into soil, and by biological uptake of nutrients. They also increase the time of retention within the watershed, further reducing peak flow rates. Vegetated swales, therefore, provide the benefits of reducing peak flows and increasing pollutant removal, at low capital cost. Swales are particularly well suited for highways, roads, and parking lots because the channel designs are straight and can be easily incorporated into design schemes (Koski and Kinzelman 2010). Swales are not practicable in areas with flat grades, steep grades, or in wet or poorly drained soils, but are an excellent choice for many urban areas given the low land area requirements compared to many alternatives.

The swales can be used as a standalone option or as a conveyance mechanism to channel runoff to other retentive BMPs. Benefits of this BMP come from reductions in runoff volume and removal of nutrients, sediments, and heavy metals [TSS (86%), total phosphorous (34%), soluble phosphorous (38%), total nitrogen (84%), carbon (69%), and moderate reductions of heavy metals (cadmium 42%, copper 51%, lead 67%, and zinc 71%)] (Schueler and Holland 2000b).

Grassed Waterways: A grassed waterway is a shaped or graded channel, established with suitable vegetation, used to convey surface water at a non-erosive velocity by way of a broad and shallow cross-section to a stable outlet. The vegetative cover within the waterway reduces peak discharge and protects the channel surface from rill and gully erosion. Waterways are often constructed in naturally-occurring depressions where the water collects and flows to an outlet, but they can be constructed in any area where added water conveyance capacity and vegetative protection are needed to prevent erosion resulting from concentrated surface flow. In addition to reducing erosion, grassed waterways can positively affect water quality through uptake of other pollutants attached to soils, such as nutrients. Criteria for constructing grassed waterways are discussed in NRCS CPS 412 (NRCS 2014b), including capacity, stability, width, depth, side slopes, drainage and outlets, and establishment of vegetation.

When using a grassed waterway, a separate plan should be prepared for each treatment unit that describes how the practice requirements will be applied to the particular area. Additional guidance and minimum plan elements are discussed in Illinois NRCS CPS 342 (NRCS 2010b), The NRCS recommends these maintenance measures for grassed waterways:

- Plant a good quality NRCS-approved seed mixture. Fertilization of the vegetation should not be necessary unless the waterway is proven to lack proper nutrients. Avoid spraying herbicides in or adjacent to the waterway. Mowing or periodic grazing of the vegetation may be appropriate to maintain waterway capacity and reduce sediment deposition. Noxious weeds should be controlled.

- Inspect the area frequently for eroding areas, places needing reseeding, and damage caused by machinery, herbicides, or livestock. Repair all areas as needed; e.g., minor rills or gullies may be repaired by reshaping and reseeding. Outlets should also be maintained to prevent gullies from forming. This may include reshaping and reseeding the outlet, or repairing components of structural outlets.

- Maintain the width of the grass area when tilling and planting adjacent fields. If possible, bring row crop patterns up to (but not into) the waterway nearly on the contour. Do not plant end rows along the side of the waterway. Do not use the waterway as a turn area because this can result in damage to the vegetation.
- Avoid driving up and down, or crossing, grassed waterways, especially during wet conditions. This can damage the vegetation and the ruts caused by tire tracks can lead to gullies.
- When crossing grassed waterways, lift tillage equipment off the waterway and turn off chemical application equipment.

Pervious and Porous Pavement: Permeable pavement can be used in place of standard paving materials for construction of parking lots, alleys, driveways, low traffic roadways, boat ramps, paths and sidewalks, and community spaces. Permeable pavement helps to remove waterborne pollutants from stormwater runoff by allowing some portion of the stormwater to filter through material to the underlying soil. The pavement traps some particulate bound pollutants, but most of the runoff and pollutants are discharged to the groundwater, as there is usually little organic-rich soil beneath permeable pavements that trap the pollutants as in most other infiltration devices.

Permeable pavement is constructed of a porous asphalt or bituminous concrete surface with a 2.5- to 4-inch thickness that is placed over a highly permeable layer of crushed stone or gravel, 24 inches thick. A filter fabric can be placed beneath the gravel or stone layer to prevent movement of fines into the deeper layers, although many installations show clogging of the filter fabric, and most recent designs use rock filters and not filter fabrics. Runoff from the stone and gravel layers then infiltrates into the soil. If the infiltration rate is slow, perforated underdrain pipes can be placed in the stone layer to convey the water back to a surface waterway. The primary advantage of permeable pavement is that it can be put to dual use reducing land use requirements. But, permeable pavements are not as durable as conventional pavements, and generally have much lower vehicle load limits. Also, they are costlier than conventional pavements (Pitt and Narayanan 2016). The Illinois Urban Manual Standard Practice Code 890: Pervious and Porous Pavements states that, in general, pervious and porous pavement could be implemented in parking lots, in alleys, on low traffic roadways, on paths and sidewalks, in fire lanes, and in community spaces that do not receive excessive traffic (NRCS 2013). While some impervious surface data does exist for the watershed, a detailed parcel-by-parcel assessment is needed to identify the specific makeup of impervious surface and the potential to replace it.

Sand Filters. Sand filters are also an infiltration-based technique that can be used for both sediment/TSS and pollutants. Water enters a settling basin to remove heavier sediments and is then directed to filter media composed of sand or an appropriate organic material. Sand filters are a good option for highly urban areas because they occupy little space, tend to be easier to retro-fit compared to other BMPs, and have few design restrictions. However, these types of structures can be high maintenance and costly to construct (USEPA 2006). Sand filters do not add anything to an environment aesthetically but can be buried underground, thereby increasing their ability to be installed in highly urbanized settings. Sand filters can effectively remove a large range of pollutants, including the following: fecal coliform from 51% to over 99% (Schueler and

Holland 2000a; Clary et al. 2008), TSS at an average of 87% (Schueler and Holland, 2000b), total phosphorus at around 59%, and carbon at about 67%.

Compost Blankets, Filter Berms, and Filter Socks: Compost blankets, compost filter berms, and compost filter socks are BMPs employed to reduce surface runoff, particularly addressing the reduction of sediments and other suspended solids.

- Compost blanket: This is a layer of loosely applied composted material placed on soil in a disturbed area to reduce stormwater runoff and erosion. The material fills in small rills and voids to limit channelized flow, provides a more permeable surface to facilitate stormwater infiltration, and promotes revegetation. Seeds can be mixed into the compost before it is applied. Applying a compost blanket works well as a stormwater BMP because it a) retains a large volume of water, which aids in establishing vegetation growth within the blanket, b) acts as a cushion to absorb the impact energy of rainfall, which reduces erosion, c) stimulates microbial activity that increases the decomposition of organic matter, which increases nutrient availability and improves the soil structure, d) provides a suitable microclimate with the available nutrients for seed germination and plant growth, and e) removes pollutants such as heavy metals, nitrogen, phosphorus, fuels, grease, and oil from stormwater runoff, thus improving downstream water quality (USEPA 1998).

- Compost filter berm: A compost filter berm is a dike of compost or a compost product that is placed perpendicular to runoff to control erosion in disturbed areas and retain sediment. Compost berms can be placed at regular intervals to help reduce the formation of rill and gully erosion when a compost blanket is stabilizing a slope.

- Compost filter sock: A compost filter sock is a three-dimensional tubular sediment control and stormwater runoff filtration device typically used for perimeter control of sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons). They are effective when installed perpendicular to sheet or low concentrated flow. Compost filter socks trap sediment and soluble pollutants by filtering runoff water as it passes through the matrix of the sock and by allowing water to temporarily pond behind the sock, allowing deposition of suspended solids. Applications include: site perimeters; above and below disturbed areas subject to sheet runoff, inter-rill, and rill erosion; above and below exposed and erodible slopes; along the toe of stream and channel banks; around area drains or inlets located in a 'sump'; and on or around areas where trenching of silt fence is difficult or impossible, such as on compacted soils, frozen or paved ground, or around sensitive trees where trenching of silt fence is not beneficial for tree survival or may unnecessarily disturb established vegetation.

Stormwater Reduction Techniques: Reducing the amount of stormwater entering receiving waterbodies via overland flow can help reduce the amount of sediment and pollutants concurrently carried into the waterbodies. Stormwater reduction techniques which may be implemented in urban settings include the following:

- Rain barrels: These are designed to catch water from downspouts and store it for non-potable uses such as gardening.

- Rain gardens: These are a type of bio-retention cell (which are described below)
- Green roofs: These are an engineering technique that uses vegetation on rooftops to reduce runoff, which in turn reduces the transport of sediment. In urban areas, green roofs can represent a large surface area, and may help retain as much as 87% of rainfall.

Bio-retention cells: Bio-retention cells, or rain gardens, are a low impact development technique in which vegetation and infiltration are used to hold and treat stormwater at the source of discharge. Properly used bio-retention cells can reduce runoff volumes, increase groundwater recharge, increase evapotranspiration, provide a lag time for discharged runoff, and reduce pollutants entering ground and surface waters (Hunt et al. 2008). The cells were initially designed to handle the runoff from smaller sites, between one and three acres, but can be modified to fit inside a variety of sites.

Bio-retention cells are designed to decrease the volume of effluent as well as improve water quality through filtration, infiltration, adsorption, and bio-transformations. Typical designs consist of sloped grass buffer strips which convey water into an infiltration basin. The infiltration basin consists of a layer of highly permeable media, such as sand, which is covered by a layer of planting soil and mulch. The mulch layer is planted with fauna such as earthworms to keep soil pores open, increase transpiration, and potentially uptake pollutants. Depending on the soil infiltration rate of the site, an underlying drain can be added to remove excess water from the media. In bench studies of simulated bio-retention cells, fecal coliform reduction rates have been observed from 54% to 99.8% with an average decrease of 91.6% (Rusciano and Obropte 2007); copper, lead and zinc were removal rates topped 95%, and total phosphorus was removal efficiencies were approximately 80% (Koski and Kinzelman 2010).

Streambank Stabilization/Erosion Control: Soil erosion is the process of moving soil particles or sediment by flowing water or wind. Eroding soil transports pollutants that can potentially degrade water quality. Three available approaches to potentially decrease nonpoint TSS, sedimentation/siltation, and/or pollutant source loads in an urban setting, as well as helping to stabilize eroding banks include the following:

- Stone Toe Protection: Non-erodible materials are used to protect the eroding banks of a stream. Meandering bends found in the watershed could potentially be stabilized by placing the hard armor only on the toe of the bank. Stone toe protection is most commonly implemented "using stone quarry stone that is sized to resist movement and is placed on the lower one third of the bank in a windrow fashion" (Kinney 2005).
- Rock Riffle Grade Control: Naturally stable stream systems typically have an alternating riffle-pool sequence that helps to dissipate stream energy. Riffle rock grade control places loose rock grade control structures at locations where natural riffles would occur to create and enhance the riffle-pool flow sequence of stable streams. By installing riffle rock in an incised channel, the riffles will raise the water surface elevation resulting in lower effective bank heights, which increases the bank stability by reducing the tractive force on the banks (Kinney 2005).

- Rock chutes: Rock chutes are riprap lined water conveyance structures used to move water down a slope in a non-erosive manner. The main purpose of a rock chute is to reduce channel flow velocity by dissipating energy and to provide a stable grade at the outlet to prevent erosion.

The extent of streambank erosion within and upstream of the Fox River DT-35 impaired segment is unknown. Further investigation is recommended to determine the extent that erosion control measures could help in managing TSS and/or sedimentation/siltation loads in the reaches.

Street Sweeping: Street sweeping is the practice of passing over an impervious surface, usually a street or a parking lot, with a vacuum or a rotating brush for the purpose of collecting and disposing of accumulated debris, litter, sand, and sediments. Street sweeping is widely practiced by urban and suburban governments for litter and dust control. In addition, many commercial establishments utilize street sweeping for aesthetic purposes. In total, over 860 linear miles of roads exist within the Upper Fox River/Chain O'Lakes watershed, within the state of Illinois, that could potentially benefit from street sweeping operations.

For street sweeping to have a beneficial effect on water quality in urban areas, a schedule of frequent sweeping must be established. There are several types of street sweepers, some of which are more effective than others at removing certain types of nonpoint source pollution. Some examples of street sweeping devices include mechanical sweepers, vacuum assisted mechanical sweepers, regenerative cleaners, industrial type vacuum sweepers, hand sweepers, and street flushers, although vacuuming is ideal so that sediment will not simply be redeposited within the same land area. The physical removal of particulates and attached fine pollutant particles from the street surface will lessen the pollutant load transferred to receiving waters.

Studies have shown that there are certain times when street sweeping is very effective in improving water quality. In areas with defined wet and dry seasons, sweeping prior to the wet season is likely to be beneficial. Other times when sweeping is beneficial are following snow melt and heavy leaf fall (Northern Virginia 1997). The current extent of street sweeping in the watershed, type of equipment used, and program schedules are currently unknown. Each local jurisdiction in the watershed should be encouraged to review their existing program and adjust as needed to include pollutant removal and water quality improvements program goals.

3.4 BMP Recommendations for Reducing TSS in Lakes

Twenty-one of the 28 lakes within the Upper Fox River/Chain O'Lakes watershed are listed for impairment of the aesthetic quality use caused by TSS. However, as indicated in **Section 2.4.2**, only 15 of the 21 lakes require TSS load reductions to meet the watershed-specific LRS target value. Lakes needing TSS reductions include the following:

Table 3-4 TMDL Endpoints for Impaired Constituents in the Upper Fox River/Chain O' Lakes Watershed

Waterbody Name	Segment ID	% Reduction Required
Bluff Lake	VTJ	2%
Dunn's Lake	VTH	65%
Duck Lake	RTZG	30%
Fischer Lake	VTT	50%
Fox Lake	RTF	50%

Waterbody Name	Segment ID	% Reduction Required
Grass Lake	RTQ	68%
Hidden Lake	UTM	81%
Lake Marie	RTR	9%
Nippersink Lake	RTUA	62%
North Churchill Lake	STR	85%
Pistakee Lake	RTU	45%
Redhead Lake	RTV	45%
South Churchill Lake	STS	67%
Spring Lake	RGZT	15%
Turner Lake	VTZA	21%

Section 2.4.2 indicates that among lakes in exceedance of the target value, percent reductions of between 2% and 85% are required. None of Antioch Lake, Fish-Duncan Lake, Long Lake, Round Lake, Summerhill Estates Lake, nor Lake Tranquility are in exceedance of the target value, and therefore they do not require a reduction of TSS.

As indicated in Figure 6-1 of the Stage 1 report (AECOM 2010), land use around these impaired lakes is primarily urban with limited amounts of wetland and forested areas. Section 2.3 of the Stage 1 report indicates that 40% of the overall watershed is agricultural while Figure 6-1 shows the majority of the agricultural land to be in the Pistakee Lake subbasin with limited amounts in the other lake subbasins and primarily affecting Bluff Lake, Lake Marie, Petite Lake, and South Churchill Lake. Of these, only Bluff Lake and Lake Marie appear to have agricultural land adjacent to the lakes.

Nonpoint source controls designed to reduce erosion and overland flow are expected to reduce TSS in lakes, as well as provide a secondary benefit of reducing other contaminants, such as total phosphorus that may be entering waterways via erosive processes. The BMPs discussed in **Section 3.3** and below are applicable to TSS impairments within the lakes.

- Field Borders
- Conservation Tillage Practices
- Contour Farming
- Conservation Crop Rotation
- Strip-cropping
- Cover Crop
- Terracing

Stormwater retention basins, **sand filtration basins**, and **bio-retention cells** could be constructed at the upstream ends of select lakes or at a location of more concentrated inflow to the selected lake. **Filter strips**; **riparian buffers**; **vegetated swales**; **permeable pavement**; **compost blankets, berms, and socks**; and **stormwater reduction techniques** may also be

employed in select areas to help control overland flow and the associated transport of sediment and pollutants.

For the **filter strips**, potential tributary and shoreline buffer areas were calculated using average slopes in the subbasin as described in **Section 3.3**. The average slopes, appropriate filter strip flow lengths, and calculated areas within the buffer distances for each waterbody are provided in **Table 3-5**. The table also shows estimated acres of open land surrounding each lake and its tributaries where filter strips could potentially be installed. However, it may not be feasible to implement filter strips in all areas identified as potentially convertible though GIS assessment, and ultimately, the applicability of implementation will vary with each parcel and landowners or managers should be encouraged to evaluate their land adjacent to impaired lakes to determine the practicality of installing or extending filter strips to achieve effective flow lengths as previously described. Figures depicting the buffered areas and open lands suitable for conversion to filter strips in each lake's subbasin are provided in **Figures 3-4** through **3-30**.

Table 3-5 Average Slopes, Filter Strip Flow Length, Total Buffer Area, and Area of Land Within Buffers Potentially Suitable for Conversion to Filter Strips, by Lake

Waterbody Name	**Segment ID**	**Average Slope** (%)	**Filter Strip Flow Length** (feet)	**Total Area in Buffer** (Acres)	**Potentially Convertible Land in Buffer** (Acres)
Antioch Lake[1]	RTT	7.7	234	64.9	17.1
Bluff Lake	VTJ	4.7	216	72.0	2.2
Lake Catherine[1]	RTD	4.5	216	80.4	7.1
Channel Lake[1]	RTI	4.0	216	170.5	12.7
Davis Lake[1]	STQ	7.6	234	27.1	5.2
Dunn's Lake	VTH	5.4	234	174.2	40.3
Duck Lake	RTZG	7.2	234	44.7	3.4
Fish-Duncan Lake[1]	VTK	6.0	234	130.4	66.7
Fischer Lake	VTT	1.3	108	66.6	14.5
Fox Lake	RTF	4.8	216	621.0	80.2
Grass Lake	RTQ	4.7	216	698.9	66.6
Hidden Lake	UTM	4.3	216	20.8	10.3
Long Lake[1]	RTJ	5.1	234	1744.3	707.9
Lake Marie	RTR	4.7	216	351.4	45.7
McGreal Lake[1]	UTX	8.3	234	17.0	9.1
Nippersink Lake	RTUA	4.8	216	145.2	6.7
North Churchill Lake	STR	2.9	144	53.4	14.4
Petite Lake[1]	VTW	6.7	234	185.8	26.0
Pistakee Lake	RTU	0.68	72	445.6	83.6
Redhead Lake	RTV	6.6	234	65.8	8.8
Round Lake[1]	RTH	4.0	216	65.6	6.9
South Churchill Lake	STS	2.4	144	46.7	0.5
Spring Lake	RGZT	5.3	234	100.0	41.8
Summerhill Estates Lake[1]	WTA	3.3	180	40.3	22.1
Lake Tranquility[1]	UTW	9.4	234	73.4	10.9

Waterbody Name	**Segment ID**	**Average Slope** (%)	**Filter Strip Flow Length** (feet)	**Total Area in Buffer** (Acres)	**Potentially Convertible Land in Buffer** (Acres)
Turner Lake	VTZA	7.4	234	53.3	3.6
Wooster Lake[1]	RTZH	4.9	216	61.6	12.0

[1] Lake Catherine, Channel Lake, Davis Lake, McGreal Lake, Petite Lake, and Wooster Lake are not impaired for TSS; and Antioch Lake, Fish-Duncan Lake, Long Lake, Round Lake, Summerhill Estates Lake, and Lake Tranquility do not require TSS reductions; however, areas are included in the table for the phosphorus impairments discussed in **Section 3.5**.

Field Borders: A field border is a strip of permanent vegetation established at the edge or around the perimeter of a field to reduce erosion from wind and water, and to protect soil and water quality. This practice applies to cropland and grazing lands, which are often farmed to the extent possible, sometimes even into adjacent road ditches and to creek banks. Leaving a field border will reduce erosion and transportation of sediment, including contaminant-impacted materials, to nearby environmentally sensitive areas.

As a minimum, field borders should be located along the edge(s) of fields where runoff enters or leaves the field. The minimum width should be 30 feet; wider if necessary to meet the resource needs. When determining the border width, consideration should be given to factors such as equipment turning, parking, loading/unloading, grain harvest operations, and other related activities. For example, field borders planned to be used for turning strips should be at least twice as wide as the widest equipment to be used. Border widths should also comply with all applicable state and local manure and chemical application setbacks. The field border shall not be used as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border. When crossing the border, sprayers should be shut off and tillage equipment raised to avoid damage to the borders.

The field border should be established using permanent stiff-stemmed, upright grasses; grass/legumes; forbs; and/or shrubs to trap wind- or water-borne soil particles. These plants should be appropriately adapted to the soil and climate, have the physical characteristics necessary to control wind and water erosion to tolerable levels in the field border area, be tolerant to sediment deposition and the chemicals planned for application in the crop field, be tolerant to equipment traffic, and shall not include any state-listed noxious plants. For water quality purposes (adsorbed, dissolved, and suspended contaminants), the field border should have a vegetation stem density/retardance of moderate to high (i.e., equivalent to a good stand of wheat). Field border establishment should be timed so that the soil will be adequately protected during the critical erosion period(s). Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.

Applicable maintenance should be performed as needed to ensure the borders continue to function properly, including removal of state-listed noxious weeds and excess accumulated sediment. Overland flow entering the border should be primarily sheet flow; areas of concentrated flow should be dispersed as part of the maintenance activities so as not to circumvent the border. Any area damaged by animals, chemicals, tillage, or equipment traffic should be repaired as soon as possible. Use of contour buffer, no-till, or other conservation practices on adjacent upland areas will help to reduce surface runoff and excessive sedimentation of field borders.

If this BMP is selected for use by a landowner, a separate plan should be prepared for each area that will use this practice. Additional guidance and minimum plan elements are discussed in NRCS CPS 386 (NRCS 2016c).

Conservation Tillage Practices: Conservation tillage practices could help reduce nutrient and sediment loads into the impaired stream segments by reducing erosion of soils. Conservation tillage practices are no-till and reduced-till. No-till is the practice of limiting soil disturbance to manage the amount, orientation, and distribution of crop and plant residue on the soil surface year-round (NRCS 2016a). Reduced-till is managing the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round while limiting the soil-disturbing activities used to grow and harvest crops in systems where the field surface is tilled prior to planting (NRCS 2016b).

The no-till practice consists only of an in-row soil tillage operation during the planting activities and a seed row/furrow closing device. No full-width tillage is performed from the time of harvest or termination of one cash crop to the time of harvest/termination of the next cash crop in the rotation, regardless of the depth of the tillage operation. Limited tillage is allowed to close or level ruts from harvesting equipment; however, no more than 25 percent of the field may be tilled for this purpose.

As noted above, the reduced-till practice consists of managing plant residue on the soil surface while limiting soil-disturbing activities. The practice includes tillage methods commonly referred to as mulch tillage or conservation tillage, where the entire soil surface is disturbed by tillage operations such as chisel plowing, field cultivating, tandem disking, or vertical tillage. It also includes tillage/planting systems with few tillage operations (e.g., ridge till), but which do not meet the criteria for the no-till practice.

In both the no-till and reduced-till practices, removal of residue from the row area prior to or as part of the planting operation is acceptable. In the no-till practice, however, the disturbed portion of the row width should not exceed one third of the crop row width. In either practice, none of the residue should be burned. To reduce erosion to the targeted level, the current approved water and/or wind erosion prediction technology should be used to determine the amount of randomly distributed surface residue needed, the period of the year the residue needs to be present in the field, and the amount of surface soil disturbance allowed. All residues shall be uniformly distributed over the entire field. Residue should not be shredded after harvest because shredding makes it susceptible to movement by wind or water, and areas where the shredded residue accumulates may interfere with planting of the next crop.

If the no-till BMP is selected for use by a landowner, a separate plan should be prepared for each area that will use this practice. Additional guidance and minimum plan elements are discussed in NRCS CPS 329 (NRCS 2016a). If the reduced-till BMP is selected for use by a landowner, a separate plan should be prepared for each area that will use this practice, and additional guidance and minimum plan elements are discussed in NRCS CPS 345 (NRCS 2016b).

Conservation tillage practices can remove up to 45 percent of the phosphorus from runoff and approximately 75 percent of the sediment. Additionally, studies have found around 93 percent

less erosion occurred from no-till acreage compared to acreage subject to moldboard plowing (USEPA 2003).

Contour Farming: Contour farming is the practice of aligning ridges, furrows, and roughness formed by tillage, planting, and other operations to alter the velocity and/or direction of water flow to or around the hillslope. Use of this practice results in reduced erosion; reduced transport of sediment, other solids, and the contaminants attached to them; and reduced transport of contaminants found in solution runoff (i.e., excess nutrients and pesticides) by increasing water infiltration. Contour farming applies on sloping land where crops are grown.

Criteria which apply to this practice are minimum and maximum row grades, minimum ridge heights, and stable outlets to receive surface flow. The practice standard (NRCS 2007) provides more information; however, in general, crop rows should have sufficient grade to ensure that runoff water does not pond and cause unacceptable crop damage. The maximum row grade should not exceed one-half of the up-and-down hill slope percent used for conservation planning, or 2 percent; see the standard for exceptions. During the period of the rotation that soil is most vulnerable to erosion, the minimum ridge height is 2 inches when row spacing is greater than 10 inches, and 1 inch for close-grown crops such as small grains (row spacing less than 10 inches). Additionally, for close-grown crops, the spacing between plants within the row shall not be greater than 2 inches. The minimum ridge height criteria are not required when the no-till practice (NRCS 2016a) is employed and at least 50 percent surface residue cover is present between the rows after planting.

Farming operations should begin on the contour baselines/markers and proceed both up and down the slope in a pattern parallel to any contour baselines/markers or terraces, diversions, or contour buffer strip boundaries where these practices are also present, until the patterns meet, and provided the applicable row grade criteria are met. Where field operations begin to converge between two non-parallel contour baselines, a correction area should be established that is permanently in sod or established to an annual close-grown crop. Sod turn strips should also be established where contour row curvature becomes too sharp to keep machinery aligned with rows during field operations, on sharp ridge points, or other odd areas as needed. Where terraces, diversions, or contour buffer strips are not present, contour markers should be retained on grades that, when followed during establishment of each crop, will maintain crop rows at designed grades. Contour markers may be field boundaries, a crop row left untilled near or on an original contour baseline or other readily identifiable, continuous, lasting marker. If a marker is lost, a contour baseline should be re-established, within the applicable criteria, prior to seedbed preparation for the next crop (NRCS 2007).

When using contour farming, a separate plan should be prepared for each field that will use this practice.

Conservation Crop Rotation: Conservation crop rotation is a planned sequence of at least two different crops grown on the same ground over a period of time (i.e., the rotation cycle), and applies to all cropland where at least one annually-planted crop is included in the crop rotation. This practice can reduce sheet, rill, and wind erosion, as well as reduce water quality degradation due to excess nutrients. For the purposes of the practice, a cover crop is considered a different crop. Where applicable, suitable crop substitutions may be planted when the planned crop cannot

be planted due to weather, soil conditions, or other local situations. Acceptable substitutes are crops having similar properties that will accomplish the purpose of the original crop.

For reducing sheet, rill, and wind erosion, the crops, a tillage system, and cropping sequences should be selected that will produce sufficient and timely quantities of biomass or crop residue, which will reduce erosion to the planned soil loss objective, as calculated using current approved erosion prediction technology. Selection of high-residue producing crops and varieties, use of cover crops, and adjustment of plant density and row spacing can enhance production of the kind, amount, and distribution of residue needed, especially when used in combination with NRCS CPSs for Residue and Tillage Management (NRCS 2016a and NRCS 2016b). Crop damage by wind erosion can be reduced by selecting crops tolerant to abrasion from windblown soil or high wind velocity. Alternatively, if crops sensitive to wind erosion damage are grown, the potential for plant damage can be reduced by crop residue management, field windbreaks, herbaceous wind barriers, intercropping, or other methods of wind erosion control.

To recover excess nutrients from the soil profile in order to reduce water quality degradation, crops with the following qualities should be used: quick germination and root system formation, a rooting depth sufficient to reach the nutrients not removed by the previous crop, and nutrient requirements that readily utilize the excess nutrients. In addition, including perennial or annual legume crops in the rotation can help provide nitrogen for the non-legume crops, especially in fields where manure applications are restricted by high or excessive soil phosphorus or potassium levels.

When using conservation crop rotation, a separate plan should be prepared for each field or treatment unit that will use this practice. Additional guidance and minimum plan elements are discussed in NRCS CPS 328 (NRCS 2014a).

Strip-cropping: Strip-cropping is the practice of growing planned rotations of erosion-resistant and erosion-susceptible crops or fallow in a systematic arrangement of approximately equal strips (two or more) across a field. This practice reduces sheet, rill, and wind erosion, as well as the transport of sediment and other water- and wind-borne contaminants. Strip-cropping can be applicable on steeper slopes but is less effective on slopes exceeding 12 percent. The practice has the greatest impact where cropped or fallow strips having less than 10 percent cover are alternated with close grown and/or grass/legume strips or crop strips with 75 percent or greater surface cover. Strip-cropping is not well suited to rolling topography and does not apply to situations where the widths of alternating strips cannot be made generally equal.

Vegetation in a strip-cropping arrangement consists of crops and/or forages grown in a planned rotation. No two adjacent strips should be in an erosion-susceptible condition at the same time during the year, although two adjacent strips may be in erosion-resistant cover at the same time. Erosion-resistant strips should be crops or crop residues that provide the needed protective cover during those periods when erosion is expected to occur. Acceptable protective cover is tolerant of the anticipated depth of sediment deposition and includes a growing crop, including grasses, legumes, or grass-legume mixtures, standing stubble, residue with enough surface cover to provide protection, or surface roughness sufficient to provide protection. When the erosion-resistant strip is in permanent vegetation, the species established should either be tolerant to

herbicides used on the cropped strips or protected from damage by herbicides used on the cropped strips.

All tillage and planting operations will follow an established strip line. Strip boundaries should run parallel to each other and follow as close to the contour as practical. Strip widths should be determined using currently approved erosion prediction technologies, but should not exceed 50 percent of the slope length used for erosion prediction, or 150 feet, whichever is less. Strips susceptible to erosion should be alternated down the slope with strips of erosion-resistant cover.

When using strip-cropping, a separate plan should be prepared for each field that will use this practice. Additional guidance and minimum plan elements are discussed in NRCS CPS 585 (NRCS 2008), including arrangement and vegetative condition of strips, minimum and maximum row grades, minimum ridge height, critical slope length, headlands and end rows, and establishment of stable outlets to control runoff. Sediment accumulations along strip edges should be smoothed or removed and re-distributed over the field as necessary to maintain practice effectiveness. When headlands are in permanent cover, they should be renovated as needed to keep ground cover above 65 percent. No-till renovation of headlands is recommended, but in any case, should only include the immediate seedbed preparation and reseeding to a sod-forming crop with or without a nurse crop. Full headland width should be maintained to allow turning of farm implements at the end of a tilled strip to double back on the same strip.

Cover Crop: A cover crop consists of grasses, legumes, and forbs planted for seasonal vegetative cover. This practice can help reduce wind and water erosion, as well as reduce water quality degradation by utilizing excessive soil nutrients. Cover crops may either be established between successive production crops, or companion-planted or relay-planted into production crops. Species and planting dates should be selected that will not compete with the production crop yield or harvest. Cover crops should not be harvested for seed, nor should the residue be burned.

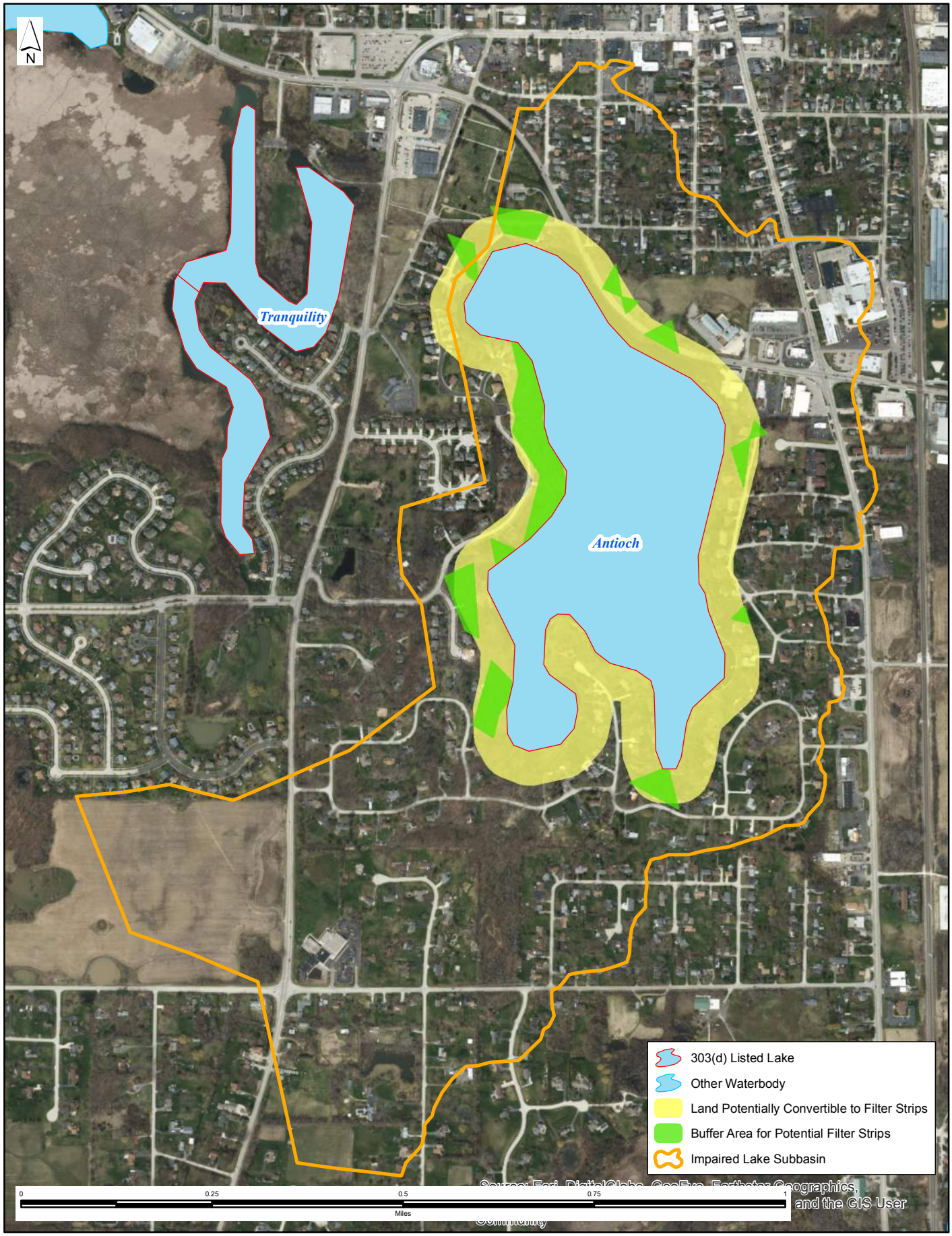
As discussed in NRCS CPS 340 (NRCS 2011), plant species, seeding rates, seeding dates, and seeding depths should be determined using the Illinois Cover Crop Selection Tool (http://mccc.msu.edu/selector-tool/). Cover crops should be selected based on having the physical characteristics necessary to provide adequate erosion protection, their ability to effectively utilize the nutrients of concern, and their ability to produce higher volumes of organic material and root mass in order to maintain or increase soil organic matter. Use of deep-rooted species will help maximize nutrient recovery. The cover crop should be established as soon as practical prior to or after harvest of the production crop, and terminated as late as practical to maximize plant biomass production and nutrient uptake, while allowing time to prepare the field for the next production crop.

When using a cover crop, a separate plan should be prepared for each field that will use this practice. Additional guidance and minimum plan elements are discussed in NRCS CPS 340 (NRCS 2011). The cover crop should be evaluated periodically to determine if the cover crop is meeting the planned purpose. If not, changes to the crop species, management, or technology should be implemented.

Terracing: Terracing is a soil conservation practice that can prevent runoff of precipitation falling on high gradient lands from causing serious erosion. Terraces may consist of an earthen

embankment, a channel, or a combination of ridges and channels constructed across the slope. They can be narrow based (grass on both sides), grass backed, or farmable (no grass), and have an outlet to convey runoff water to a point where it will not cause damage. Terraces reduce both the volume and velocity of water moving across the soil surface, which greatly reduces soil erosion. Terracing reduces peak discharge rates by temporarily storing runoff and allowing the associated sediment and other contaminants to settle out behind the terrace ridge rather than directly entering a receiving stream. Terrace systems have been shown to remove as much as 85 percent of sediment and 70 percent of total phosphorus from runoff (USEPA 2003). See NRCS CPS 600 (NRCS 2010c) for additional guidance, including information on spacing, alignment, capacity, cross-sections, channel grades, and outlets.

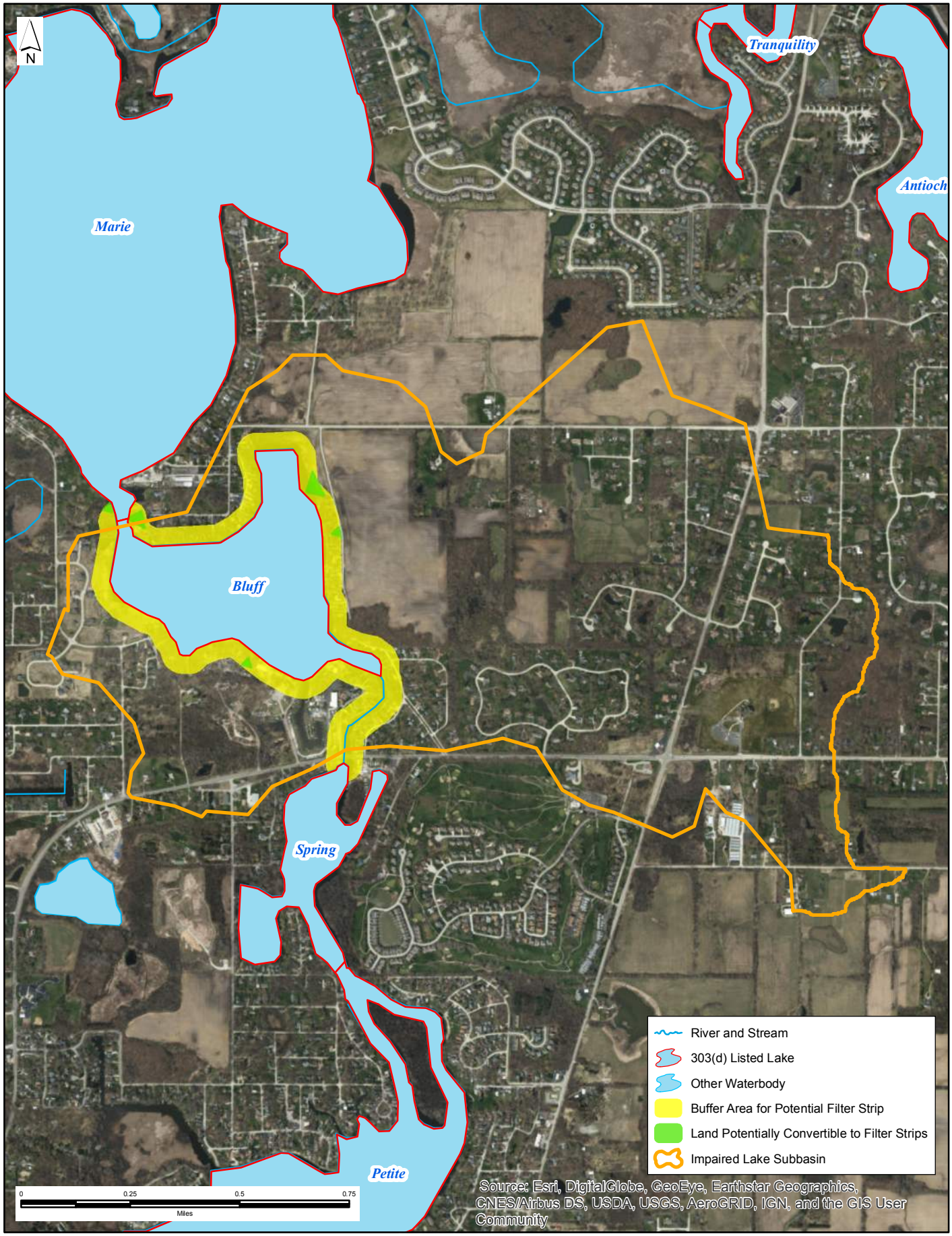
If this BMP is selected for use by a landowner, a separate plan should be prepared for each area that will use this practice. Minimum elements for each plan are discussed in NRCS CPS 600 (NRCS 2010c). The terraces should be inspected periodically and repaired as needed, including maintaining terrace ridge heights, channel profiles, terrace cross-sections, and outlet elevations. Accumulated sediment should be removed regularly to maintain terrace capacity and grade. For terraces where vegetation is specified, seasonal mowing, control of trees and brush, reseeding, and fertilizing should be completed, as needed.



Upper Fox River/Chain O'Lakes Watershed
Antioch Lake (RTT)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

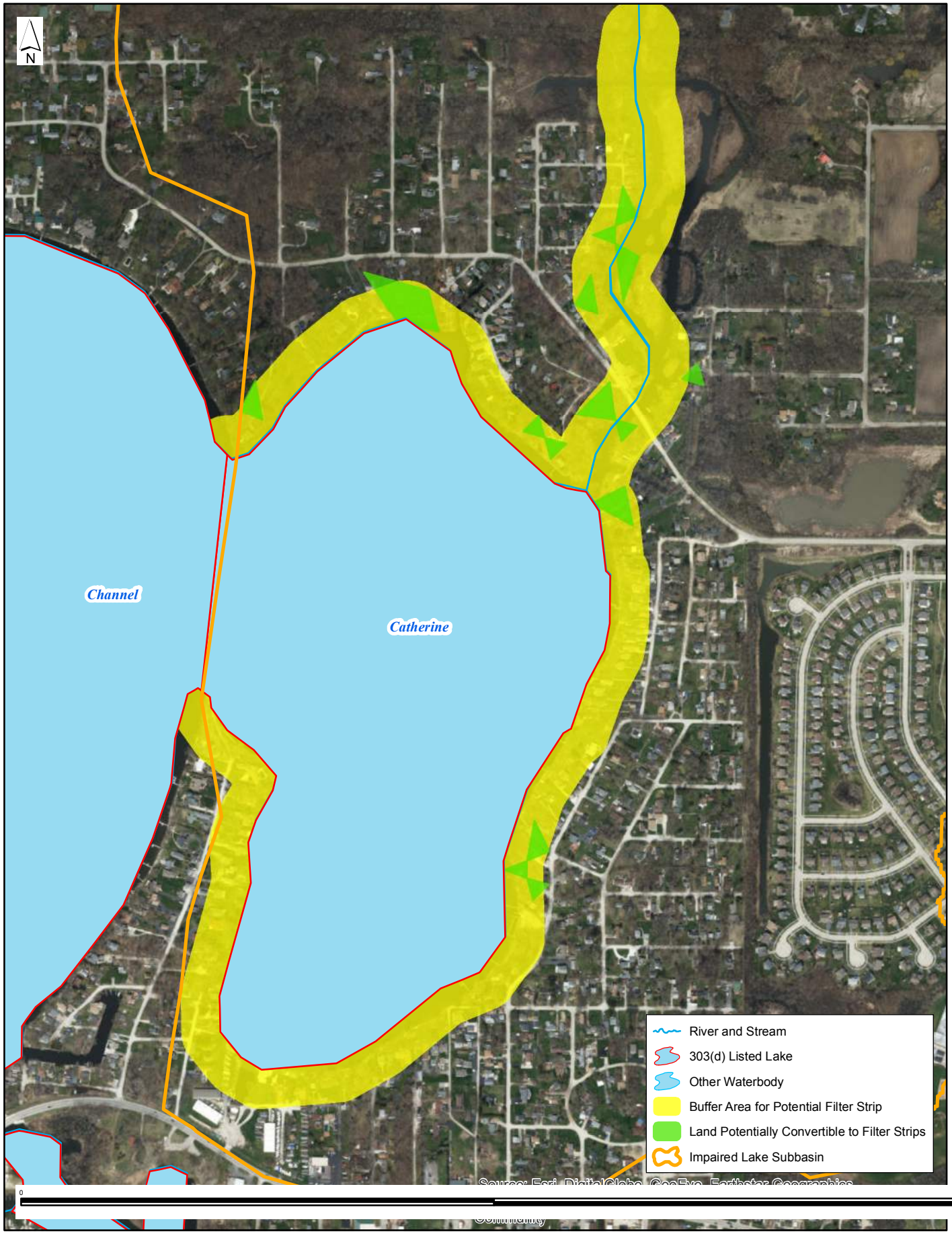
FIGURE 3-4



Upper Fox River/Chain O'Lakes Watershed
Bluff Lake (VTJ)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

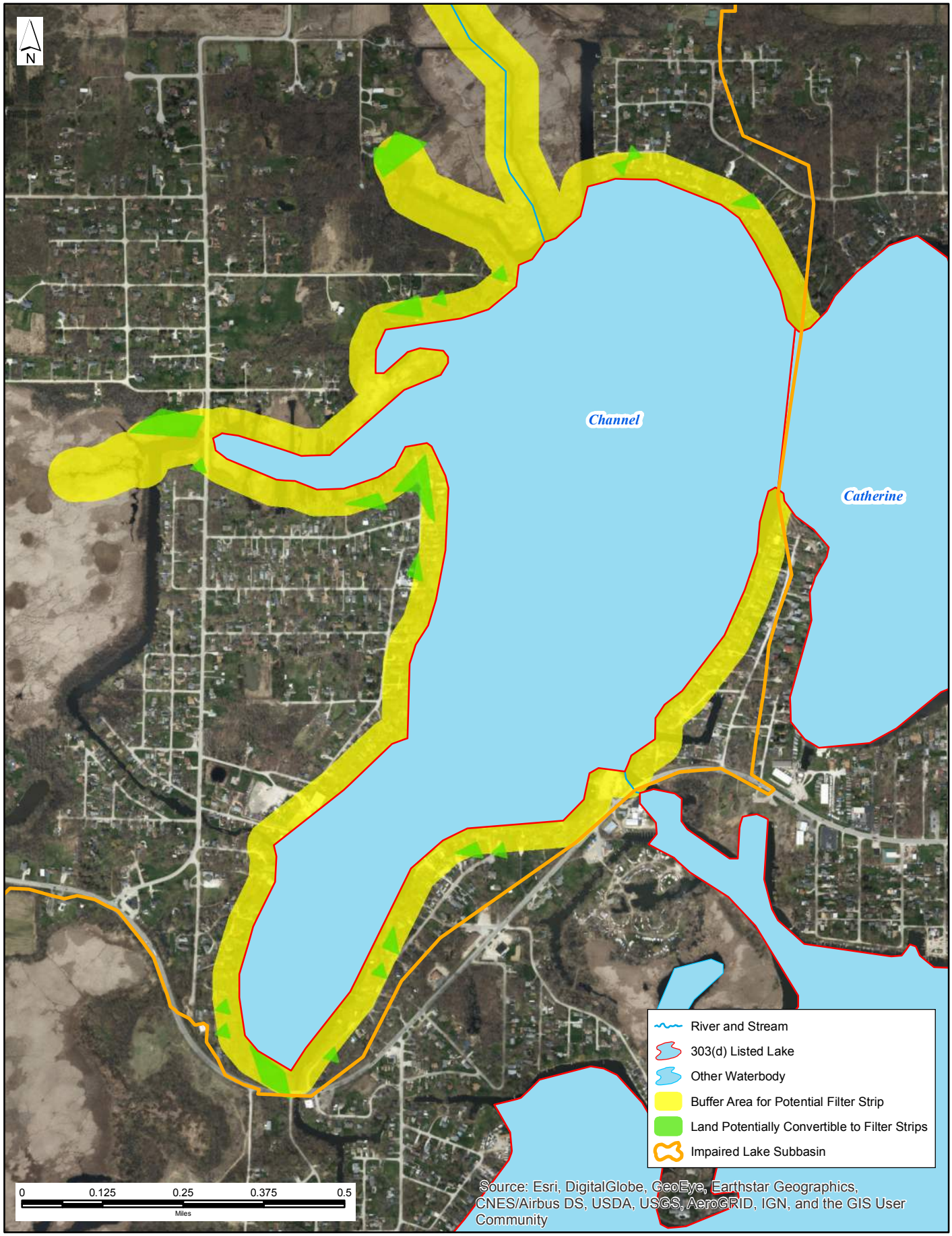
FIGURE 3-5



Upper Fox River/Chain O'Lakes Watershed
Lake Catherine (RTD)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

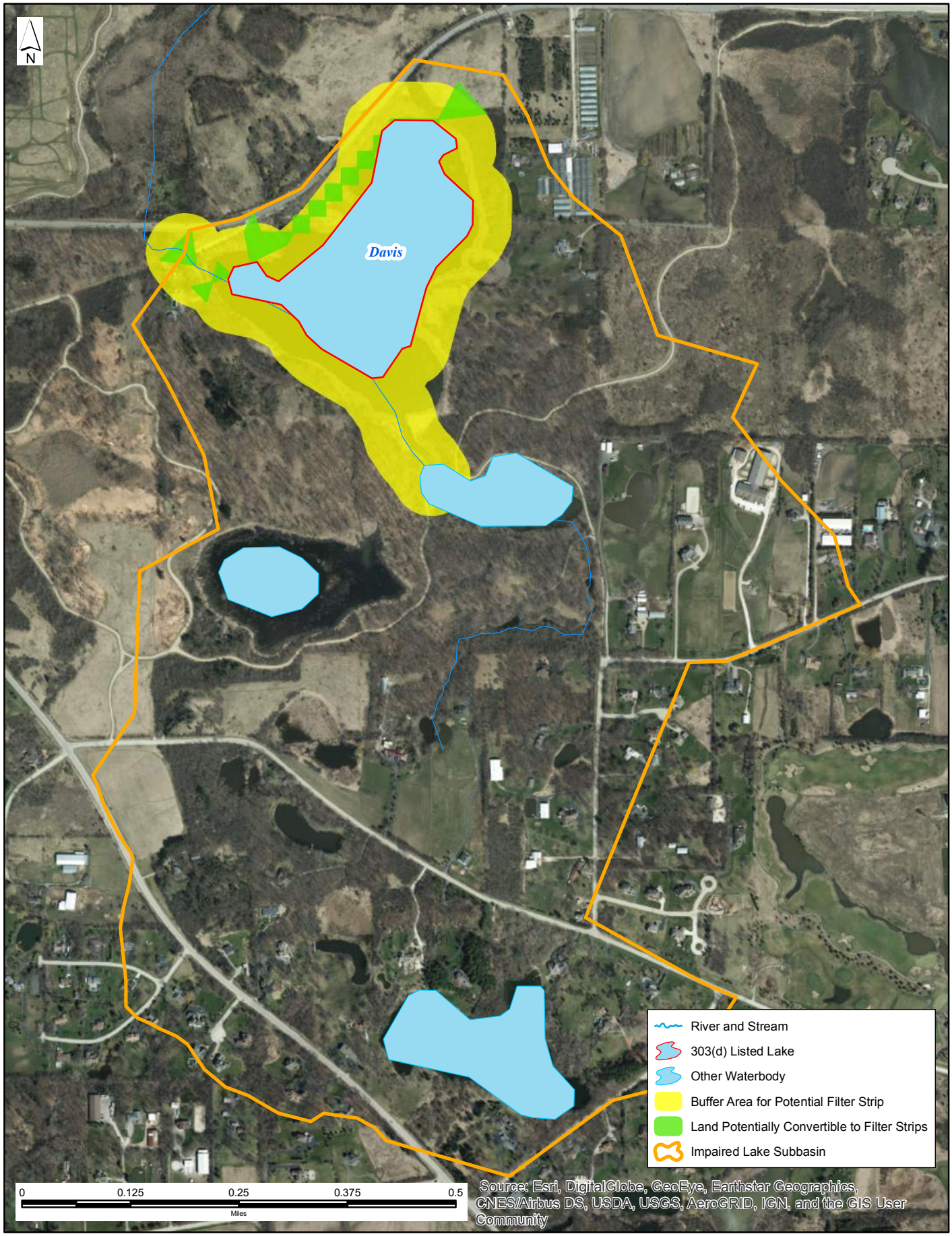
FIGURE 3-6



Upper Fox River/Chain O'Lakes Watershed
Channel Lake (RTI)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

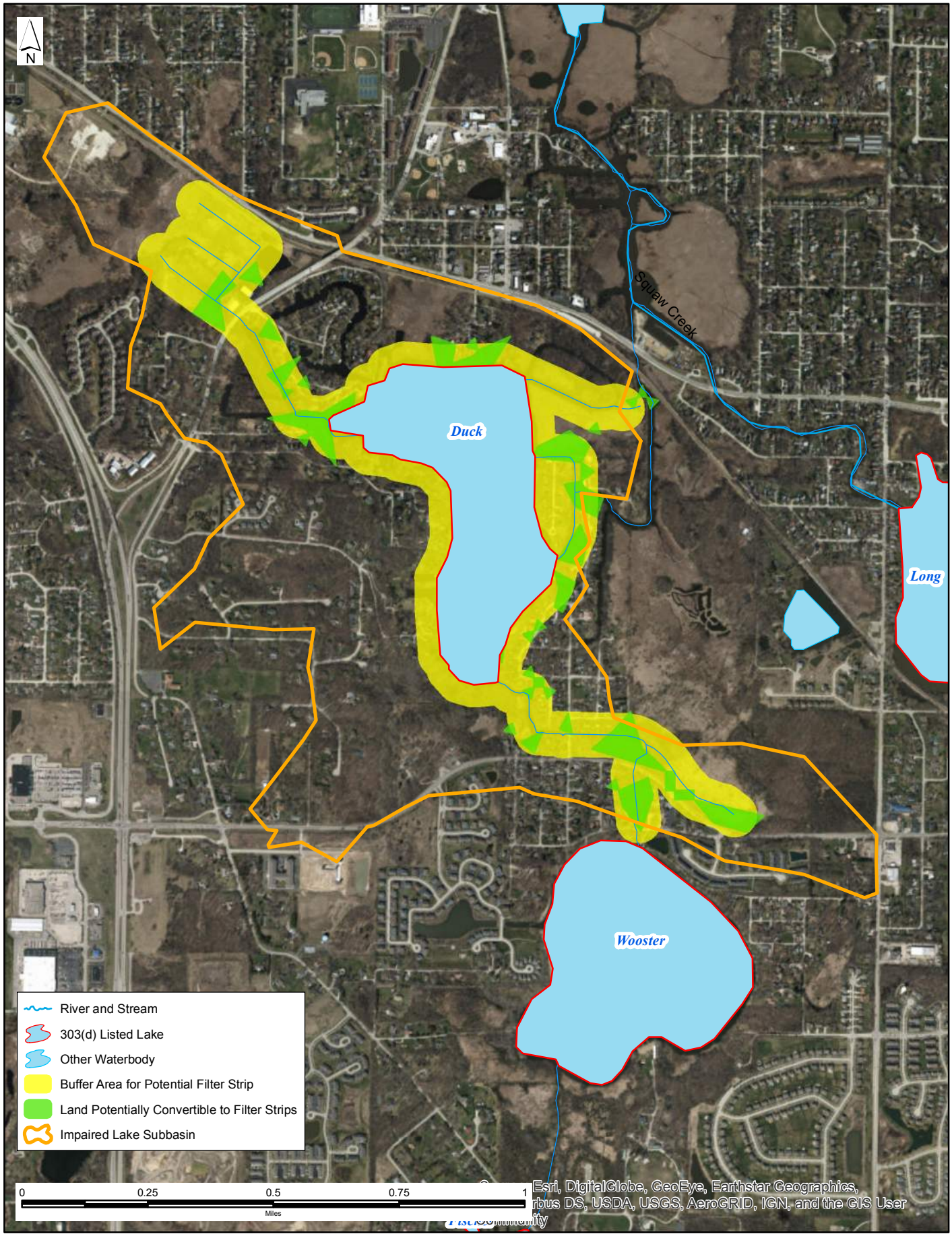
FIGURE 3-7



Upper Fox River/Chain O'Lakes Watershed
Davis Lake (STQ)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

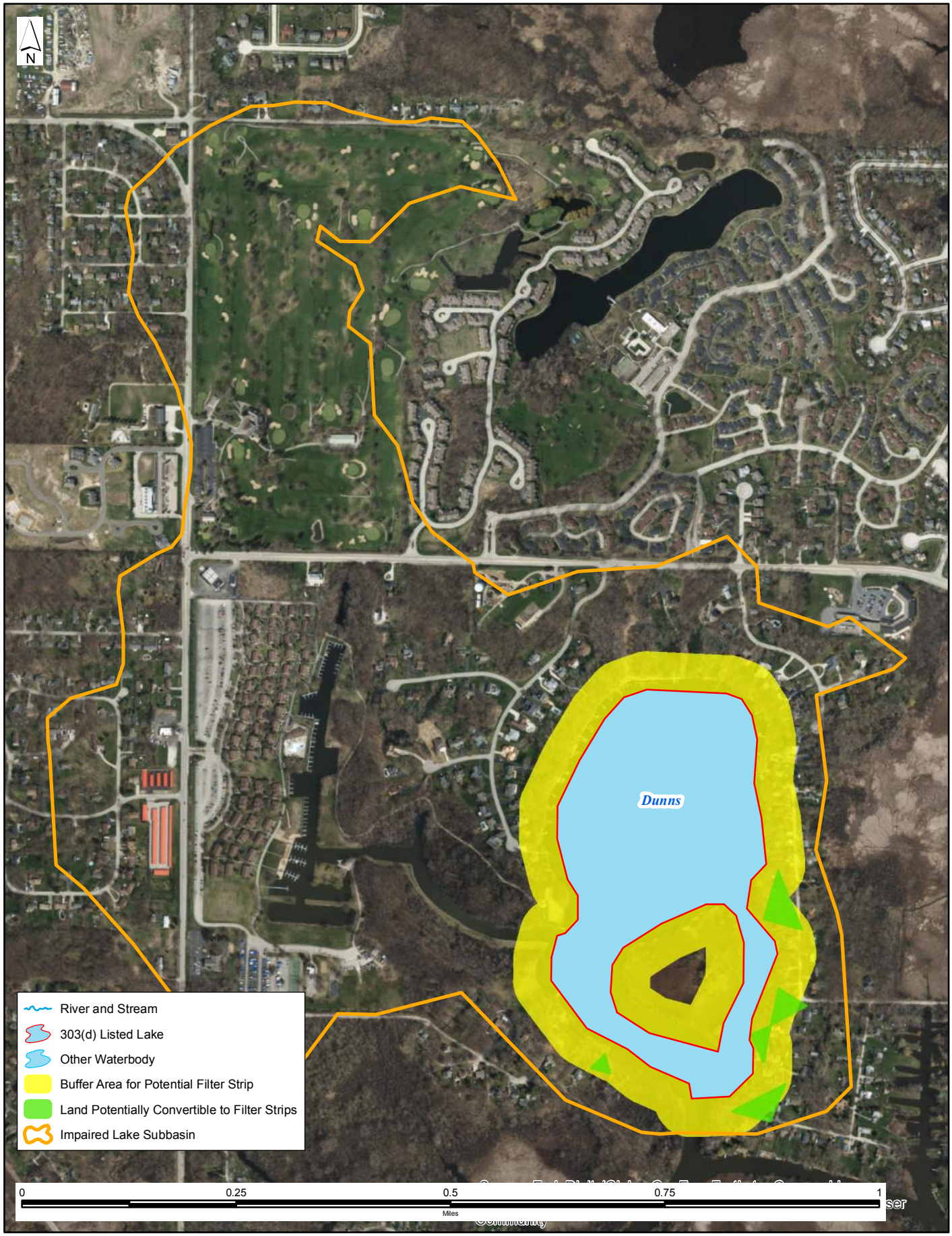
FIGURE 3-8



Upper Fox River/Chain O'Lakes Watershed
Duck Lake (RTZG)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

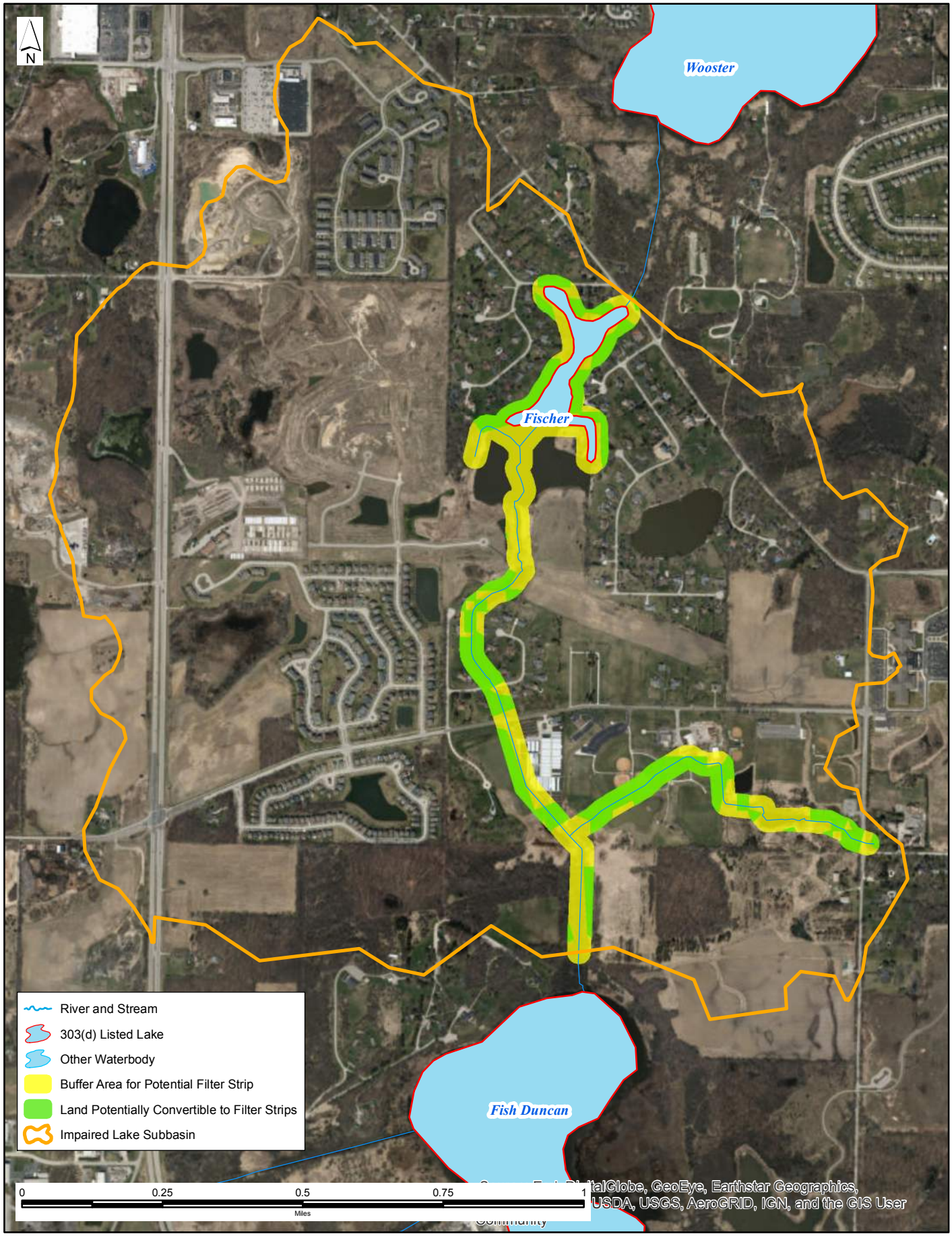
FIGURE 3-9



Upper Fox River/Chain O'Lakes Watershed
Dunn's Lake (VTH)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

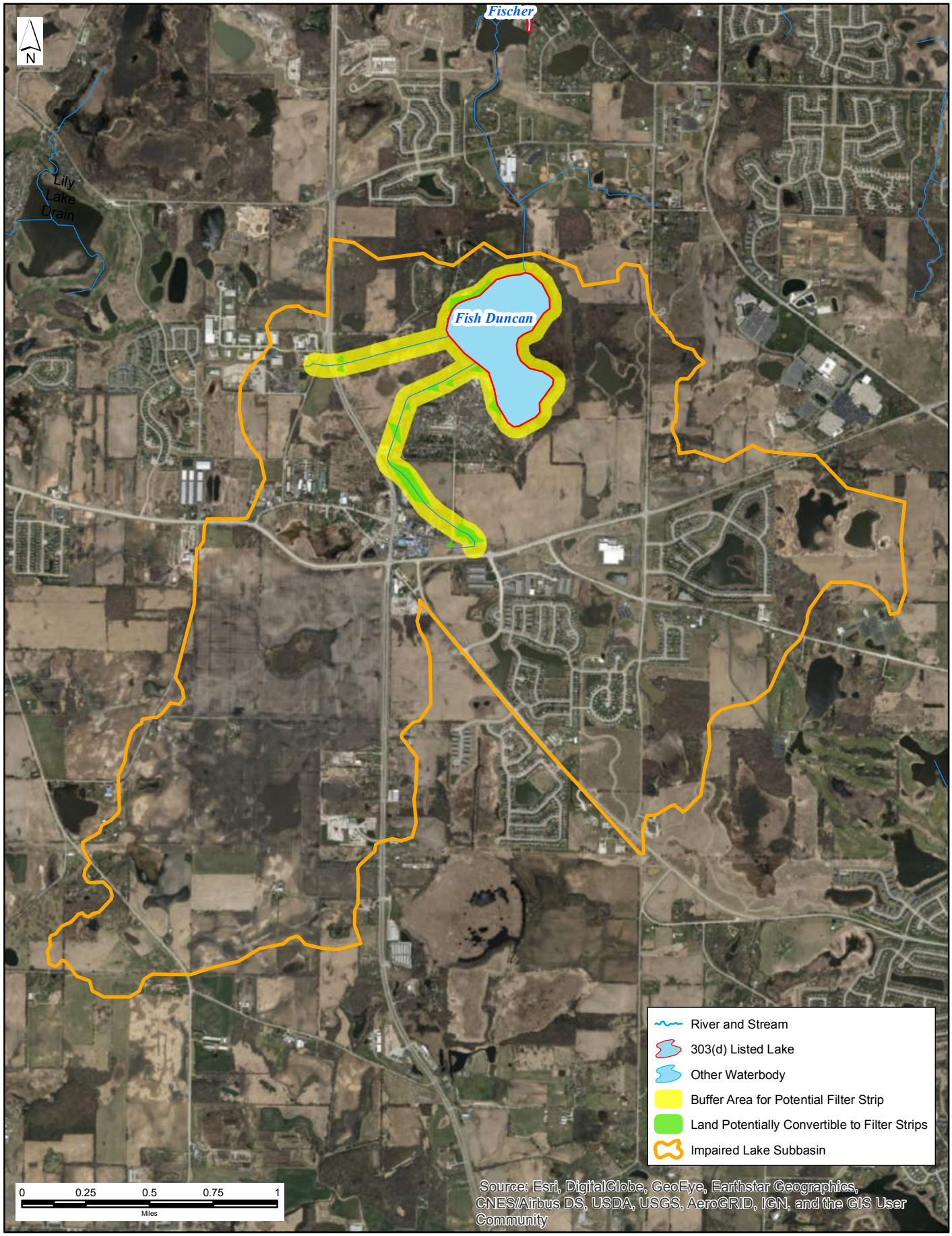
FIGURE 3-10



Upper Fox River/Chain O'Lakes Watershed
Fischer Lake (VTT)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

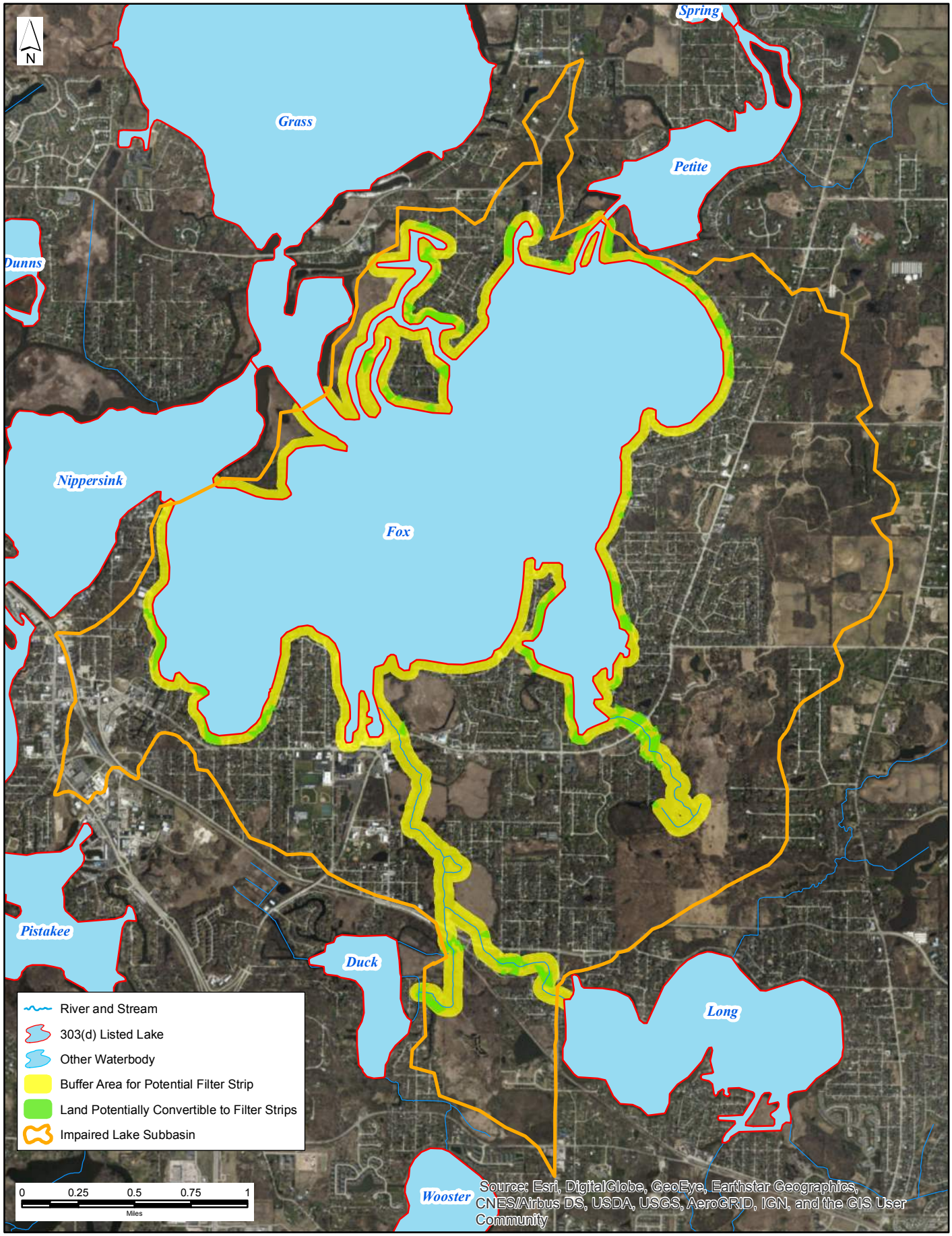
FIGURE 3-11



Upper Fox River/Chain O'Lakes Watershed
Fish-Duncan Lake (VTK)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

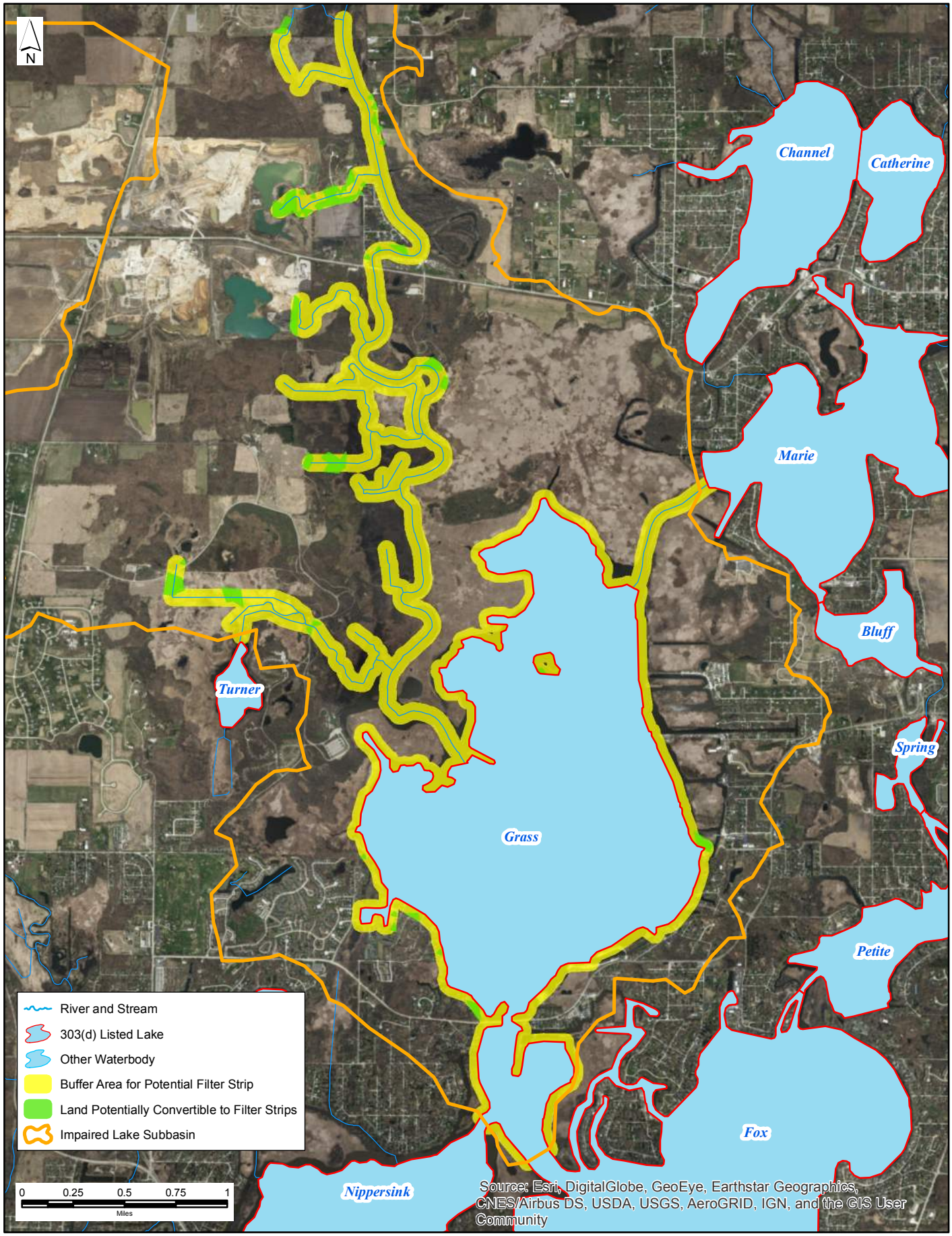
FIGURE 3-12



Upper Fox River/Chain O'Lakes Watershed
Fox Lake (RTF)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

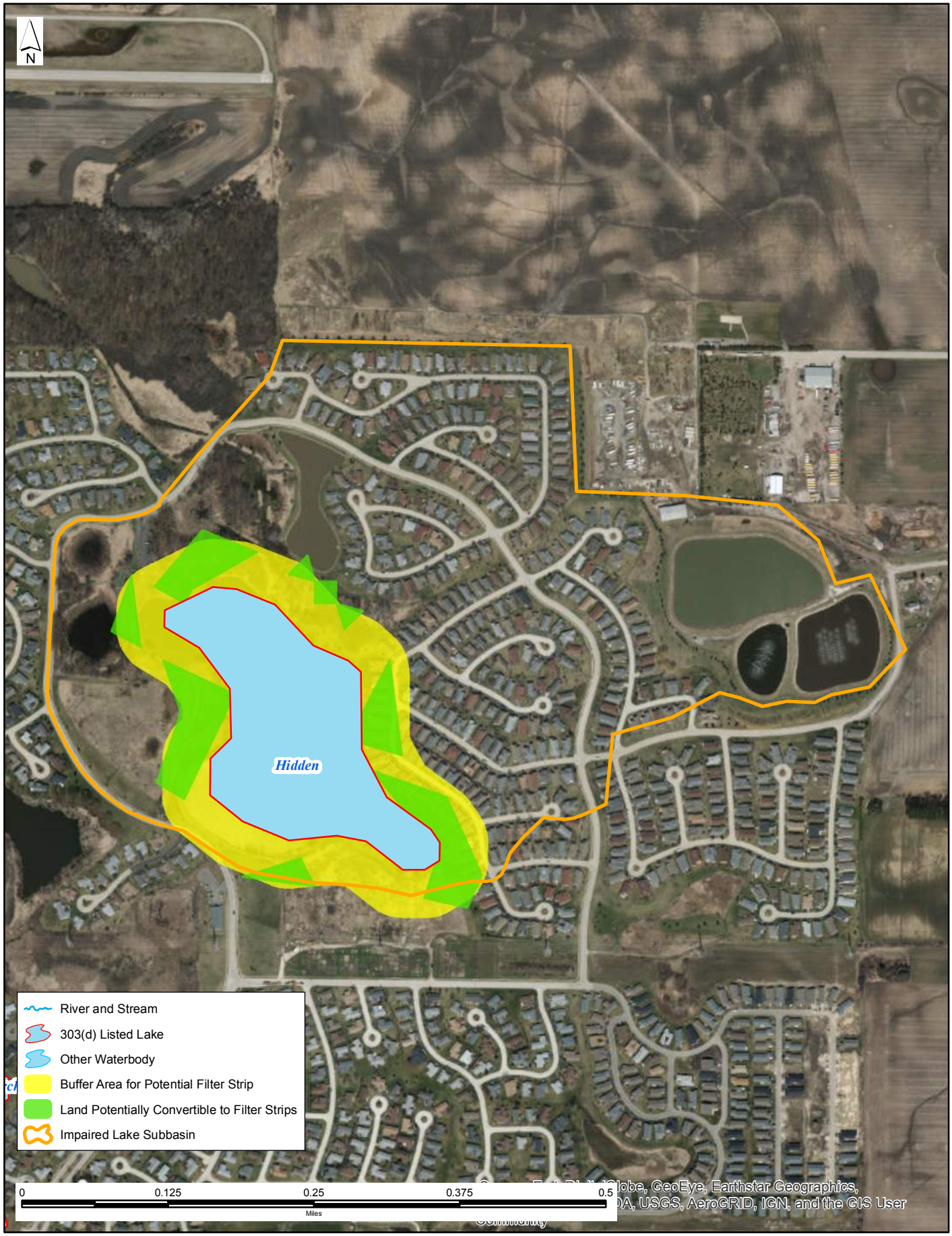
FIGURE 3-13



Upper Fox River/Chain O'Lakes Watershed
Grass Lake (RTQ)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

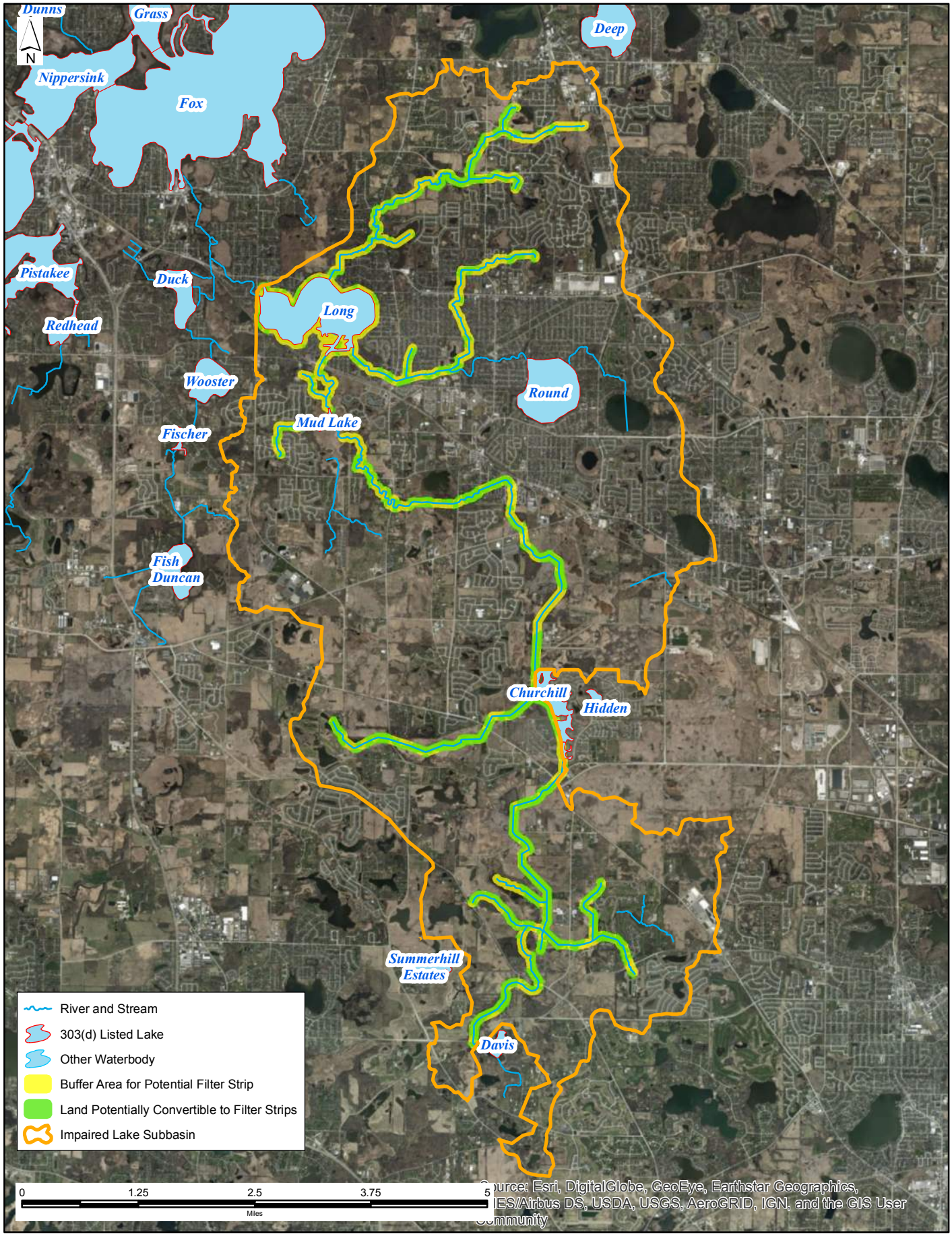
FIGURE 3-14



Upper Fox River/Chain O'Lakes Watershed
Hidden Lake (UTM)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

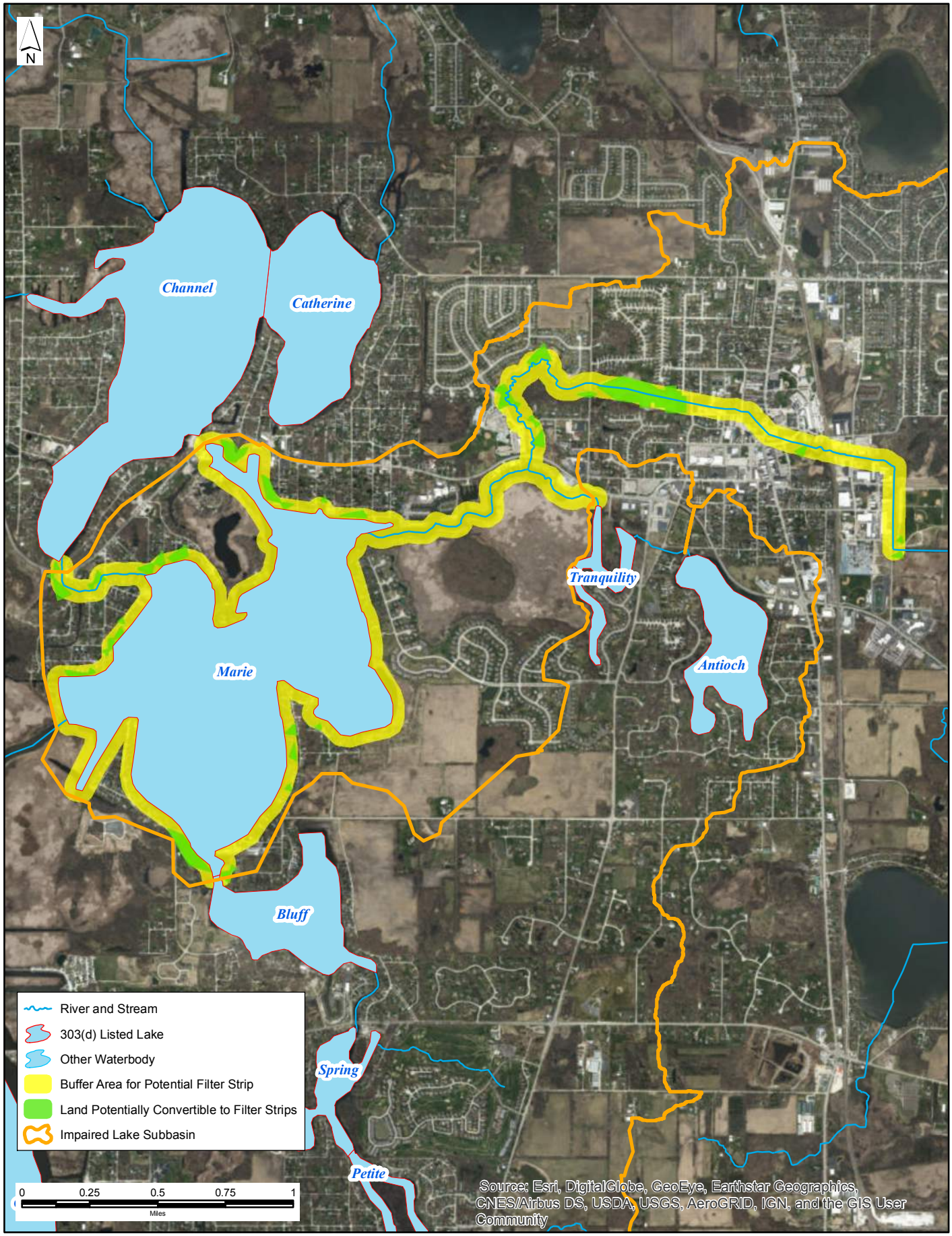
FIGURE 3-15



Upper Fox River/Chain O'Lakes Watershed
Long Lake (RTJ)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

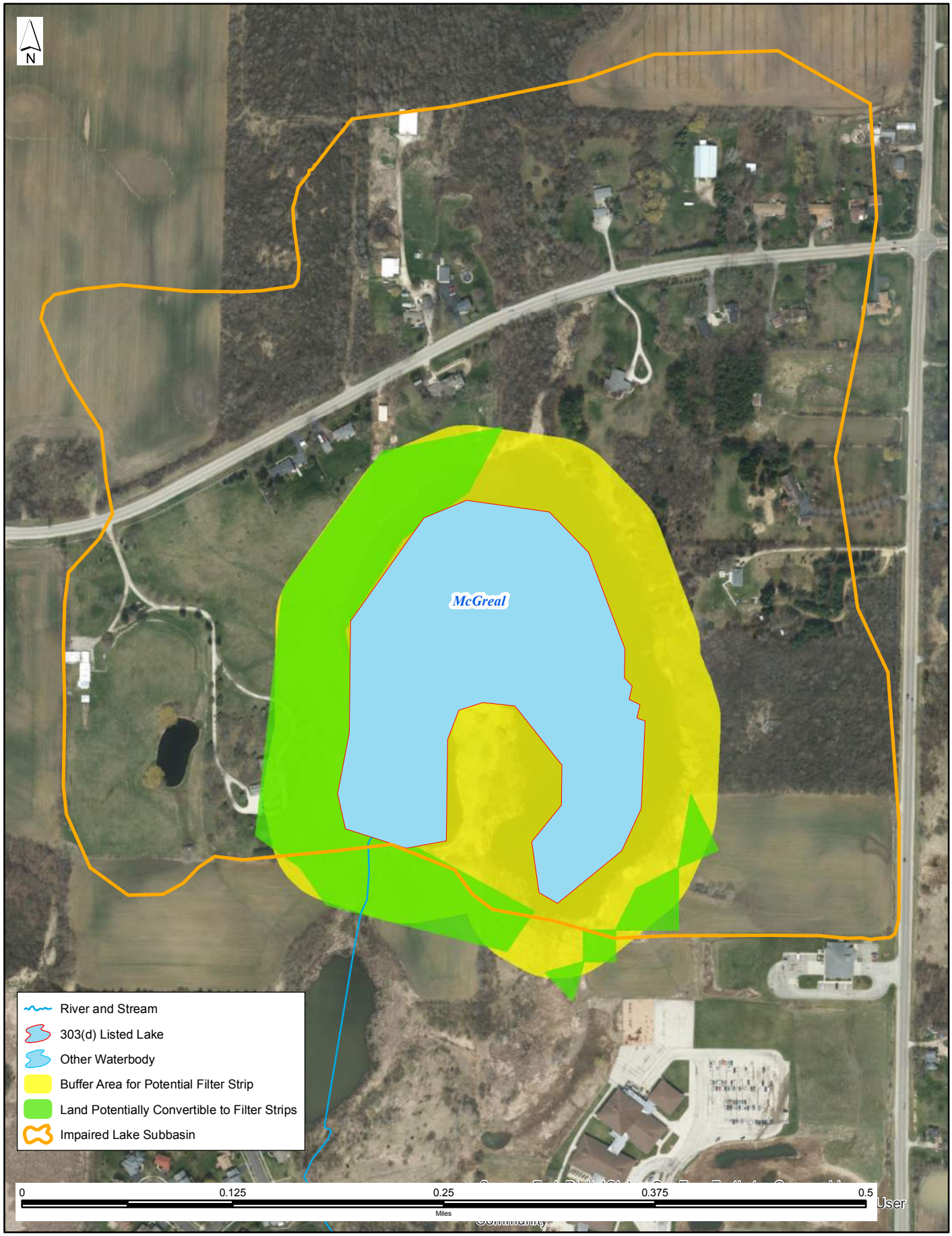
FIGURE 3-16



Upper Fox River/Chain O'Lakes Watershed
Lake Marie (RTR)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

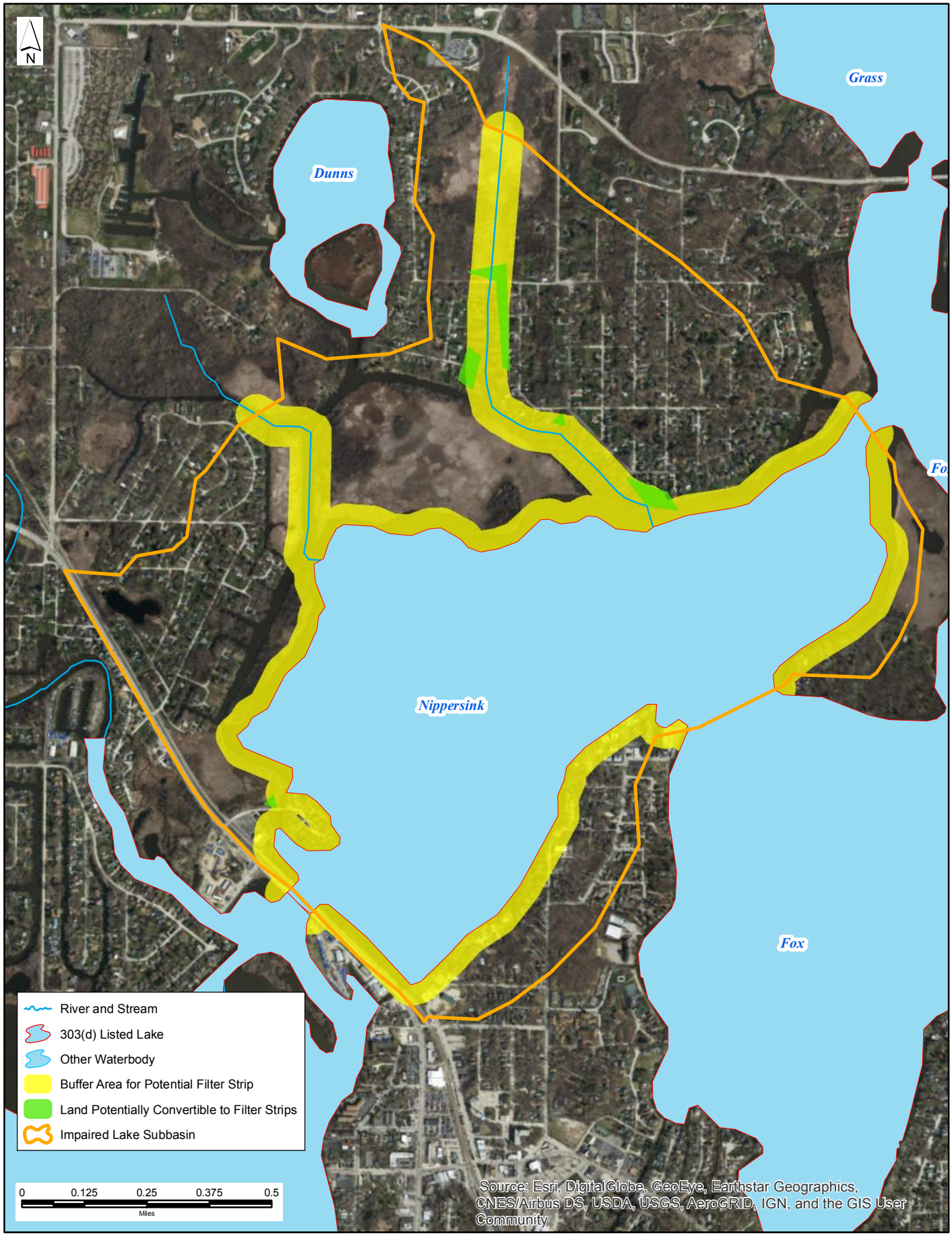
FIGURE 3-17



Upper Fox River/Chain O'Lakes Watershed
McGreal Lake (UTX)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

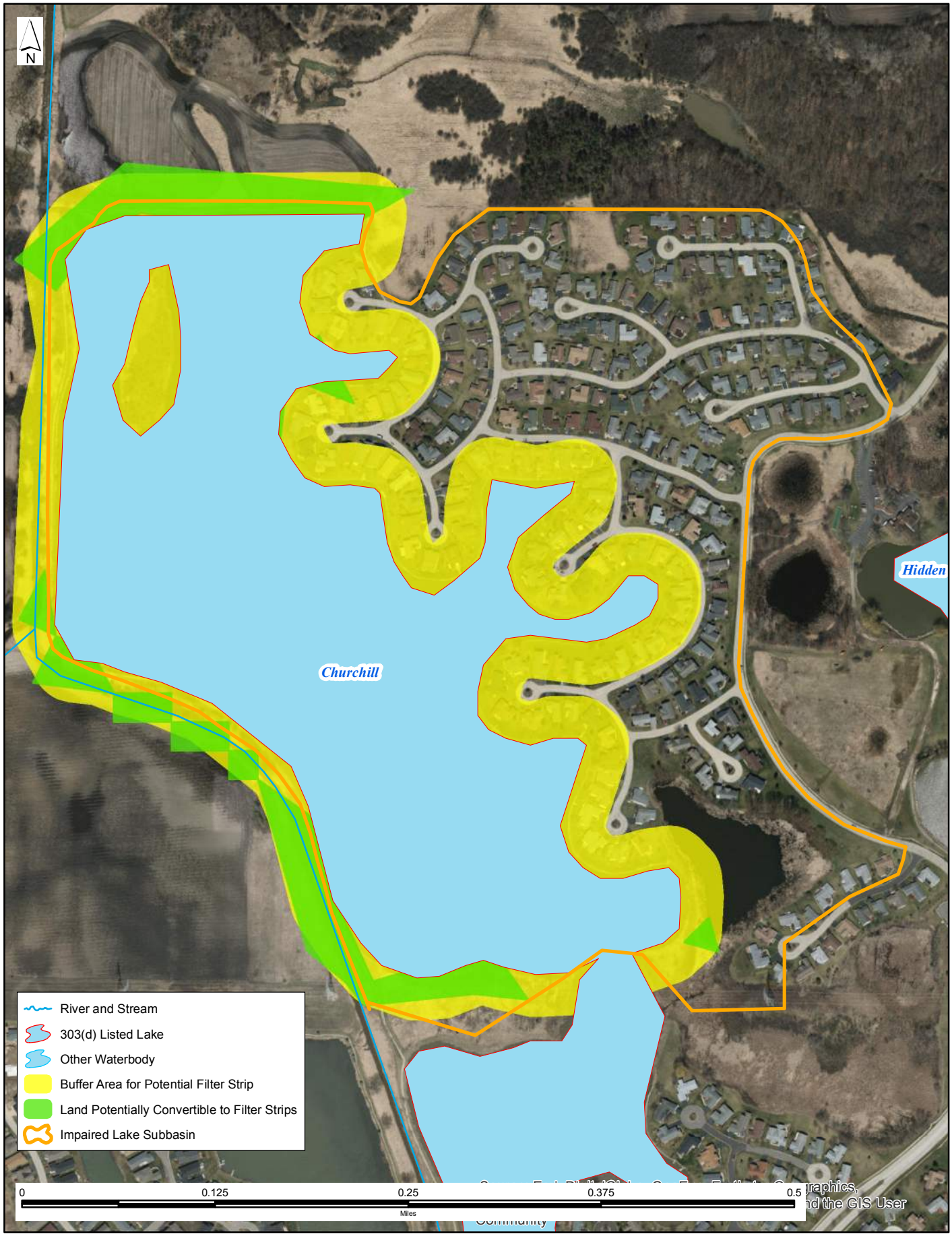
FIGURE 3-18



Upper Fox River/Chain O'Lakes Watershed
Nippersink Lake (RTUA)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

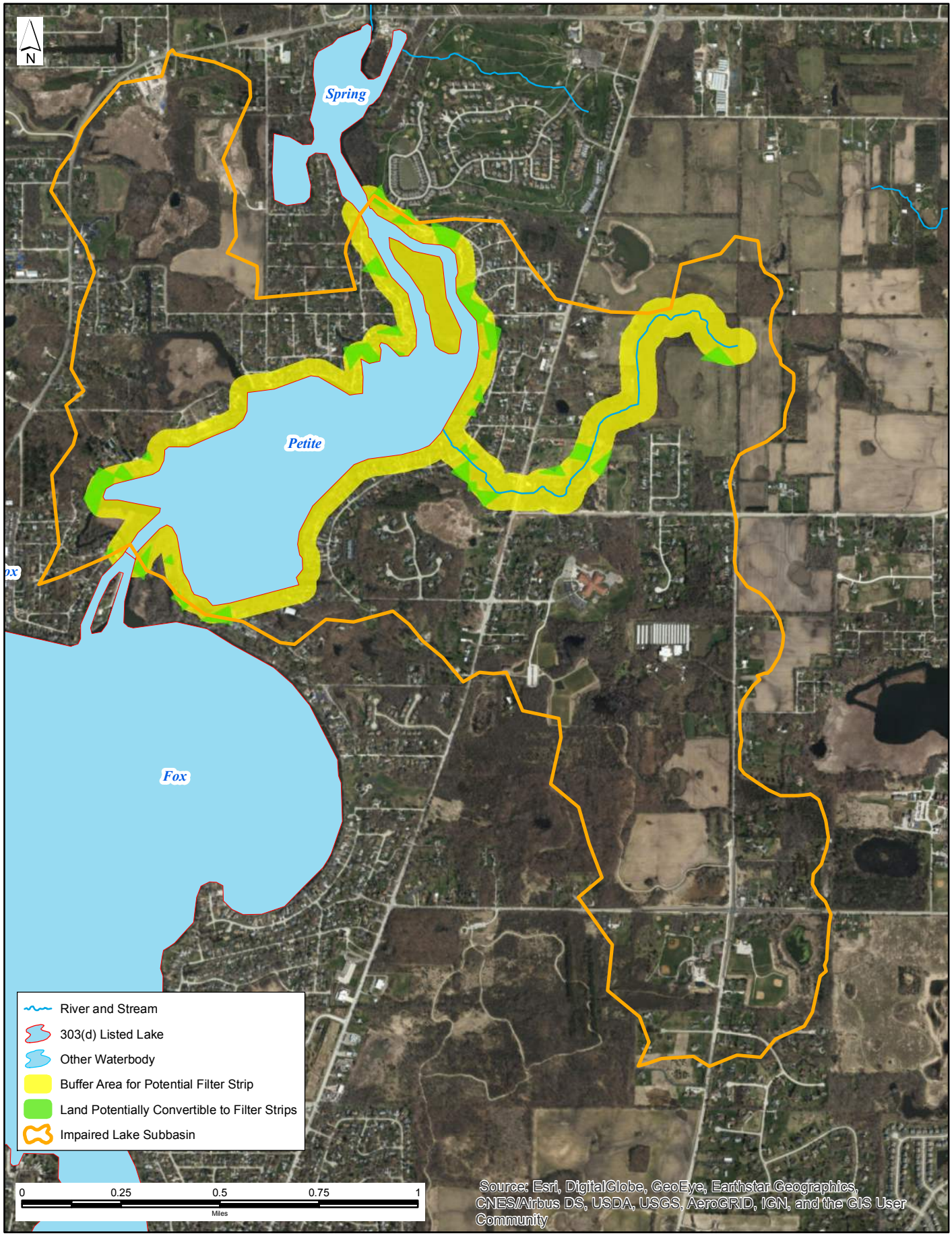
FIGURE 3-19



Upper Fox River/Chain O'Lakes Watershed
North Churchill Lake (STR)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

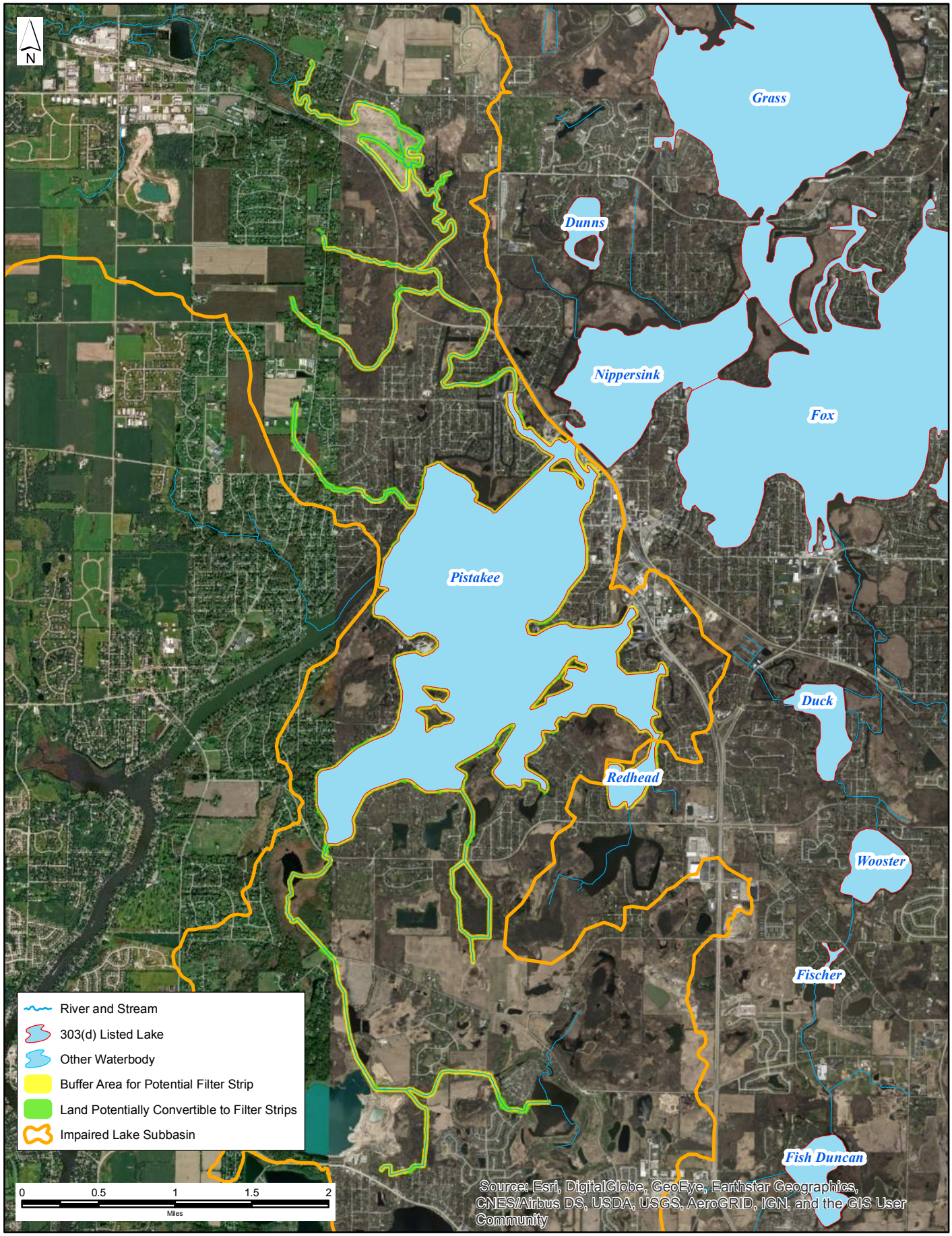
FIGURE 3-20



Upper Fox River/Chain O'Lakes Watershed
Petite Lake (VTW)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

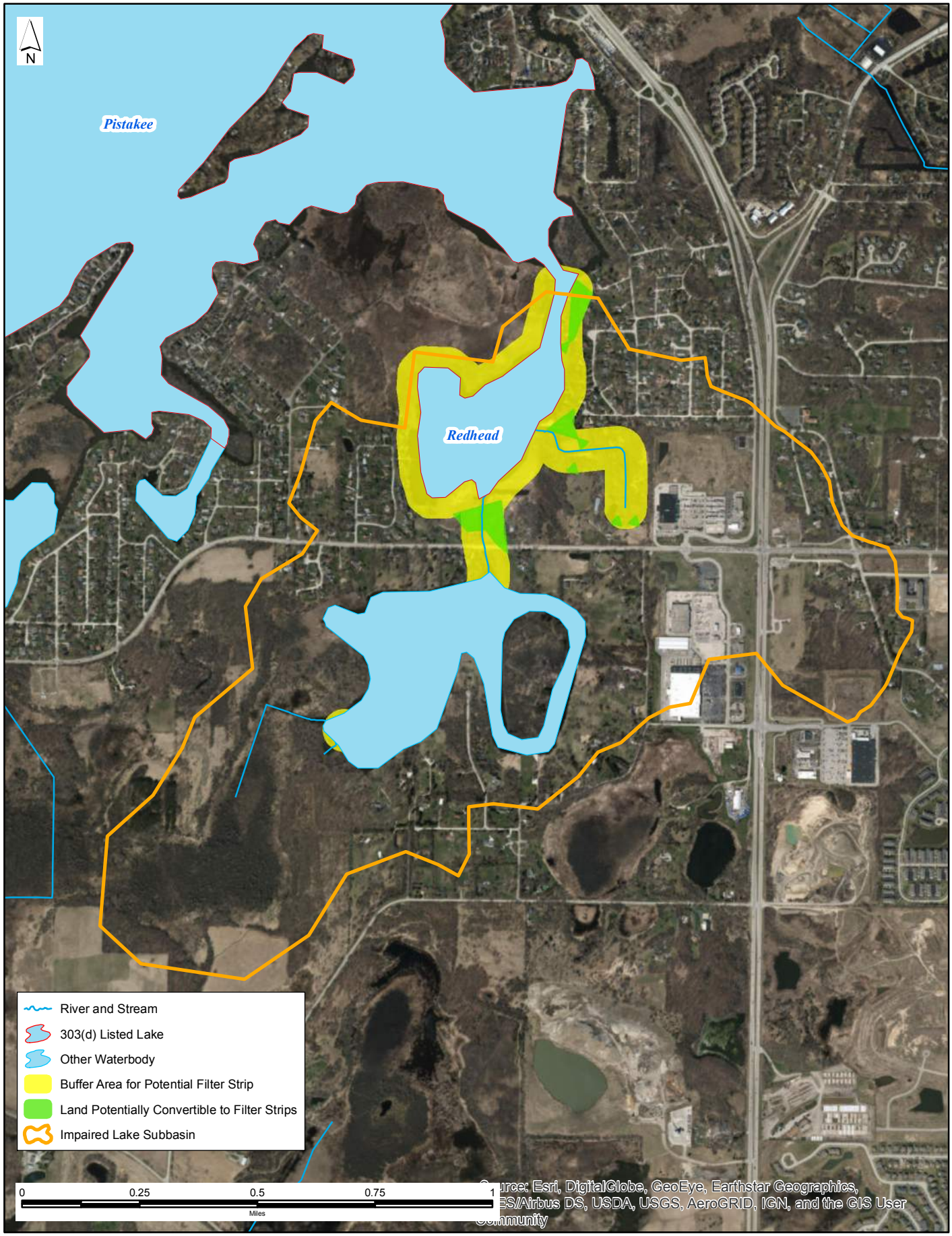
FIGURE 3-21



Upper Fox River/Chain O'Lakes Watershed
Pistakee Lake (RTU)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

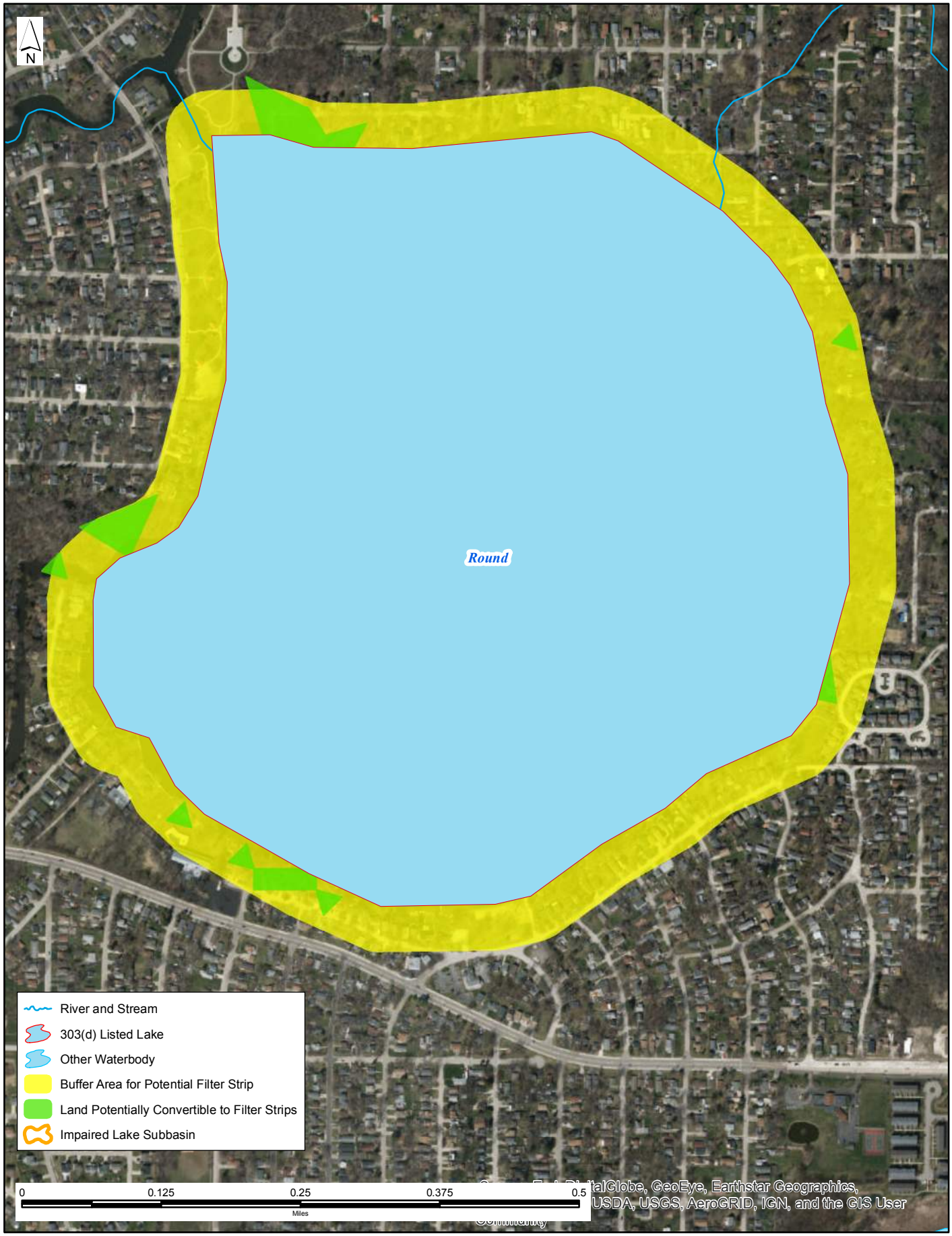
FIGURE 3-22



Upper Fox River/Chain O'Lakes Watershed
Redhead Lake (RTV)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

FIGURE 3-23



Upper Fox River/Chain O'Lakes Watershed
Round Lake (RTH)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

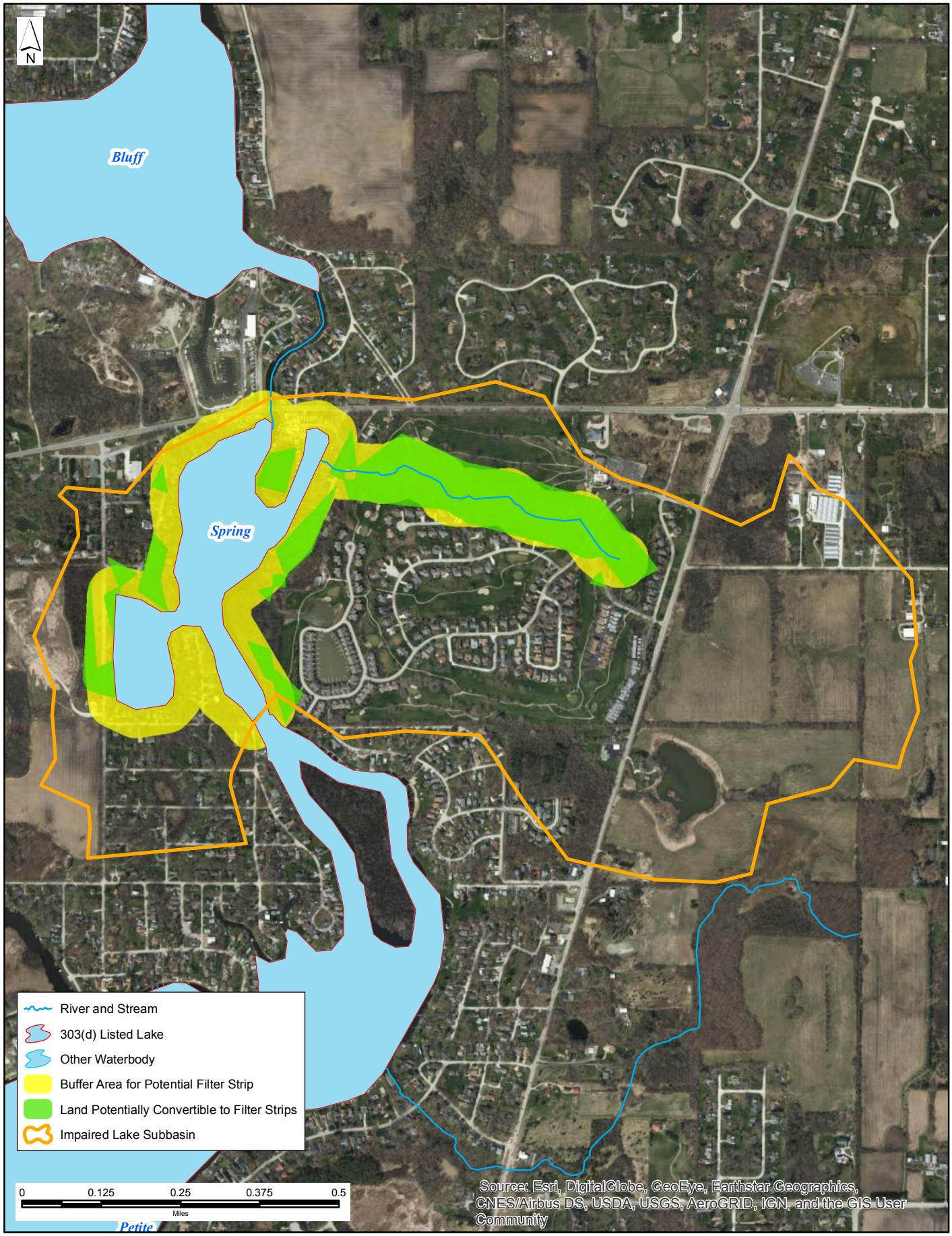
CDM Smith

FIGURE 3-24

Upper Fox River/Chain O'Lakes Watershed
South Churchill (STS)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

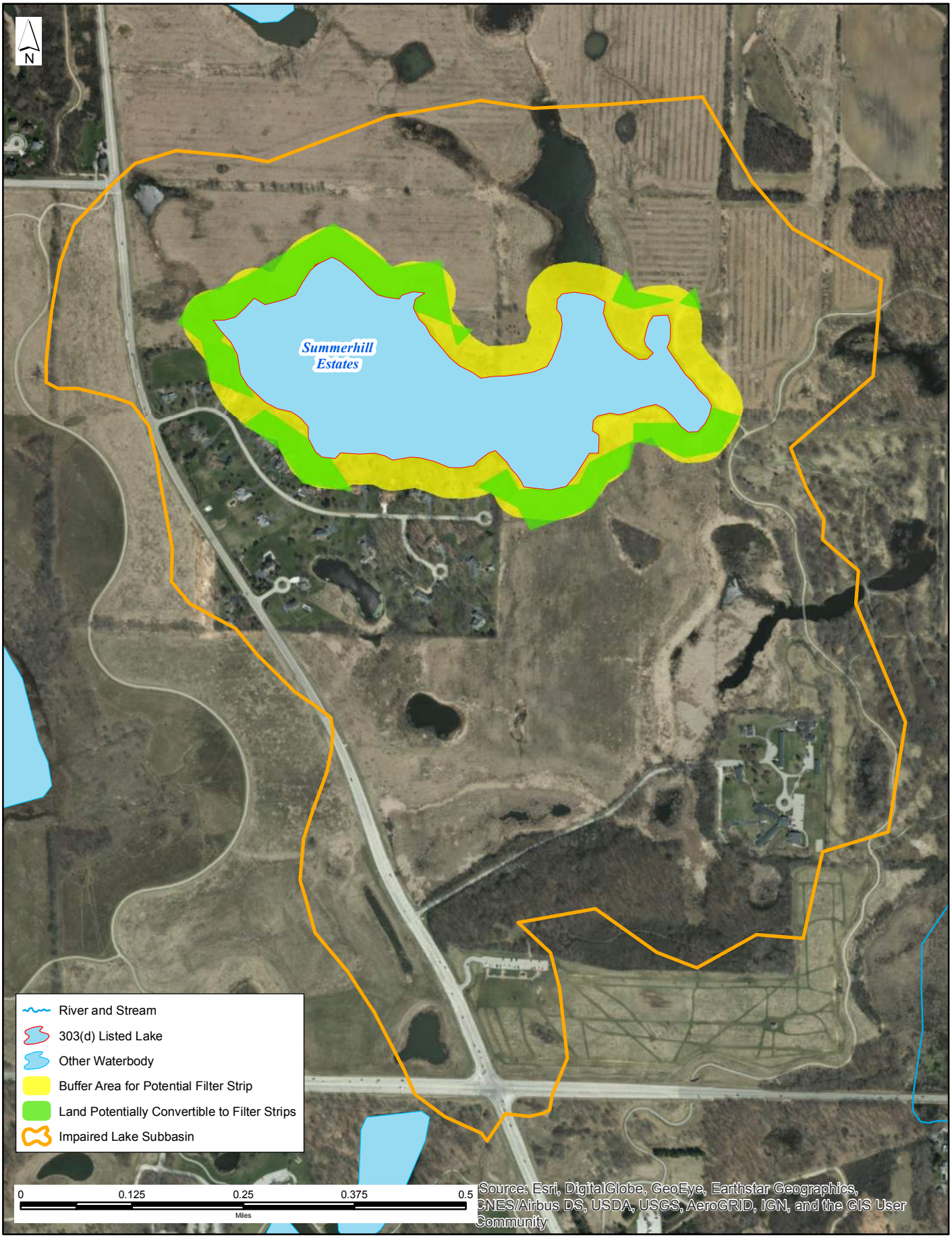
FIGURE 3-25



Upper Fox River/Chain O'Lakes Watershed
Spring Lake (RGZT)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

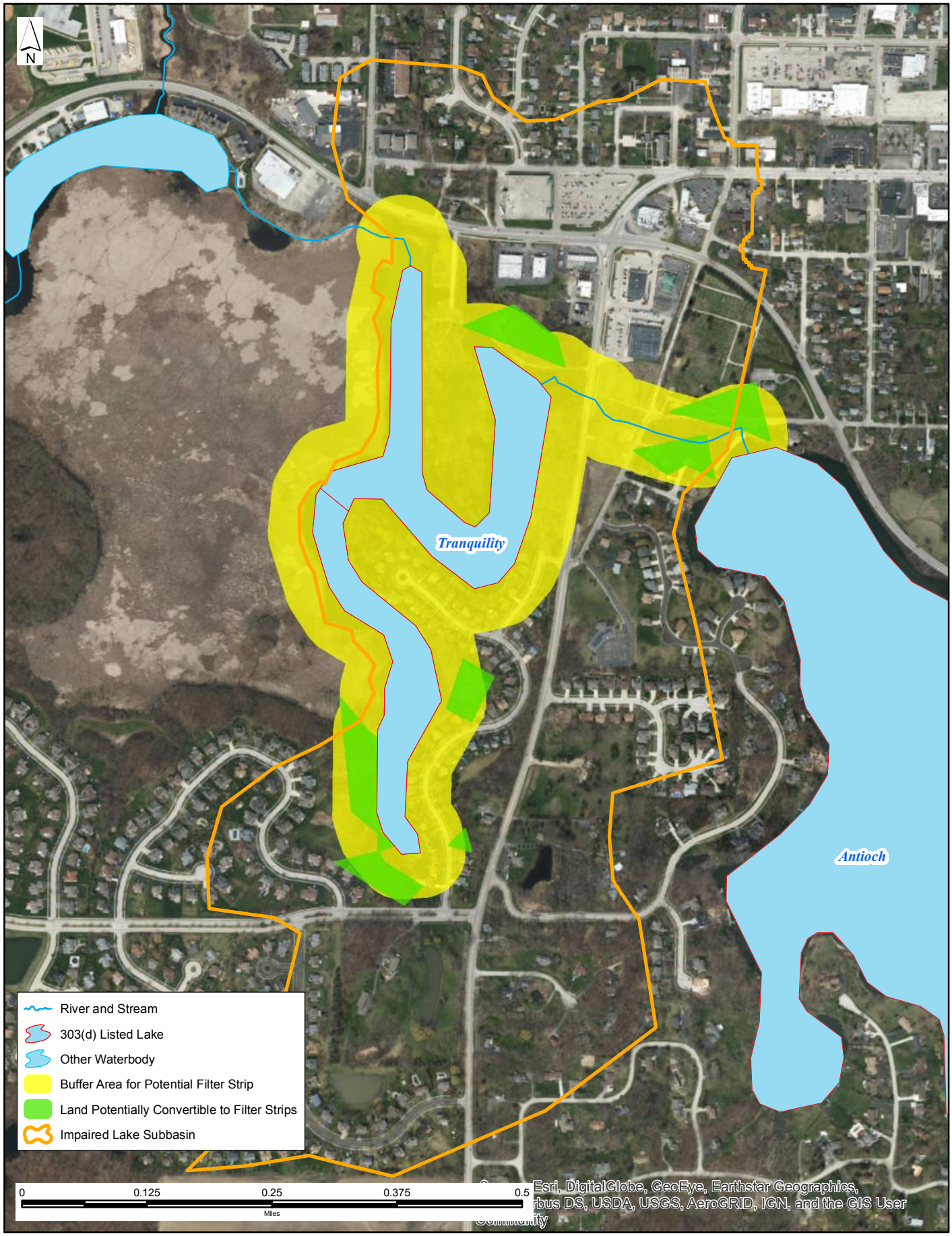
FIGURE 3-26



Upper Fox River/Chain O'Lakes Watershed
Summerhill Estates Lake (WTA)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

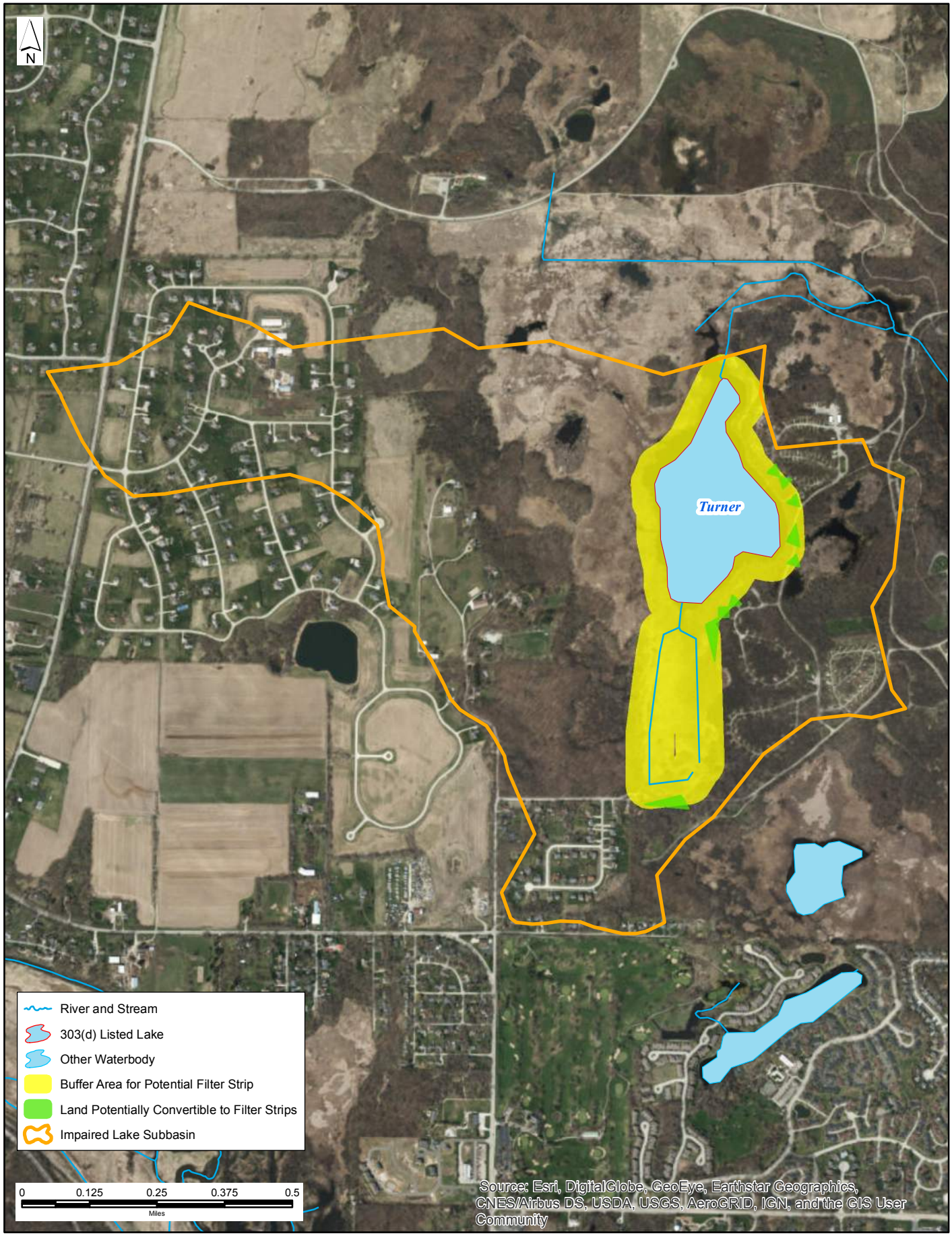
FIGURE 3-27



Upper Fox River/Chain O'Lakes Watershed
Lake Tranquility (UTW)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

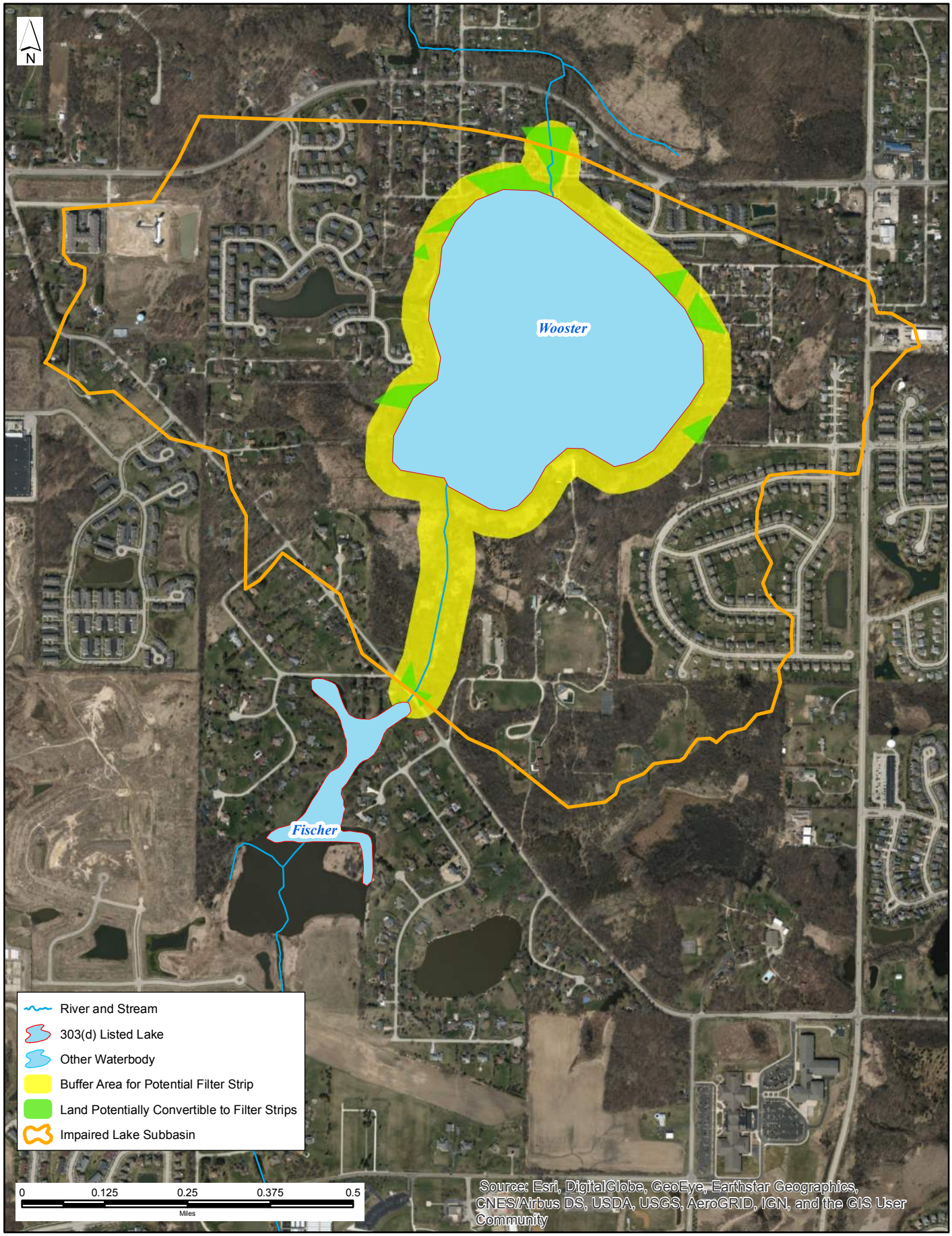
FIGURE 3-28



Upper Fox River/Chain O'Lakes Watershed
Turner Lake (VTZA)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

FIGURE 3-29



Upper Fox River/Chain O'Lakes Watershed
Wooster Lake (RTZH)
Buffer Areas and Lands Potentially Suitable for Conversion to Filter Strips

CDM Smith

FIGURE 3-30

For the **riparian buffers**, potential tributary and shoreline buffer areas were estimated as described in **Section 3.3** and are shown in **Table 3-6**. Landowners or managers should be encouraged to assess parcels adjacent to impaired lakes and maintain or improve existing riparian areas, or potentially convert semi-developed lands.

Table 3-6 Total Area and Area of Grassland, Forest, and Agricultural Land Within 25-Foot Buffer of Impaired Lakes and their Major Tributaries

Stream Name	**Segment ID**	**Area in 25 ft. Buffer** (Acres)	**Grassland in 25 ft. Buffer** (Acres)	**Forest in 25 ft. Buffer** (Acres)	**Agricultural Land in 25 ft. Buffer** (Acres)
Antioch Lake[1]	RTT	10.0	--	0.69	0.22
Bluff Lake	VTJ	13.0	1.1	0.22	--
Lake Catherine[1]	RTD	13.1	--	0.44	--
Channel Lake[1]	RTI	18.0	1.6	6.3	--
Davis Lake[1]	STQ	1.6	--	0.46	--
Dunn's Lake	VTH	6.5	--	--	--
Duck Lake	RTZG	13.8	--	2.0	--
Fish-Duncan Lake[1]	VTK	7.5	--	0.89	0.67
Fischer Lake	VTT	8.6	0.89	0.44	--
Fox Lake	RTF	79.1	2.7	7.5	0.91
Grass Lake	RTQ	31.0	0.46	2.1	--
Hidden Lake	UTM	1.8	--	1.1	0.45
Long Lake[1]	RTJ	53.1	--	0.90	--
Lake Marie	RTR	16.6	0.69	0.92	0.23
McGreal Lake[1]	UTX	2.2	--	--	2.2
Nippersink Lake	RTUA	21.3	--	--	--
North Churchill Lake	STR	571.0	41.4	4.7	296.4
Petite Lake[1]	VTW	10.5	0.24	1.7	0.48
Pistakee Lake	RTU	81.7	1.4	5.7	1.1
Redhead Lake	RTV	7.2	--	--	--
Round Lake[1]	RTH	11.2	0.90	0.67	--
South Churchill Lake	STS	502.9	40.43	4.9	318.9
Spring Lake	RGZT	15.7	--	8.3	--
Summerhill Estates Lake[1]	WTA	0.2	--	--	--
Lake Tranquility[1]	UTW	10.1	--	0.99	--
Turner Lake	VTZA	0.2	--	--	--
Wooster Lake[1]	RTZH	8.6	0.89	0.44	--

[1] Lake Catherine, Channel Lake, Davis Lake, McGreal Lake, Petite Lake, and Wooster Lake are not impaired for TSS; and Antioch Lake, Fish-Duncan Lake, Long Lake, Round Lake, Summerhill Estates Lake, and Lake Tranquility do not require TSS reductions; however, areas are included in the table for the phosphorus impairments discussed in **Section 3.5**.

Wetlands could potentially be constructed at one or more of the lakes where higher inflow rates are observed. The use of wetlands as structural controls was discussed in **Section 3.3**. For the impaired lakes and surrounding areas of the watershed, hydric soils with potential for wetland construction are shown, along with existing wetlands, to indicate potential areas where wetlands

may be installed, are shown in **Figure 3-31**. Areas near waterways not currently classified as wetlands but which have hydric soils present are typically strong candidates for potential wetland construction. Existing wetland areas may also be candidates for reconstruction or enhancement to improve their nutrient uptake capacity. These data layers are developed on a large-scale and onsite soil investigation and site-specific assessment, and wetland delineation is typically necessary for verification of the suitability of a given area for wetland construction and to help prioritize areas for enhancement or restoration.

Shoreline stabilization/erosion control techniques could be used along the shoreline in select areas of each lake to deflect energy from water movement and minimize erosion. Techniques include engineered structures such as buried revetments and rip rap zones. The selected structures should be placed where higher inflow rates are observed and/or where erosion caused by wave action and other factors is observed.

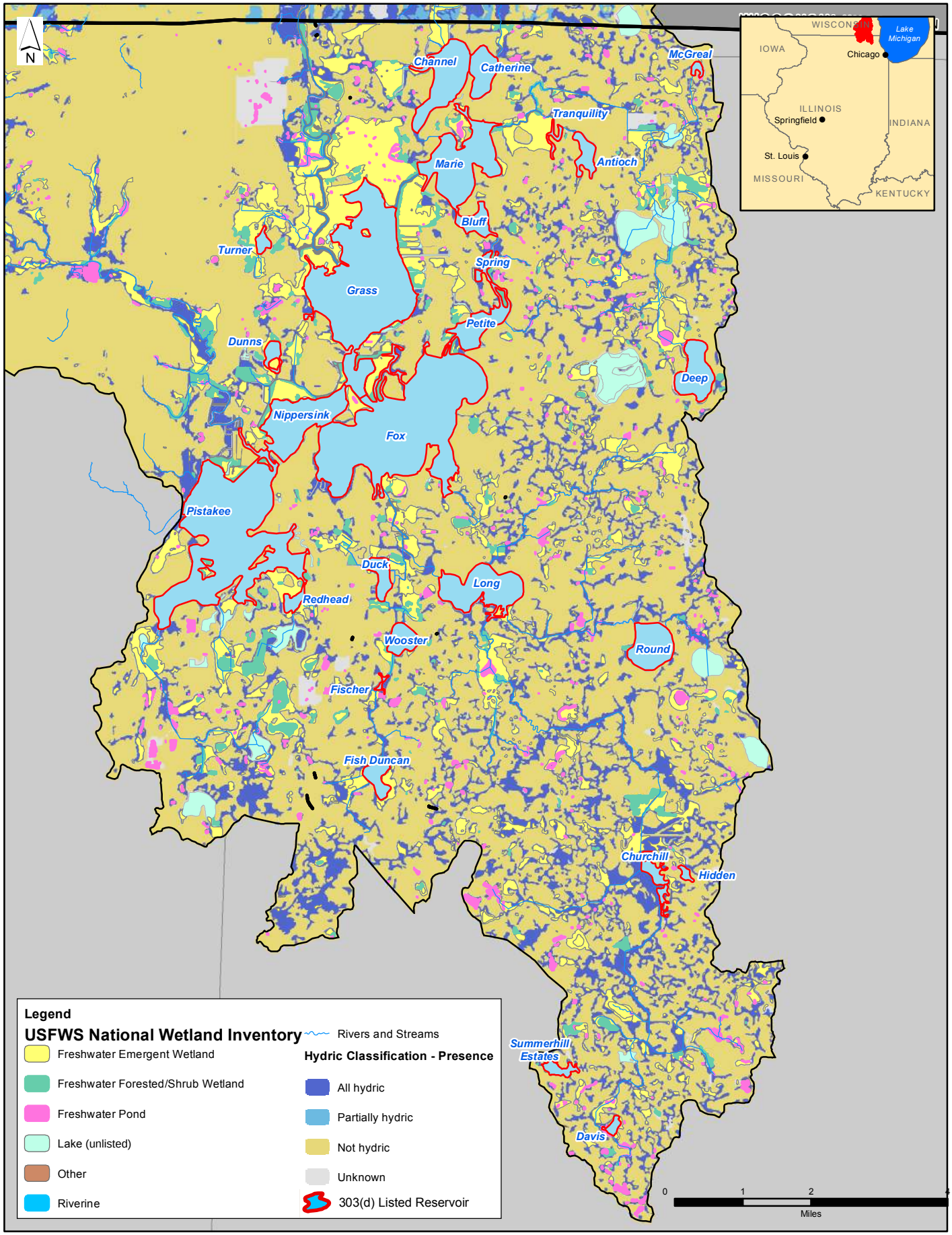
- Buried revetments: These are passive, sloped, engineering structures designed to deflect energy associated with water movement and reduce erosion. The revetments are populated with native vegetation which can also reduce the transport of sediment associated pollutants via the control of shoreline soil erosion resulting from stormwater runoff.

The extent of bank erosion surrounding each lake is regularly assessed by the Lake County Health Department and is presented in the Lake Summary Reports developed for most waterbodies (available online at: http://www.lakecountyil.gov/2400/Lake-Reports). A summary of the most recent bank erosion assessment for these waterbodies is presented in **Table 3-7**. Further investigation is recommended to determine the extent that erosion control measures could help manage TSS loads in the waterbodies.

Table 3-7 Summary of Shoreline Erosion Classifications

Lake	Assessment Year	Percent of Shoreline Exhibiting Erosion[1]			
		Slight	Moderate	Severe	Total
Duck Lake	2016	17%	11%	3%	30%
Fischer Lake	2016	40%	18%	2%	60%
Fox Lake[2]	2014	N/A			
Hidden Lake	2002	29%	15%	9%	53%
Lake Marie[2]	2014	N/A			
Nippersink Lake[2]	2014	N/A			
North Churchill Lake	2003	N/A			40%
South Churchill Lake					62%
Redhead Lake	2002	6%	2%	0%	8%
Turner Lake	2002	1%	0%	0%	1%

[1] Assessments per the most recent Lake County Health Department Lake Summary Report for each waterbody (available online at: http://www.lakecountyil.gov/2400/Lake-Reports)
[2] Does not include eroding shoreline behind the seawalls.



Upper Fox River/Chain O'Lakes Watershed
Impaired Lakes and Surrounding Areas
Existing Wetlands and Hydric Soils

CDM Smith

Figure 3-31

3.5 BMP Recommendations for Reducing Total Phosphorus in Lakes and Increasing DO in Hidden Lake

Twenty-six of the 28 lakes in the Upper Fox River/Chain O'Lakes watershed are listed for impairment by total phosphorus. Hidden Lake is also listed for impairment caused by low DO. Phosphorus is a nutrient critical to healthy ecosystems at low concentrations; however, over enrichment of phosphorus can result in aquatic ecosystem degradation when nitrogen is also available in sufficient quantities. Nutrient enrichment can result in rapid algal growth as available nutrients and carbon dioxide are consumed. This response can alter pH, decrease DO (which is critical to other aquatic biota), alter the diurnal DO pattern, and even create anoxic conditions. In addition, nutrient enrichment can reduce water clarity and light penetration and is aesthetically displeasing. Oxygen levels must be considered when evaluating BMPs for phosphorus because phosphorus is released from sediment at higher rates under anoxic conditions, and increased water temperature and photosynthesis decrease DO levels, which create anoxic conditions.

Inputs of phosphorus originate from both point and nonpoint sources. Most of the phosphorus discharged by point sources is soluble. Phosphorus from point sources also typically has a continuous impact and is human in origin; for example, effluents from municipal sewage treatment plants and permitted industrial discharges. Phosphorus from nonpoint sources is generally insoluble or particulate. Most of this phosphorus is bound tightly to soil particles and enters streams from erosion. The impact from phosphorus discharged by nonpoint sources is typically intermittent and is most often associated with stormwater runoff. Sedimentation can impact the physical attributes of the stream and act as a transport mechanism for phosphorus.

Internal cycling of phosphorus from lake sediments is also a significant contributor to impairments in each of these lakes. Low DO near the lake bottom during periods of thermal stratification, if present, is generally addressed by focusing on organic loads that consume oxygen through decomposition as well as nutrient loads that can cause algal growth, which can also deplete DO. Sufficient reductions in nutrient loads to Hidden Lake are also expected to alleviate the DO issue.

Phosphorus loads in all 26 lakes originate from internal and external sources. Possible external sources of total phosphorus include municipal point sources, lawn and garden fertilization, run off and littoral/shore area modifications. To achieve a reduction of total phosphorus for the lakes, management measures must address both internal sources and loading associated with urban runoff.

Internal and external load reductions needed for each of the phosphorus-impaired lakes is listed below in **Table 3-8** and is further discussed in **Tables 2-24** through **2-46** in **Section 2**.

Table 3-8 TMDL Percent reduction summary for each Phosphorus-impaired lake in the Upper Fox River/Chain O' Lakes Watershed

Waterbody Name	Segment ID	Internal Phosphorus Load Reductions Required		External Phosphorus Load Reductions Required	
		Lbs/Day	Percent	Lbs/Day	Percent
Antioch	RTT	0.27	50%	0.59	64%
Bluff	VTJ	5.17	75%	0.21	15%
Catherine	RTD	0.39	10%	0	0%
Channel	RTI	6.04	57%	0.56	20%
Davis	STQ	0.12	50%	1.61	90%
Duck	RTZG	0.26	78%	0.29	77%
Dunn's	VTH	0.48	15%	0	0%
Fischer	VTT	4.03	75%	1.29	75%
Fish-Duncan	VTK	3.55	77%	0.44	74%
Fox	RTF	122	75%	5.8	30%
Grass	RTQ	316	80%	7.3	25%
Hidden	UTM	0.17	75%	0.21	82%
Long	RTJ	17.9	64%	7.24	70%
Marie	RTR	15.9	61%	5.52	84%
McGreal	UTX	0.09	65%	0.60	81%
Nippersink	RTUA	207	85%	12.6	50%
North Churchill	STR	0.65	60%	0.089	52%
Petite	VTW	8.96	83%	1.93	40%
Pistakee	RTU	498	77%	4.36	79%
Redhead	RTV	0.73	70%	0.12	35%
South Churchill	STS	0.09	50%	0.32	52%
Spring	RGZT	7.42	88%	0.13	15%
Summerhill Estates	WTA	0.28	75%	0.54	83%
Tranquility	UTW	0.033	20%	0.28	50%
Turner	VTZA	0.16	33%	0	0%
Wooster	RTZH	2.01	41%	0.42	35%

3.5.1 Point Sources of Phosphorus

As discussed in **Section 2.3.1.4**, ten NPDES permittees are present within the Upper Fox River/Chain O'Lakes watershed and have monitoring or discharge requirements for phosphorus. One of the facilities is in the Dunn's Lake subbasin, four in the Long Lake subbasin, one in the Wooster Lake subbasin, one in the Lake Marie subbasin, and five in the Pistakee Lake subbasin. Lakes within the subbasins are impaired for phosphorus; however, some of the direct receiving waters at the discharge points are not impaired (see discussion in **Section 2.3.1.4**. The total phosphorus WLA for these facilities is estimated to be about 117 lbs/day (see Table 2-4) which represents approximately 27% of the LC for this watershed.

During the next NPDES permit renewal process, all minor domestic wastewater dischargers in the watershed that currently do not monitor for total phosphorus (TP) will be required to monitor for TP in the interim and develop an action plan to reduce TP discharge in the effluent. In addition, the reissued NPDES Permit for minor dischargers (wastewater treatment plants with design average flow less than (≤) 1.0 MGD) may include the following requirements or Special Conditions:

I. Develop a phosphorus discharge optimization plan.

In developing the plan, the Permittee shall evaluate a range of measures for reducing phosphorus discharges from the treatment plant, including possible source reduction measures, operational improvements, and minor facility modifications that will optimize reductions in phosphorus discharges from the wastewater treatment facility. The Permittee's evaluation shall include, but not be limited to, an evaluation of the following optimization measures:

A. WWTF influent reduction measures.

1. Evaluate the phosphorus reduction potential of users.

2. Determine which sources have the greatest opportunity for reducing phosphorus (i.e., industrial, commercial, institutional, municipal and others).

   a. Determine whether known sources (i.e., restaurant and food preparation) can adopt phosphorus minimization and water conservation plans.

   b. Evaluate implementation of local limits on influent sources of excessive phosphorus.

B. WWTF effluent reduction measures.

1. Reduce phosphorus discharges by optimizing existing treatment processes.

II. Feasibility study

A. NPDES Permits with phosphorus limit in current NPDES Permit.

1. The Permittee must conduct a feasibility study to reduce monthly phosphorus levels below 1 mg/L in the effluent. At a minimum, the study must provide the method, timeframe, and costs associated with in achieving phosphorus reductions in the effluent. The Operations and Maintenance (O&M) costs for each of the method considered must be provided in the feasibility study.

B. NPDES Permits without phosphorus limit in current NPDES Permit.

1. The Permittee must conduct a feasibility study to reduce phosphorus levels in the effluent. At a minimum, the study must provide the method, timeframe, and costs associated with in achieving phosphorus reductions in the effluent. The Operations and Maintenance (O&M) costs for each of the method considered must be provided in the feasibility study.

III. Illinois EPA also recommends creation of a Watershed Workgroup to collaborate with other stakeholders in the watershed and determine the most cost-effective

implementation plans for best management practices to address total phosphorus removal\reduction measures in the watershed to the extent feasible.

A number of municipalities and townships within the Upper Fox River/ Chain O'Lakes watershed have MS4s. WLAs for the MS4 areas are discussed in **Section 2.3.1.4**; BMPs for the MS4 areas are discussed along with non-MS4 stormwater and urban runoff in the following section. No CSO discharges exist within the watersheds of any of the impaired lakes.

Several facilities within the Upper Fox River/Chain O'Lakes watershed have general industrial stormwater permits. Unfortunately, information on the amount of phosphorus that may be contributed to lakes via these stormwater sources is not currently available. A stormwater discharge survey may be warranted to determine the stormwater runoff impacts to phosphorus concentrations in area receiving waters.

3.5.2 Nonpoint Sources of Phosphorus and Oxygen-Demanding Materials

Potential nonpoint sources of phosphorus include non-MS4 urban stormwater and runoff from undeveloped and park lands, and possibly septic systems (if existing in proximity to the waterbody). Potential nonpoint sources for oxygen-demanding materials include nutrient loss (associated with urban and rural land uses), bank erosion, and elevated water temperatures. BMPs that could be used for treatment of these nonpoint sources are similar to those discussed in **Section 3.3**, with the addition of in-lake management measures and phosphorus-based lawn fertilizer restrictions. and private septic system inspection and maintenance programs for any remaining systems in the watershed. Nutrient management is also included as a BMP for phosphorus in the agricultural areas; however, this BMP will have limited applicability. As noted in **Section 3.4**, land use around the phosphorus-impaired lakes is primarily urban with limited amounts of wetland and forested areas. Additionally, most of the agricultural land in the whole watershed is in the Pistakee Lake subbasin with limited amounts in the other lake subbasins (primarily Bluff Lake, Fish-Duncan Lake, Long Lake, Lake Marie, Petite Lake, and South Churchill Lake) with agricultural land adjacent only to Bluff Lake and Lake Marie.

Wetlands, **stormwater retention basins**, **sand filtration basins**, and **bio-retention cells** could be constructed at the upstream ends of select lakes or at a location of more concentrated inflow to the selected lake. The use of these structural controls was generally discussed in **Section 3.3** and in lake-specific areas in **Section 3.4**. **Filter strips**, **riparian buffers**, **vegetated swales**, and **stormwater reduction techniques** may also be employed in select areas to help control overland flow and the associated transport of sediment and pollutants. Potential **filter strip** and **riparian buffer** areas for phosphorus control are the same as those for sediment/TSS control, as discussed in **Section 3.4**.

In-Lake Phosphorus Loading: Modeling described in **Section 2** determined that internal loading of phosphorus is likely a significant contributor to overall watershed loads. A reduction of phosphorus from in-lake cycling through in-lake management strategies is necessary for attainment of the TMDL load allocations. Internal phosphorus loading can occur when the water above the sediments becomes anoxic, causing the release of phosphorus from the sediment in a form which is available for plant uptake. The addition of bioavailable phosphorus in the water column stimulates more plant growth and die-off, which may perpetuate or create anoxic

conditions and enhance the subsequent release of phosphorus into the water. Internal phosphorus loading can also occur in shallow lakes through release from sediments by the physical mixing and reintroduction of sediments into the water column as a result of wave action, wind, boating activity, and other means.

For lakes experiencing high rates of phosphorus input from bottom sediments, several management measures are available to control internal loading. Three BMP options for the control of internal loading include the installation of an aerator, the addition of aluminum, and dredging.

- **Aeration** involves an aerator air-release that can be positioned at a selected depth, or at multiple depths, to increase oxygen transfer efficiencies in the water column and reduce internal loading by establishing aerobic conditions at the sediment-water interface. Installation of an aeration device will also directly contribute to the alleviation of DO issues present in Woodland (Highland) Lake (Clean-Flo 2016).

- **Hypolimnetic (bottom water) aeration** involves an aerator air-release that can be positioned at a selected depth or at multiple depths to increase oxygen transfer efficiencies in the water column and reduce internal loading by establishing aerobic conditions at the sediment-water interface. Installation of an aeration device will also directly contribute to the alleviation of DO issues present in Hidden Lake (Clean-Flo 2016).

- **Phosphorus inactivation by aluminum addition** (specifically aluminum sulfate or alum) to lakes is the most widely-used technique to control internal phosphorus loading. Alum forms a polymer that binds phosphorus and organic matter. The aluminum hydroxide-phosphate complex (commonly called alum floc) is insoluble and settles to the bottom, carrying suspended and colloidal particles with it. Once on the sediment surface, alum floc inhibits phosphate diffusion from the sediment to the water (Cooke et al.1993).

- Phosphorus release from the sediment is greatest from recently deposited layers. **Dredging** approximately one meter of recently deposited phosphorus–rich sediment can remove approximately 80 to 90 percent of the internally loaded phosphorus without the addition of potentially toxic compounds to the reservoir. Dredging may also contribute to reductions in internal phosphorus loading by increasing the depth of large portions of the waterbody, reducing the degree of reintroduction of sediments into the water column through physical mixing. However, dredging is more costly than other management options (NRCS 2005).

- The implementation of controls on recreational uses may also help to reduce sediment resuspension in these waterbodies. The potentially adverse impact of recreational boating on the Chain O'Lakes system was the focus of a Final Environmental Impact Statement for Recreational Boating Impacts produced by the U.S. Army Corps of Engineers in 1994 (USACE 1994). As a result of that process, several controls were implemented including a no-net gain pier and limited ramp permitting system designed to reduce the number of commercial piers and boat ramps installed in the Chain O' Lakes. Additional controls such as speed limits, no-wake zones, reduced access to shallow areas, and shore-line stabilization projects may also prove beneficial to reducing sediment and nutrient re-suspension in the Chain O' Lakes system.

Phosphorus-Based Lawn Fertilizer Restrictions: Runoff from urban areas may include phosphorus-based fertilizers applied to residential lawns, golf courses, and other surfaces. If used too close to a receiving waterbody, phosphorus present in stormwater runoff will enter the waterbody. Restrictions on residential use of lawn fertilizers containing phosphorus are currently in place in parts of Lake County. In addition, Illinois has a statute in place which governs the use of phosphorus-based fertilizers for commercial applicators in urban areas: Lawn Care Products Application and Notice Act (415 ILCS 65). This act includes the following prohibitions for phosphorus-based fertilizers (see act for limited exceptions):

- They shall not be applied to lawns unless it can be demonstrated by soil test that the lawn is lacking in phosphorus when compared against the standard established by the University of Illinois; see the act for exceptions
- They shall not be applied to impervious surfaces
- They shall not be applied within 3 feet of any waterbody if a spray, drop, or rotary spreader is used. If other equipment is used, the fertilizer may not be applied within 15 feet of a waterbody.
- They shall not be applied when the ground is frozen or saturated
- Appropriate lawn markers for the application event and notifications to potentially affected adjacent properties are required

In addition to enforcement of the above rules, BMPs should include public outreach and education regarding the statute and other lawn care management guidance, as outlined in the Nutrient Management Practices for Illinois Lawn Care Professionals (2015). Those who maintain their own lawns can apply the same rules and principles to mitigate their impact on phosphorus runoff. Public outreach will increase awareness and educate citizens about simple measures they can take, such as applying fertilizer when the forecast is rain-free, or purchasing phosphorus-free fertilizers.

Private Septic System Inspection and Maintenance Program: It is unclear to what extent businesses, residences, and other structures in the various townships are served by septic vs. municipal sewer systems. Section 6 of the Stage 1 report (AECOM 2010) indicated the four following lakes as potentially impacted by septic systems: Deep Lake (Section 6.1.14), McGreal Lake (Section 6.1.16), Redhead Lake (Section 6.1.12), and Summerhill Estates Lake (Section 6.1.3) although Deep Lake is not impaired for phosphorus. However, the current status of potential septic systems in service at properties within these subbasins is not known as this information is not routinely tracked on the State or County level.

Failing or leaking septic systems can be a source of phosphorus pollution. A program that actively manages functioning systems and addresses non-functioning systems could be implemented to reduce the potential phosphorus loads from septic systems in the watershed. The USEPA has developed guidance for managing septic systems, which includes assessing the functionality of systems, public health, and environmental risks (USEPA 2005). It also introduces procedures for selecting and implementing a management plan.

As indicated in Section 2.3 of the Stage 1 report, approximately 35 percent of the Upper Fox River/Chain O'Lakes watershed consisted of developed or urbanized land. Most of businesses, residences, and other structures in the developed areas are expected to be served by a municipal sewer district; however, many households in rural areas of Illinois, as well as in some smaller townships, that are not connected to municipal sewers make use of onsite sewage disposal systems, or septic systems. The degree of nutrient removal in these systems is limited by soils and system upkeep and maintenance.

To reduce the discharge of excessive amounts of contaminants from a faulty septic system, a scheduled maintenance plan that includes regular pumping and maintenance of the septic system should be followed. The majority of failures originate from excessive suspended solids, nutrients, and BOD loading to the septic system. Reduction of solids entering the tank can be achieved by limiting the use of garbage disposals.

Septic system management practices can extend the life, and maintain the efficiency, of a septic system. Water conservation practices, such as limiting daily water use or using low flow toilets and faucets, are the most effective methods to maintain a properly functioning septic system. Additionally, septic systems should not be used for the disposal of solids, such as cigarette butts, cat litter, cotton swabs, coffee grounds, disposable diapers, etc. Physical damage to the drain field can be prevented by:

- Maintaining a vegetative cover over the drain field to prevent erosion
- Avoiding construction over the system
- Protecting the area down slope of the system from excavation
- Landscape the area to divert surface flow away from the drain field (Johnson 1998)

The cost of each management measure is highly variable and site-specific data on septic systems and management practices do not exist for the watershed; therefore, homeowners with septic systems should contact their county health department for septic system management costs.

Current protocols for addressing failing septic systems should adhere to the Illinois Private Sewage Disposal Licensing Act and Code "to prevent the transmission of disease organisms, environmental contamination and nuisances resulting from improper handling, storage, transportation and disposal from private sewage disposal systems". Any new, replaced, or renovated system must be installed by a licensed contractor or the homeowner and permitted through the county health department. The department must receive both an application for permit and the appropriate fee from the contractor/homeowner. Once reviewed and approved, a permit is issued and an inspection of the system is conducted during and after construction. The county health department also investigates private sewage disposal system complaints.

A long-range solution to failing septic systems is connection to a municipal sanitary sewer system. Connection to a sanitary sewer line would reduce existing phosphorus sources by replacing failing septic systems with municipal treatment and will allow communities to develop without further contribution of pollutants to impaired waterbodies. Costs for the installation are generally paid over a period of several years (average of 20 years) and help to avoid forcing

homeowners to shoulder the entire initial cost of installing a new septic system. In addition, costs are sometimes shared between the community and the utility responsible for treating the wastewater generated from replacing the septic tanks. The planning process is involved and requires participation from townships, cities, counties, businesses, and citizens.

Agricultural Nutrient Management: As noted above, agricultural land immediately adjacent to lakes is primarily limited to Bluff Lake and Lake Marie although significant areas of agricultural land is also present in several of the other subbasins. The approximate area and proportion of land in each modeled subbasin is provided in **Table 3-9**. Nutrient management programs for the agricultural areas could therefore result in reduced nutrient loads to the phosphorus-impaired lakes in the subbasins due to overland runoff. Crop management of nitrogen and phosphorus originating in the agricultural portions of the watershed can be accomplished through Nutrient Management Plans (NMPs) that focus on increasing the efficiency with which applied nutrients are used by crops, thereby reducing the amount available to be transported to both surface water and groundwater.

Table 3-9 Agricultural Land Use by Impaired Subbasin.

Waterbody Name	Segment ID	Agriculture Acres	Total Subbasin Area (acres)	Percent Agriculture
Antioch	RTT	81	443	18%
Bluff	VTJ	247	693	36%
Catherine	RTD	823	3,619	23%
Channel	RTI	3,111	8,805	35%
Davis	STQ	80	443	18%
Duck	RTZG	15	872	1.7%
Dunn's	VTH	8.5	416	2.0%
Fischer	VTT	236	1,164	20%
Fish-Duncan	VTK	1,441	3,219	45%
Fox	RTF	155	5,666	2.7%
Grass	RTQ	494	7,050	7.0%
Hidden	UTM	3.3	146	2.3%
Long	RTJ	6,049	25,038	24%
Marie	RTR	1,484	9,393	16%
McGreal	UTX	23	140	17%
Nippersink	RTUA	7.1	1,056	0.7%
North Churchill	STR	3.3	145	2.3%
Petite	VTW	195	1,528	13%
Pistakee	RTU	88,699	142,002	62%
Redhead	RTV	115	1,202	10%
South Churchill	STS	177	503	35%
Spring	RGZT	120	726	17%
Summerhill Estates	WTA	12	289	4.2%
Tranquility	UTW	5.3	248	2.1%
Turner	VTZA	14	690	2.0%
Wooster	RTZH	27	504	5.4%

The overall goal of nutrient reduction from agriculture should be to increase the efficiency of nutrient use by balancing nutrient inputs in feed and fertilizer with outputs in crops and animal produce, as well as to manage the concentration of nutrients in the soil. The "four Rs" of nutrient management are applying the right fertilizer source at the right rate at the right time and in the right place. It is not unusual for crops in fields or portions of fields to show nutrient deficiencies during periods of the growing season, even where an adequate NMP is followed. The fact that nutrients are applied does not necessarily mean they are available. Plants obtain most of their nutrients and water from the soil through their root system. Any factor that restricts root growth and activity has the potential to restrict nutrient availability and result in increased nutrient runoff.

Reducing nutrient loss in agricultural runoff may be brought about by source and transport control measures, such as filter strips or grassed waterways. The NMPs account for all inputs and outputs of nutrients to determine reductions. NMPs typically include the following measures:

- A review of aerial photography and soil maps
- Recommendation for regular soil testing – Traditionally, soil testing has been used to decide how much lime and fertilizer to apply to a field. With increased emphasis on precision agriculture, economics, and the environment, soil tests have become a logical tool to determine areas where adequate or excessive fertilization has taken place. Additionally, they can be used to monitor nutrient buildup in soils due to past fertility practices and aid in determining maintenance fertilization requirements. Appropriate soil sampling and analysis techniques are described in the Illinois Agronomy Handbook (http://extension.cropsciences.illinois.edu/handbook/).
- A review of current and/or planned crop rotation practices
- Establishment of yield goals and associated nutrient application rates – Matching nutrient applications to crop needs will minimize the potential for excessive buildup of phosphorus soil tests and reallocate phosphorus sources to fields or areas where they can produce agronomic benefits.
- Development of nutrient budgets with planned application rates (which may be variable), application methods, and timing and form of nutrient application
- Identification of sensitive areas and restrictions on application when land is snow covered, frozen, or saturated

Regional differences in phosphorus-supplying power are shown in Figure 8-4 of the Illinois Agronomy Handbook (http://extension.cropsciences.illinois.edu/handbook/). In the Upper Fox River/ Chain O'Lakes watershed in northeastern Illinois, soils are generally considered to have low phosphorus-supplying power; therefore, buildup and maintenance of phosphorus levels are sometimes needed in this area. Application amounts should be determined by periodic soil testing; however, excessively high-phosphorus soil test levels should not be maintained.

While soil test procedures were designed to predict where phosphorus was needed, not to predict environmental problems, the likelihood of phosphorus loss increases with high-

phosphorus test levels. Environmental decisions regarding phosphorus applications should include such factors as distance from a significant lake or stream, infiltration rate, slope, and residue cover. One possible problem with using soil test values to predict environmental problems centers around determining the appropriate sample depth for predicting nutritional needs. Another potential problem is variability in soil test levels within fields in relation to the dominant runoff and sediment-producing zones. Several fertilizer placement recommendations are described in the Illinois Agronomy Handbook. However, given the propensity of phosphorus to bind tightly to soil particles and subsequently enter streams through erosion, the deep fertilizer placement technique may be most appropriate in phosphorus impaired areas such as the Upper Fox River/ Chain O'Lakes watershed. Under the deep placement technique, the fertilizer is placed 4 to 8 inches deep into the soil rather than being spread near the surface.

3.6 BMP Recommendations for Reducing Fecal Coliform in Deep Lake

The TMDL analysis performed for fecal coliform bacteria in the impaired lake was discussed in **Section 2.3.2** along with percent reductions needed for the lake. Elevated fecal coliform concentrations may be a result of stormwater runoff, re-suspension of in-lake fecal material, point source contributions, failed septic systems, wildlife and pets, and/or groundwater inputs.

3.6.1 NPDES Permitted Point Sources of Fecal Coliform

There are no individually NPDES permitted facilities with potential to discharge elevated concentrations of phosphorus within the Deep Lake subbasin; however, there are MS4 discharges from which WLAs were calculated, as shown in **Section 2.3.2.4**. BMPs for MS4 discharges are covered in the non-point source discussion below.

3.6.2 Nonpoint Sources of Fecal Coliform

Several management options have been identified to help reduce fecal coliform counts in Deep Lake. These management options focus on the most likely sources of fecal coliform within the subbasin, such as septic systems, wildlife/waterfowl and domestic pets, and overland stormwater runoff. BMPs for fecal coliform include the following, many of which were originally discussed in **Section 3.3**:

Sand filtration basins, **stormwater retention ponds**, and **bio-retention cells** could be constructed near discharge areas to the lake. **Filter strips** and **riparian buffers** may also be employed in select areas to help control overland flow and the associated transport of sediment and pollutants. Potential **filter strip** and **riparian buffer** areas for fecal coliform control are the same as those for sediment/TSS and phosphorus control, as discussed in **Sections 3.4** and **3.5**.

Wildlife and Waterfowl: Waterfowl are a known contributor to phosphorus loads in lakes and reservoirs, primarily as a result of sizeable migratory and resident Canada geese populations. The lack of estimates of waterfowl in Deep Lake made it difficult to account for phosphorus loads from this source explicitly; however, waterfowl and other wildlife uses in the watershed are accounted for implicitly by runoff coefficients developed for land uses.

Domestic pet waste: Information on the number of people with pets is not available; however, there are still likely several hundred domestic pets within the watershed. Education of pet owners on the potential impacts of pet waste to streams and lakes should occur periodically. Public meetings; mass mailings; and radio, newspaper, and TV announcements can all be used to remind and inform owners of their responsibility to pick up after their pets.

Private Septic System Inspection and Maintenance Program: Failing or leaking septic systems can be significant sources of fecal coliform pollution. A program that actively manages functioning systems and addresses non-functioning systems was discussed in **Section 3.5.2**. As indicated in Section 6 of the Stage 1 report (AECOM 2010), Deep Lake is described as potentially being impacted by septic systems. Villages closest to the lake include Lake Villa and Lindenhurst. However, it is unclear what portion of residences in the area are currently connected to municipal sewers vs. septic systems.

3.7 Cost Estimates of BMPs

Cost/payment rate estimates for several suggested BMPs are provided in the following sections. For some BMPs, "average" costs are not available due to design considerations such as size, construction materials, and site-specific conditions. Information for **Sections 3.7.1** through **3.7.5** was obtained from the 2016 Illinois EQIP "Payment Scenario Descriptions" document located at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/?cid=nrcseprd1328235.

3.7.1 Filter Strips and Riparian Buffers

Several types of filter strip practices are available, including areas for native herbaceous vegetation with or without fertility measures required and areas of introduced species, also with or without fertility measures required. Filter strip implementation that includes seedbed preparation and native seed application ranges from $520/acre to $639/acre depending on the type used, with an average cost of approximately $594/acre.

Riparian buffers consisting of bare-root shrubs cost approximately $1.10 to $1.65 each while direct seeding of trees and/or shrubs costs approximately $741/acre. The direct seeding scenario includes a planting rate of approximately 3,000 to 4,800 seeds per acre as well as the foregone income for the land taken out of crop production. Land preparation, including removing undesirable vegetation and improving site conditions, is estimated at $38/acre. For cases where an herbaceous cover is preferable, such as native grass or certain species of forbs and/or shrubs, costs average $642/acre.

3.7.2 Nutrient Management Plan – NRCS

Less than half of the Upper Fox River/Chain O'Lakes watershed is comprised of agricultural land; however, areas where agricultural land does exist may benefit from NMPs. Costs for nutrient management range from $13/acre (basic) to $45/acre (enhanced nutrient management with deep placement [at least 4 inches below surface] of manure and/or phosphorus fertilizer). The cost for developing an NMP ranges from $1,741 to $2,902 per plan, depending on the acreage to be managed under the plan and assuming that a comprehensive NMP is not required. NMP preparation includes soil testing, manure analysis, scaled maps, and site-specific recommendations for fertilizer management.

3.7.3 Nutrient Management Plan – IDA and Illinois EPA

The costs associated with development of an NMP co-sponsored by the Illinois Department of Agriculture (IDA) and the Illinois EPA is estimated at $10/acre paid to the producer and $3/acre for the third-party vendor who develops the plan. There is a 200-acre cap per producer. The total plan development cost is estimated at $13/acre.

3.7.4 Wetlands

The price to establish a wetland is very site specific and depends on factors such as size and type of vegetation used. Examples of costs associated with constructed wetlands include excavation costs, vegetation removal, and revegetation costs. Costs for wetlands created on flat mineral uplands, where surface runoff may be intercepted and ponded by excavation range from $3,186 (no embankment) to $3,680 (with embankment). Some areas may favor a wetland setting which just needs to be enhanced or restored. In an area of natural depression fed by surface runoff, enhancement/restoration is approximately $2,557/acre. Enhancing or restoring a wetland on a floodplain site that has existing levees and/or ditches may consist of regrading or shaping the land, potentially including levee removal, for $1,167/acre. Constructed wetlands to reduce the pollution potential of runoff and wastewater average $7,725/acre where natural regeneration of wetland plants will be a major contributor to the working vegetation, and $10,286/acre where wetland vegetation in the pool area is planted at a denser grid (3-foot by 3-foot or closer). As needed, embankments, water control and grade stabilization structures, and filter strips should be added.

3.7.5 Bank Stabilization/Erosion Controls

Streambank stabilization and erosion control measures will vary greatly in cost and cover a variety of techniques. Costs may be as low as $37.55/cubic yard for full bank armor on the streambank, including earthwork; rip rap, in which loose stone is used for bank stability; and/or geotextile, which are permeable fabrics that help reinforce streambanks. Alternatively, costs may be as high as $52.50/linear foot for bank protection using peaked stone toes, which are stones placed to secure the lower portion of a streambank; stream barbs, which are rock sills projecting out from a streambank, meant to redirect flow away from an eroding bank; and/or bendway weirs, which are low level rock dikes that are angled upstream, altering the stream's secondary currents and controlling excessive channel deepening (NRCS 2016d).

Alternatively, turf reinforcement mats (TRMs) may be used to reinforce vegetation and protect soil from erosion. TRMs are protective reinforced materials formed into a non-degradable mat and may be appropriate where vegetation alone will not sustain long-term erosion protection, and where other options may be limited due to landscape features such as mowing, which may be prominent in the Upper Fox River/Chain O'Lakes watershed (AISWCD 2013). Implementation of TRMs may cost approximately $0.60/square foot, or to $26,136/acre (NRCS 2016d), and can be as little as one-third the cost of rip rap (Pack 2008). Prices vary greatly and are dependent upon the steepness of the slope that is being treated, and the vegetation and anchor types being used, which are dependent upon the expected velocities that the TRMs will be expected to withstand (Propex 2007).

3.7.6 Conservation Cover

Conservation cover may be implemented and may range in price from $583.66/acre to $1,243.89/acre. Conservation cover involves the establishment of permanent vegetation cover, and costs are dependent on the type of vegetation, whether or not organic seed is used, and the ecosystem type into which the vegetation is being introduced (NRCS 2016d).

3.7.7 Vegetated Swales

Vegetated swales vary in size and may include checks, depending upon the slope of the area in question. Costs range from $2,569/acre for a vegetated swale with a top width of less than 35 feet and no checks, to $4,015/acre for a vegetated swale with a top width greater than 55 feet and with checks (NRCS 2016d).

3.7.8 Green Roofs

Green roofs are relatively new technology in the United States and costs are estimated to average between $15/square foot to $20/square foot. These cost estimates are for all use types; i.e., high density residential, commercial, and industrial (Urban Design Tools 2016).

3.7.9 Bio-retention Cells

Bio-retention cells, otherwise known as rain gardens, range in cost depending upon the permeability of the soil and the vegetation types used within the cell. Where highly permeable soils are present, costs range from $1.50 to $3.00/square foot. Where soils are less permeable, costs may range from $4.00 to $6.00/square foot (Penn State Extension 2016).

3.7.10 Septic System Maintenance

Septic tanks are designed to accumulate sludge in the bottom portion of the tank while allowing water to pass into the drain field. If the tank is not pumped out regularly, the sludge can accumulate and eventually become deep enough to allow for flow into the drain field. Pumping the tank every three to five years prolongs the life of the system by protecting the drain field from solid material that may cause clogs and system back-ups. In addition, septic systems should not be connected to field tile lines.

The cost to pump a typical septic tank ranges from $250 to $350 depending on how many gallons are pumped out and the disposal fee for the area. If a system is pumped once every three to five years, this expense averages out to less than $100 per year.

The cost of developing and maintaining a watershed-wide database of the onsite wastewater treatment systems in the Upper Fox River/Chain O'Lakes watershed depends on the number of systems that need to be inspected and the means by which the systems are inventoried. Education of home and business owners that use onsite wastewater treatment systems should occur periodically. Public meetings; mass mailings; and radio, newspaper, and TV announcements can all be used to remind and inform owners of their responsibility to maintain their systems. The costs associated with education and inspection programs will vary depending on the level of effort required to communicate the importance of proper maintenance and the number of systems in the area. It is currently unknown how many septic systems are present within the watershed. Potential number of households which may be served by septic systems were discussed in **Sections 3.5.2** and **3.6.2**.

3.8 Information and Education

Public education and participation is a key factor for TMDL and watershed plan implementation. Increased public awareness can increase implementation of BMPs. The Lake County Health Department and Stormwater Management Commission, CMAP, the Fox River Ecosystem Partnership, Fox Waterway Agency, and other entities involved in watershed planning in the area currently provide informational materials and conduct multiple public meetings each year. Public involvement in these meetings is encouraged, as they include discussions about the watershed, IEPA's NPDES Stormwater program, and stormwater management activities. Education will lead to small incremental improvements and individual adoption of BMPs can be achieved at a much lower cost compared to the large-scale BMPs identified above. Outreach and education efforts should focus on activities that support the watershed plan goals, including:

- Biological and water quality monitoring
- Lake and stream management
- Encouraging native landscaping, including buffers along lakeshores and streambanks
- Buffer strips
- Reducing the use of lawn chemicals, such as pesticides and phosphorus-based fertilizers
- Nutrient management
- Water conservation
- Green infrastructure
- Soil testing

An additional public meeting will be held within the watershed to present the final TMDL results and the implementation plan. Additional recommended activities to support public outreach and education include:

- Websites and social media to publicize meetings, upcoming events, and links to resources
- E-mail updates
- Brochures with information on household pollutant reduction, fertilizer use, and septic tanks
- Educational signs to educate viewers on water quality issues, purpose of BMPs, and environmental stewardship
- Public service announcements
- Informational meetings on State and Federal cost share programs

3.9 Project Funding

Cost-share programs at the municipal, county, state, and federal levels are available to municipalities, landowners, homeowners, and farmers in the watershed to help offset costs of implementing many of the BMPs recommended in this plan. These programs are discussed below.

3.9.1 Available County-Level Programs for Nonpoint Sources

3.9.1.1 Watershed Management Board (WMB) Cost-Share Grant Program

The WMB funding is run by the Lake County Stormwater Management Commission and is split between the four major watersheds in the county: Des Plaines River, Lake Michigan, North Branch Chicago River, and Fox River. The WMB grant program is open to WMB members, which include municipalities, drainage districts, county board districts, townships, homeowner associations, park districts, and non-profit groups.

The WMB cost-share grant program helps fund local stormwater projects, with the highest funding priority going to flood damage prevention and mitigation. However, water quality improvement and natural resource restoration projects are also considered. There is a 50/50 cost-share requirement, which can be in the form of funds, in-kind services, or both (https://www.lakecountyil.gov/3635/Watershed-Management-Board-WMB).

3.9.2 Available State-Level Programs for Nonpoint Sources

The following paragraphs describe a few state-level programs designed to encourage landowners to implement resource-conserving practices for water quality and erosion control purposes. Municipalities should aim to incorporate the recommendations of this plan into their annual budgets and comprehensive improvement plans. In general, the majority of funds should come from local efforts; however, the Illinois EPA does offer grants to control nonpoint source pollution in the state. These grants are available to local governments, as well as to other organizations for the purpose of protecting water quality. Projects must address water quality issues relating directly to nonpoint source pollution, and funds can be used to develop, update, and implement watershed management plans. This includes the development of information and education programs, as well as the installation of BMPs.

3.9.2.1 The Conservation Fund

The Conservation Fund, an environmental non-profit, provides low-interest land conservation loans for a variety of conservation projects. Under this fund, land in the Upper Fox River/Chain O'Lakes watershed could be converted to green space, providing land for potential wetlands, filter strips, and riparian buffers, and thereby improving water quality (https://www.conservationfund.org/).

3.9.2.2 Illinois Department of Agriculture and Illinois EPA Nutrient Management Plan Project

The IDA and Illinois EPA co-sponsor a cropland NMP project in watersheds that have developed or are developing TMDLs. This voluntary project supplies incentive payments to producers to have NMPs developed and implemented. Additionally, watersheds that have sediment or phosphorus identified as a cause for impairment (as is the case in this watershed), are eligible for

cost-share assistance in implementing traditional erosion control practices through the NMP project.

3.9.2.3 Streambank Stabilization and Restoration Program

The Streambank Stabilization and Restoration Program (SSRP) was established to address problems associated with streambank erosion, such as loss or damage to valuable farmland, wildlife habitat, and roads; stream capacity reduction through sediment deposition; and degraded water quality, fish, and wildlife habitat. The primary goals of the SSRP are to develop and demonstrate vegetative, stone structure, and other low-cost bio-engineering techniques for stabilizing streambanks and to encourage the adoption of low-cost streambank stabilization practices by making available financial incentives, technical assistance, and educational information to landowners with critically eroding streambanks. A cost share of 75 percent is available for approved project components, such as willow post installation, bendway weirs, rock riffles, stream barbs/rock, vanes, lunker structures, gabion baskets, and stone toe protection techniques. There is no limit on the total program payment for cost-share projects that a landowner can receive in a fiscal year. However, maximum cost per foot of bank treated is used to cap the payment assistance on a per foot basis and maintain the program's objectives of funding low-cost techniques (IDA 2000). All project proposals must be sponsored and submitted by the local Soil and Water Conservation District (SWCD) (https://www2.illinois.gov/sites/agr/Resources/Conservation/Pages/default.aspx#h4).

3.9.2.4 Clean Water Act Section 319 Grants

Section 319 was added to the CWA to establish a national program to address nonpoint sources of water pollution. Through this program, each state is allocated Section 319 funds on an annual basis according to a national allocation formula based on the total annual appropriation for the section 319 grant program. The total award consists of two categories of funding: incremental funds and base funds. A state is eligible to receive USEPA 319(b) grants upon the USEPA's approval of the state's Nonpoint Source Assessment Report and Nonpoint Source Management Program. States may reallocate funds through sub-awards (e.g., contracts, sub-grants) to both public and private entities, including local governments, tribal authorities, cities, counties, regional development centers, local school systems, colleges and universities, local nonprofit organizations, state agencies, federal agencies, watershed groups, for-profit groups, and individuals.

USEPA designates incremental funds for the restoration of impaired water through the development and implementation of watershed-based plans and TMDLs for impaired waters. Base funds, funds other than incremental funds, are used to provide staffing and support to manage and implement the state Nonpoint Source Management Program. Section 319 funding can be used to implement activities which improve water quality, such as filter strips, streambank stabilization, etc. (USEPA 2003).

Illinois EPA receives federal funds through Section 319(h) of the CWA to help implement Illinois' Nonpoint Source Pollution Management Program. The purpose of the program is to work cooperatively with local units of government and other organizations toward the mutual goal of protecting the quality of water in Illinois by controlling nonpoint source pollution. The program emphasizes funding for implementing cost-effective corrective and preventative BMPs on a

watershed scale; funding is also available for BMPs on a non-watershed scale and the development of information/education nonpoint source pollution control programs.

The maximum Federal funding available is 60 percent of the total cost, with the remaining 40 percent coming from local match. The program period is two years unless otherwise approved. This is a reimbursement program.

Section 319(h) funds are awarded for the purpose of implementing approved nonpoint source management projects. The funding will be directed toward activities that result in the implementation of appropriate BMPs for the control of nonpoint source pollution or to enhance the public's awareness of nonpoint source pollution. Applications are accepted June 1 through August 1 (https://www.epa.gov/nps/319-grant-program-states-and-territories).

3.9.3 Available Federal-Level Programs for Nonpoint Sources

There are several voluntary conservation programs established by various federal agencies that encourage landowners to implement resource-conserving practices for water quality and erosion control purposes. Federal-level programs are discussed in the following paragraphs.

3.9.3.1 Wetland Program Development Grants

The USEPA provides wetland program development grants to assist state, tribal, and local government agencies, as well as interstate/intertribal entities, in building programs to protect, manage, and restore wetlands (USEPA 2016) (https://www.epa.gov/wetlands/wetland-program-development-grants).

3.9.3.2 Rivers, Trails, and Conservation Assistance

The National Park Service (NPS) provides financial assistance for the development of natural resource conservation programs, aimed at designing trails and parks, improving access to rivers, protecting special places, and creating recreation opportunities. Applicants may include state and local agencies, tribes, nonprofit organizations, or citizen groups (NPS 2016) (https://www.nps.gov/orgs/rtca/index.htm).

3.9.3.3 Conservation Reserve Program

The Conservation Reserve Program (CRP) may apply to the approximately 40 percent of the Upper Fox River/Chain O'Lakes watershed that is agricultural. The CRP is a voluntary program, administered through the Farm Service Agency (FSA), which encourages landowners to agree to remove environmentally sensitive land from agricultural production and plant long-term resource-conserving cover to improve water quality, prevent soil erosion, and reduce loss of wildlife habitat. The program was initially established in the Food & Security Act of 1985 and is the largest private-lands conservation program in the United States.

Participants can enroll in CRP in two ways and the duration of the contracts under CRP range from 10 to 15 years. The first enrollment method is through a competitive process known as the CRP General Sign-up. These are announced on a periodic basis by the Secretary of Agriculture but do not occur on any fixed schedule. The second enrollment method is through CRP Continuous Sign-up, which is offered on a continuous basis. Continuous sign-up provides management

flexibility to farmers and ranchers to implement certain high-priority conservation practices on eligible land. All enrollment offers are processed through the local FSA office.

Certain conditions must be met for land to be eligible for CRP enrollment. These conditions include the following:

1. The farmer applying for enrollment must have owned or operated the land for at least 12 months prior to the previous CRP sign-up period (except in cases of a change in ownership due to the previous owner's death, foreclosure, or land purchase by the new owner without the sole intention of placing it in the CRP).

2. Cropland that is planted or considered planted to an agricultural commodity for four of the six most recent crop years (including field margins) and must be physically and legally capable of being planted in a normal manner to an agricultural commodity.

3. Certain marginal pastureland suitable for use as any of the following conservation practices: buffer for wildlife habitat, wetlands buffer or restoration, filter strips, riparian buffer, grass waterway, shelter belt, living snow fence, contour grass strip, salt tolerant vegetation, or shallow water area for wildlife.

In addition to the eligible land requirements, cropland must meet one of the following criteria:

- Have a weighted average erosion index of 8 or higher
- Be expiring CRP acreage
- Be located in a national or state CRP conservation priority area.

The FSA bases rental rates on the relative productivity of soils within each county and the average dryland cash rent or cash-rent equivalent. The maximum rental rate for each offer is calculated in advance of enrollment. Producers may offer land at the maximum rate or at a lower rental rate to increase likelihood of offer acceptance. In addition, the FSA provides cost-share assistance for up to 50 percent of the participant's costs in establishing approved conservation practices (https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index). CRP annual rental payments may include an additional amount up to $2 per acre per year as an incentive to perform certain maintenance obligations (up to $7 for certain continuous sign-up practice).

Finally, the FSA offers additional financial incentives for certain continuous sign-up practices. Signing Incentive Payment is a one-time incentive payment of $10/acre for each acre enrolled for each full year of the contract. Eligible practices include field windbreaks; grassed waterways; shelter belts; living snow fences; filter strips; riparian buffers; marginal pastureland wildlife and wetland buffers; bottom timber establishment; field borders; longleaf pine establishment; duck nesting habitat; SAFE buffers, wetlands, trees, longleaf pine, and grass; pollinator habitat; and several wetlands practices. The Performance Incentive Payment is a one-time incentive payment made to participants who enroll land in CRP to be devoted to all continuous sign up practices except establishment of permanent vegetative cover on terraces, wetland restoration (including non-floodplain), bottomland timber establishment, and duck nesting habitat.

The maximum annual non-cost share payment that an eligible "person" can receive under the CRP is $50,000 per fiscal year. This is a separate payment limitation applying only to CRP non-cost share payment.

The current extent of land enrolled in CRP within the Upper Fox River/Chain O'Lakes watershed is unknown. It should also be noted that CRP is a USDA program, the description of which is based on the 2014 Farm Bill, which expires at the end of the federal fiscal year 2018. Therefore, the future of this and other USDA programs discussed in this section is dependent on the passage of another Farm Bill.

3.9.3.4 Conservation Stewardship Program

The Conservation Stewardship Program (CSP) may apply to the approximately 40 percent of the Upper Fox River/Chain O'Lakes watershed that is agricultural. The CSP helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resources concerns. Participants earn CSP payments for conservation performance—the higher the performance, the higher the payment.

Through CSP, participants take additional steps to improve resource conditions including soil quality, water quality and quantity, air quality, habitat quality, and energy. CSP provides two types of payments through 5-year contracts: annual payments for installing new conservation activities and maintaining existing practices; and supplemental payments for adopting a resource-conserving crop rotation. Producers may be able to renew a contract if they have successfully fulfilled the initial contract and agree to achieve additional conservation objectives. Payments are made soon as practical after October 1 of each fiscal year for contract activities installed and maintained in the previous year. In fiscal year 2016, NRCS made $150 million available for producers through the CSP.

Eligible lands include private and Tribal agricultural lands, cropland, grassland, pastureland, rangeland and non-industrial private forest land. CSP is available to all producers, regardless of operation size or type of crops produced, in all 50 states, the District of Columbia, and the Caribbean and Pacific Island areas. Applicants may include individuals, legal entities, joint operations, or Indian tribes that meet the stewardship threshold for at least two priority resource concerns when they apply. They must also agree to meet or exceed the stewardship threshold for at least one additional priority resource concern by the end of the contract. Producers must have effective control of the land for the term of the proposed contract, which include all eligible land in the agricultural operation. Some additional restrictions and program requirements may apply and interested applicants should contact the local NRCS office for more information (https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp/).

It should also be noted that CSP is a USDA program, the description of which is based on the 2014 Farm Bill, which expires at the end of the federal fiscal year 2018. Therefore, the future of this and other USDA programs discussed in this section is dependent on the passage of another Farm Bill.

3.9.3.5 Agricultural Conservation Easement Program

ACEP provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. The Agricultural Land Easements component of ACEP has limited applicability to the Upper Fox River/Chain O'Lakes watershed but may apply in the approximately 40 percent of the watershed that is agricultural. However, under the Agricultural Land Easements component, NRCS helps American Indian tribes, state and local governments, and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Land protected by agricultural land easements provides additional public benefits, including environmental quality, historic preservation, wildlife habitat, and protection of open space. Under the Wetlands Reserve Easements component, NRCS helps to restore, protect, and enhance enrolled wetlands. Wetland Reserve Easements provide habitat for fish and wildlife, including threatened and endangered species, improve water quality by filtering sediments and chemicals, reduce flooding, recharge groundwater, protect biological diversity and provide opportunities for educational, scientific and limited recreational activities.

Agricultural Land Easements: NRCS provides financial assistance to eligible partners to purchase Agricultural Land Easements that protect the agricultural use and conservation values of eligible land. In the case of working farms, the program helps farmers and ranchers keep their land in agriculture. The program also protects grazing uses and related conservation values by conserving grassland, including rangeland, pastureland and shrubland. Land eligible for agricultural easements includes cropland, rangeland, grassland, pastureland and non-industrial private forest land. NRCS will prioritize applications that protect agricultural uses and related conservation values of the land and those that maximize the protection of contiguous acres devoted to agricultural use.

To enroll land through agricultural land easements, NRCS enters into cooperative agreements with eligible partners. Each easement is required to have an agricultural land easement plan that promotes the long-term viability of the land. Under the Agricultural Land component, NRCS may contribute up to 50 percent of the fair market value of the agricultural land easement. Where NRCS determines that grasslands of special environmental significance will be protected, NRCS may contribute up to 75 percent of the fair market value of the agricultural land easement.

Wetland Reserve Easements: NRCS also provides technical and financial assistance to restore, protect, and enhance wetlands through the purchase of a wetland reserve easement. These agreements include the right for NRCS to develop and implement a wetland reserve restoration easement plan to restore, protect, and enhance the wetland's functions and values. Land eligible for wetland reserve easements includes farmed or converted wetland that can be successfully and cost-effectively restored. NRCS will prioritize applications based on the easement's potential for protecting and enhancing habitat for migratory birds and other wildlife. For acreage owned by an Indian tribe, there is an additional enrollment option of a 30-year contract. Through the wetland reserve enrollment options, NRCS may enroll eligible land through one of the following:

- Permanent Easements – These are conservation easements in perpetuity. NRCS pays 100 percent of the easement value for the purchase of the easement. Additionally, NRCS pays between 75 to 100 percent of the restoration costs.

- 30-year Easements – These expire after 30 years. Under 30-year easements, NRCS pays 50 to 75 percent of the easement value for the purchase of the easement. Additionally, NRCS pays between 50 to 75 percent of the restoration costs.
- Term Easements – Term easements are easements made for the maximum duration allowed under applicable State laws. NRCS pays 50 to 75 percent of the easement value for the purchase of the term easement. Additionally, NRCS pays between 50 to 75 percent of the restoration costs.
- 30-year Contracts – 30-year contracts are only available to enroll acreage owned by Indian tribes, and program payment rates are commensurate with 30-year easements.

For wetland reserve easements, NRCS pays all costs associated with recording the easement in the local land records office, including recording fees, charges for abstracts, survey and appraisal fees, and title insurance.

Wetland Reserve Enhancement Partnership – The 2014 Farm Bill replaced the Wetland Reserve Enhancement Program with the Wetland Reserve Enhancement Partnership (WREP) as an enrollment option under ACEP. WREP continues to be a voluntary program through which NRCS signs agreements with eligible partners to leverage resources to carry out high priority wetland protection, restoration, and enhancement and to improve wildlife habitat.

- Partner benefits through WREP agreements include:
  - Wetland restoration and protection in critical areas
  - Ability to cost-share restoration or enhancement beyond NRCS requirements through leveraging
  - Able to participate in the management or monitoring of selected project locations
  - Ability to use innovative restoration methods and practices

In 2016, NRCS made $15 million in financial and technical assistance available to help eligible conservation partners leverage local resources to voluntarily protect, restore, and enhance critical wetlands on private and tribal agricultural land nationwide. The funding is provided through the WREP, a special enrollment option under the Agricultural Conservation Easement Program. Proposals were due to the local NRCS offices by May 16, 2016; however, landowners should check with the NRCS to see about applying in future years. To enroll land eligible partners may submit proposals to the local NRCS office (https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/).

It should also be noted that ACEP is a program that is based on the 2014 Farm Bill, which expires at the end of the federal fiscal year 2018. Therefore, the future of this and other USDA programs discussed in this section is dependent on the passage of another Farm Bill.

3.9.3.6 Environmental Quality Incentive Program

EQIP is a voluntary program that provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air, and related natural resources on agricultural land and non-industrial private forestland. Through EQIP, the NRCS develops contracts with agricultural producers to implement conservation practices to address environmental natural resource problems. Persons engaged in livestock or agricultural production and owners of non-industrial private forestland are eligible for the program. Eligible land includes cropland, rangeland, pastureland, private non-industrial forestland, and other farm or ranch lands. Eligible applicants must, at a minimum, meet the following criteria; additional program requirements may apply:

- Be agricultural producer (person, legal entity, or joint operation who has an interest in the agricultural operation, or who is engaged in agricultural production or forestry management).
- Control or own eligible land.
- Comply with adjusted gross income for less than $900,000. Note: Federally recognized Native American Indian Tribes or Alaska Native corporations are exempt from the adjusted gross income payment limitations.
- Be in compliance with the highly erodible land and wetland conservation requirements.
- Develop an NRCS EQIP plan of operations that addresses at least one natural resource concern

Persons interested in entering into a cost-share agreement with the NRCS for EQIP assistance may file an application at any time; however, each state may establish deadlines for one or more application periods in which to consider eligible applications for funding. Applications submitted after the deadlines will be evaluated and considered for funding during later funding opportunities.

As part of the program, a Conservation Activity Plan can be developed for producers to address a specific natural resource concern on their agricultural operation. Each plan is developed by a certified Technical Service Provider, who is selected by the EQIP participant. Technical assistance payments for Technical Service Providers do not count against the financial assistance aggregate payment limitation or the contract financial assistance payment limitation. The plan becomes the basis of the EQIP contract between NRCS and the participant, and the contracts can be up to 10 years in duration. Financial assistance payments are made to eligible producers once conservation practices are completed according to NRCS requirements. Payment rates are set for each fiscal year and are attached to the EQIP contract when it is approved.

Historically underserved producers (limited resource farmers/ranchers, beginning farmers/ranchers, socially disadvantaged producers, Indian Tribes, and veteran farmer or ranchers) who self-certify on Form NRCS-CPA-1200, Conservation Program Application are eligible for a higher practice payment rate to support implementation of contracted conservation practices and activities. Historically underserved producers may also be issued advance

payments up to 50 percent of the established payment rate to go toward purchasing materials or contracting services to begin installation of approved conservation practices. Self-certified socially disadvantaged farmer/rancher, beginning farmer/rancher, and veteran farmer/rancher producers may elect to be evaluated in special EQIP funding pools. More information can be obtained from the local NRCS office.

EQIP provides payments up to 75 percent of the incurred costs and 100 percent estimated income foregone of certain conservation practices and activities. Payments received by producers through EQIP contracts after February 7, 2014 may not exceed $450,000 for all EQIP contracts entered during the period from 2014 to 2018. Payment limitations for organic production may not exceed an aggregate $20,000 per fiscal year or $80,000 during any 6-year period for installing conservation practices.

Conservation practices eligible for EQIP funding which are recommended BMPs for this watershed TMDL include filter strips, conservation tillage, grade stabilization structures, grass waterways, riparian buffers, streambank/shoreline protection, terraces, and wetland restoration. More information regarding state and local EQIP implementation can be found at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/?cid=nrcseprd1328235.

It should also be noted that EQIP is a USDA program, the description of which is based on the 2014 Farm Bill, which expires at the end of the federal fiscal year 2018. Therefore, the future of this and other USDA programs discussed in this section is dependent on the passage of another Farm Bill.3.9.4 Local Program Contact Information

The FSA administers the CRP. NRCS administers the ACEP, CSP, and EQIP. Local contact information for counties containing some portion of the Upper Fox River/Chain O'Lakes watershed are listed in the **Table 3-10** below.

Table 3-10 Local SWCD and NRCS Contact Information

County	Address	Phone
Lake County	1648 S Eastwood Drive Woodstock, IL 60098	(815) 338-0099
McHenry County	1648 S Eastwood Drive Woodstock, IL 60098	(815) 338-0099

3.10 Planning Level Cost Estimates for Implementation Measures

Cost estimates for different implementation measures are presented in **Table 3-11**. The column labeled "Program" or "Sponsor" lists the financial assistance program or sponsor available for various BMPs (as discussed in Section 3.8). Illinois EPA 319 Grants are applicable to all of the practices.

Table 3-11 Cost Estimates of Various BMP Measures

BMP	Units	Installation Cost	Program[1]	Sponsor(s)
Filter strip (seeded)	per ac	$520 - $639, avg. $594	CRP, CPP	FS, IDA
Riparian buffer – bare-root shrubs	each	$1.10 - $1.65	CRP, CPP	FSA, IDA
– forested	per ac	$741		
– herbaceous cover	per ac	$642		
– land preparation	per ac	$38		
Nutrient management	per ac	$13 - $35	EQIP	NRCS
Nutrient management plan – federal	per ac	$1,741 - $2,902	EQIP	NRCS
– state	per plan	$13	NMP Project	IDA, Illinois EPA
Bank stabilization	per ac	$27 - $52/ft.	SSRP	IDA
– weirs/rock riffles	each	$2,448 - $6,305		
– TRMs	per SF	$0.60		
– conservation cover	per ac	$583.66 - $1,243.89		
– stream barb/bendway weir with longitudinal peaked stone toe	per ft.	$27.27 - $52.50		
– bank armor	per CY	$37.55		
Vegetated swales	per ac	$2,569 - $4,015	CRP CPP	IDA NRCS
– <35 ft. top width	per ac	$2,569		
– <35 ft. top width, with checks	per ac	$3,284		
– 35-55 ft. top width	per ac	$2,709		
– 35-55 ft. top width, with checks	per ac	$3,516		
– >55 ft. top width	per ac	$3,253		
– >55 ft. top width, with checks	per ac	$4,015		
Wetland – enhancement/restoration	per ac	$1,167 - $3,680	ACEP	NRCS
– constructed	per ac	$7,725 - $10,286		
Green roofs	per SF	$15 - $20		
Bio-retention cell – high permeability soils	per SF	$1.50 - $3.00		
– low permeability soils	per SF	$4.00 - $6.00		
Septic system maintenance	per event	$250 - $350	Private system owner	

ac = acre
ft. = foot
CY = cubic yard
SF = square foot
1) Programs in addition to Illinois EPA 319 Grants, for which all of the listed BMPs are eligible.

3.11 Milestones and Monitoring

3.11.1 Interim Measurable Milestones and Schedule

Successful plan implementation relies on establishing and tracking milestones to measure progress. **Table 3-12** below identifies these milestones and a schedule for meeting each milestone. Stakeholders should evaluate milestone progress on an annual basis and implement adaptive management to modify management measures, milestones, and schedule as necessary. More detailed information regarding interim measurable milestones can be found in each of the

existing watershed based plans and can provide insight into the measures and milestones generally targeted on short-term (approximately 1-2 years), mid-term (2-5 years), and long-term bases (10 years or more).

Implementation of the management actions outlined in this section should occur in phases, often over the course of several years, with effectiveness assessments made as improvements are completed. The process of obtaining funding, and developing and implementing projects designed to improve water quality, can take months or years to complete and once in place, improvements in water quality as a result of BMPs may not be detectable for several years. Continued monitoring and reevaluation of the implementation measures during this time will allow for more expedient adjustment to BMP implementation measures that may result in earlier attainment of water quality targets.

Monitoring of water quality within the Upper Fox River/Chain O'Lakes watershed, to evaluate the effectiveness of established BMPs, will depend upon the Illinois EPA Ambient Lake Monitoring Program (ALMP), Lake County Health Department (LCHD) Lakes Management Unit and the Volunteer Lake Monitoring Program (VLMP). The ALMP monitors chemical, physical, and biological conditions of lakes and ponds in three regions (northern, central, and southern Illinois, the former of which applies to this watershed). Regular monitoring from this program is used to establish applicable designations for Section 303(d), 305(b), and 314(a)(1) of the Clean Water Act, which would determine whether a lake is considered impaired. The ALMP is conducted by the Illinois EPA to diagnose issues, encourage development of management plans, and to evaluate the effectiveness of implemented programs for the lakes. Monitoring occurs five times yearly, including once in the spring, three times in the summer, and once in the fall. The LCHD Lakes Management Unit runs a lake monitoring program in which samples are collected every five years and analyzed for total phosphorus and dissolved oxygen. The VLMP is a group of local stakeholders that collects water quality data on a three-year cycle, and tracks changes and trends in phosphorus concentrations. With this community involvement, along with the efforts of the IEPA, the effectiveness of BMPs within this watershed can be measured, and steps can be taken to ensure that the implementation milestones of this plan are met.

Table 3-12 Implementation Milestones

Milestones	Description	Estimated Schedule
Funding	Develop grant applications	Short term: 2 years
Implement Short-term Projects	Identify and implement short-term pilot projects that can be completed (i.e. willing landowners and available funding)	Mid-term: 2-5 years
Monitoring	Implement monitoring plan	Continuous: 1-20 years
Annual Stakeholder meetings	Stakeholders will convene at once a year to gauge progress and discuss evolving needs and planned activities	Annually
Implement Larger Projects	Identify and implement larger projects. These projects are more likely to have multiple funding sources and stakeholders.	Mid- to Long-Term: 5-10 years
Education and outreach	Prepare and implement and education and outreach plan. Conduct at least two public meetings annually.	Immediate: 1-2 years

3.11.2 Monitoring Plan

The purpose of the monitoring plan for the Upper Fox River/Chain O'Lakes watershed is to assess the overall implementation of management actions outlined in this section. This can be accomplished by conducting the monitoring programs designed to:

- Track implementation of BMPs in the watershed by quantifying executed BMPs, such as linear feet of bank stabilization, acres of porous pavement, number of restored wetlands, etc.
- Estimate effectiveness of BMPs by monitoring pollutant-load reductions downgradient of BMPs.
- Further monitor point source discharges in the watershed throughout the duration of the permit to ensure the facilities remain in compliance.
- Continued monitoring of impaired stream segments and tributaries by Illinois EPA, Lake County Health Department, and/or other entities.
- Monitoring of storm-based high flow events by IEPA or volunteer organizations.
- Low flow monitoring of total phosphorus, DO, TSS, and fecal coliform in impaired streams and lakes

Tracking the implementation of management measures can be used to:

- Determine the extent to which management measures and practices have been implemented compared to action needed to meet the TMDL endpoints
- Establish a baseline from which decisions can be made regarding the need for additional incentives for implementation efforts
- Measure the extent of voluntary implementation efforts
- Support work-load and costing analysis for assistance or regulatory programs
- Determine the extent to which management measures are properly maintained and operated

Estimating the effectiveness of the BMPs implemented in the watershed could be completed by monitoring before and after the BMP is incorporated into the watershed. Additional monitoring could be conducted on specific structural systems such as a sediment control basin. Inflow and outflow measurements could be conducted to determine site-specific removal efficiency.

In addition to the ALMP discussed, Illinois EPA conducts Intensive Basin Surveys every 5 years. Additionally, select ambient sites are monitored nine times a year. The Lake County Health Department (LCHD) Lakes Management Unit monitors each lake in their purview on a regular and rotating basis and assessment reports are produced for each lake every two to nine years. Continuation of these monitoring programs will result in ongoing assessment of lake and stream

water quality as improvements in the watershed are completed. This data will also be used to assess whether water quality standards in the impaired segments are being attained.

3.11.3 Success Criteria

Measuring the plan's success depends largely on tracking the milestones outlined above. Implementing BMPs should equate to improved water quality and attainment of designated uses and water quality standards. Monitoring pollutant-load reductions will be the primary success criteria. Key components include:

- Securing funding for priority projects within 5 years
- Meeting the identified milestones
- Meeting 25-50% of target reductions within 10 years
- Meeting 100% of target reductions within 20 years
- Utilizing adaptive management to ensure best practices
- Delisting of the impaired waterbodies

Section 4

Public Participation

4.1 Upper Fox River/Chain O' Lakes Watershed Public Participation Summary

Public knowledge, acceptance, and follow-through are necessary to implement a plan to meet recommended TMDLs and LRSs. It is important to involve the public as early in the process as possible to achieve maximum cooperation and counter concerns as to the purpose of the process and the regulatory authority to implement any recommendations.

Illinois EPA, along with ENSR/AECOM, held a Stage 1 public meeting in the Upper Fox River/Chain O' Lakes Watershed at the University Center of Lake County, in Grayslake, Illinois on August 25, 2009. Comments received through the public meeting process are included in Appendix F of the Stage 1 Report.

An additional public meeting was held by Illinois EPA and CDM Smith to present the Stage 3 TMDL results and implementation plan on May 14, 2019 at the Fox Waterway Agency's facility in Fox Lake, Illinois. A responsiveness summary addressing comments received through the Stage 3 public meeting and public notice process is included in **Appendix G** of this report.

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Section 5

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Appendix A
TMDL Final Stage 1 Report

Prepared for:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Upper Fox River/Chain O' Lakes Watershed TMDL Final Stage 1 Report

AECOM, Inc.
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AECOM

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Executive Summary

As required by Section 303(d) of the Clean Water Act (CWA), the Illinois Environmental Protection Agency (Illinois EPA) is required to identify and list all state waters that fail to meet water quality standards and designated uses. This list is referred to as the 303(d) list and is revisited every two years to either remove those waters that have attained their designated uses, or to include additional waters not previously deemed impaired. Waterbodies included on the 303(d) list require Total Maximum Daily Load (TMDL) development.

A TMDL is an estimation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. It assesses contributing point and nonpoint sources to identify pollutant reductions necessary for designated use attainment. A TMDL identifies the sources of impairment and provides reduction estimates to meet water quality standards. Pollutant reductions are then allocated to contributing sources, thus triggering the need for pollutant control and increased management responsibilities amongst sources in the watershed.

For the Upper Fox River/Chain O' Lakes watershed, 31 impaired waterbodies were identified for TMDL development. The Upper Fox River/Chain O' Lakes watershed is located in Lake, McHenry, Kane and Cook Counties in far northeastern Illinois, and extends north into Wisconsin. The waterbody classification applicable to the Upper Fox River/Chain O' Lakes watershed is the General Use classification which includes designated uses such as aquatic life, aesthetic quality, and primary contact recreation uses. The identified impairments include dissolved oxygen (DO), fecal coliform, pH, total phosphorus and ammonia. The water quality standard criteria identified for these impairments provide an explicit assessment as to whether or not these waterbodies are in compliance.

Available data used for assessing these waterbodies originated from numerous water quality stations within the Upper Fox River/Chain O' Lakes watershed. Data were obtained from both legacy and modernized US EPA Storage and Retrieval (STORET) databases, Lake County data, Fox River Study Group data, and Illinois EPA database data. Data relevant to impairments were compiled for each impaired waterbody and summary statistics were calculated to further characterize each pollutant.

Various models were recommended for TMDL development, the level of which was primarily based on the complexity of the system and the availability of data. After a careful data review, it is likely that the dissolved oxygen, pH and ammonia impairments are related to excessive phosphorus concentrations, and therefore phosphorus TMDLs were recommended. For the majority of the phosphorus impaired waterbodies, the Lake Loading Response Model (LLRM) is recommended for loading analysis. A more complex simulation of phosphorus loading is suggested for the "Chain O' Lakes" portion of this watershed. A load duration curve is recommended for fecal coliform TMDLs.

1.0 Introduction

This Stage 1 Total Maximum Daily Load (TMDL) report is presented as partial fulfillment by the Illinois Environmental Protection Agency (Illinois EPA) and the United States Environmental Protection Agency (US EPA) in the development of TMDLs, as part of that state's Clean Water Act (CWA) Section 303(d) compliance. The purpose of the project is to develop TMDLs for 31 impaired waterbodies in the Upper Fox River/Chain O' Lakes watershed in Illinois.

Section 303(d) of the CWA and US EPA's Water Quality Planning Regulations (40 CFR Part 130) require states to develop TMDLs for impaired waterbodies that are not supporting designated uses or meeting water quality standards. A TMDL is a calculation of the maximum amount of pollutants that a waterbody can receive and still meet the water quality standards necessary to protect the designated beneficial use (or uses) for that waterbody. The TMDL process establishes the allowable loadings of pollutants for a waterbody based on the relationship between potential pollutant sources and water quality conditions, so that states and local communities can establish water quality based controls to reduce pollutants from both potential point and nonpoint sources and restore and maintain the quality of their water resources.

Water is an essential resource for the inhabitants of the Earth and protecting this resource is the goal for many across the globe. United States policies and regulations, such as the CWA, were created and are implemented to help maintain the quality of our water resources in the United States. The US EPA, via the CWA, charged each state with developing water quality standards (WQS). These WQS are laws or regulations that states authorize to protect and/or enhance water quality, to ensure that a waterbody's designated use (or uses) is (are) not compromised by poor water quality and to protect public health and welfare. In general, WQS consist of three elements:

- The designated beneficial use (e.g., recreation, protection of aquatic life, aesthetic quality, and public and food processing water supply) of a waterbody or segment of a waterbody,
- The water quality criteria necessary to support the designated beneficial use of a waterbody or segment of a waterbody, and
- An anti-degradation policy, so that water quality improvements and waterbodies having higher water quality than minimally required to meet their designated uses are conserved, maintained and protected.

The Illinois Pollution Control Board (IPCB) established its WQS in Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter 1: Pollution Control Board, Part 302: Water Quality Standards. Every two years Illinois EPA submits the Illinois Integrated Water Quality Report and Section 303(d) List. This report documents surface and groundwater conditions throughout the state. The 303(d) List portion of this report identifies impaired water bodies, grouped by watershed, and identifies suspected sources of impairment. These waters are prioritized for TMDL development into high, medium, and low categories based on designated use and pollution severity and are then targeted for TMDL development. Non-pollutant causes of impairment, such as habitat degradation and aquatic algae are not addressed under the TMDL, but can address by programs such under the 319 program and other nonpoint source grant programs. Some nonpollutants may be addressed by reducing pollutants which a TMDL is developed. For example, some implementation activities to reduce phosphorus can reduce TSS, excessive algae and improve habitat.

A TMDL is a calculation of the maximum load a waterbody can be receive without exceeding water quality standards or result in non attainment of a designated use. A watershed's TMDL report consists of data analysis to quantitatively assess water quality, documentation of waterbodies or segments of waterbodies that are impaired, and identification of potential contributing sources to impairment. Based on these data, the amount and type of load reduction that is needed to bring water quality into compliance is calculated. The

TMDL report provides the scientific basis for states and local communities to establish water quality-based controls to reduce pollutant loads from both potential point (i.e., wasteload allocations) and non-point sources (i.e., load allocations).

Illinois EPA uses a three-stage approach to develop TMDLs for a watershed:

- **Stage 1** – Watershed characterization, historical dataset evaluation, data analysis, methodology selection, data gap identification;
- **Stage 2** – Data collection to fill in data gaps, if necessary; and
- **Stage 3** – Model calibration, TMDL scenarios, and implementation plans.

The purpose of Stage 1 is to characterize the watershed background; verify impairments in the listed waterbody by comparing observed data with water quality standards or appropriate targets; evaluate spatial and temporal water quality variation; provide a preliminary assessment of sources contributing to impairments; and describe potential TMDL development approaches. If available water quality data collected for the watershed are deemed sufficient by Illinois EPA, Stage 2 may be omitted and Stage 3 will be completed. If sufficient water quality data or supporting information are lacking for an impaired waterbody, then Stage 2 is required and field sampling will be conducted in order to obtain necessary data to complete Stage 3.

This report documents Stage 1 in the Illinois EPA approach for TMDL development. The report is organized into six main sections. Section 1.0 discusses the definition of TMDLs and targeted impaired waterbodies in the Upper Fox River/Chain O' Lakes watershed, for which TMDLs will be developed. Section 2.0 describes the characteristics of the watershed, and Section 3.0 briefly discusses the process of public participation and involvement. Section 4.0 describes the applicable water quality standards and water quality assessment. Section 5.0 presents the assessment and analysis of available water quality data. Section 6.0 provides a description of each impaired segment's watershed and potential sources. Section 7.0 discusses the methodology selection for the TMDL development, the data gaps, and provides recommendations for additional data collection, if necessary.

1.1 Definition of a Total Maximum Daily Load (TMDL)

According to the 40 CFR Part 130.2, the TMDL (the maximum load a waterbody can be receive without exceeding water quality standards or result in non attainment of a designated use) for a waterbody is equal to the sum of the individual loads from point sources (i.e., wasteload allocations or WLAs), and load allocations (LAs) from nonpoint sources (including natural background conditions). Section 303(d) of the CWA also states that the TMDL must be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety (MOS) which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. In equation form, a TMDL may be expressed as follows:

$$\mathbf{TMDL = WLA + LA + MOS}$$

Where:

WLA = Waste Load Allocation (i.e., loadings from point sources);
LA = Load Allocation (i.e., loadings from nonpoint sources including natural background); and
MOS = Margin of Safety.

TMDLs can be expressed in terms of either mass per time, toxicity or other appropriate measures [40 CFR, Part 130.2 (i)]. US EPA recommends that all TMDLS and associated LA and WLAs be expressed in terms of daily increments but may include alternative non-daily expression of pollutant loads to facilitate implementation of the applicable water quality standard. Numerous methods have been developed that help account for the

variability of waterbodies and allow for the derivation of a daily load from a non-daily load. Such methods can account for factors such as seasonality, flow, critical conditions, etc. and translate a non-daily load (e.g. annual, monthly, seasonal) to a daily load. TMDLs also shall take into account the seasonal variability of pollutant loading and hydrology to ensure water quality standards are met in all seasons and during all hydrologic conditions. Though not required by CWA, Illinois EPA requires that an implementation plan be developed for each watershed, which may be used as a guideline for local stakeholders to restore water quality. This implementation plan will include recommendations for implementing best management practices (BMPs), cost estimates, institutional needs to implement BMPs and controls throughout the watershed, and time frame for completion of implementation activities.

The MOS accounts for the lack of knowledge or uncertainty concerning the true relationship between loading and attainment of water quality standards. This uncertainty is often a product of data gaps, either temporally or spatially, in the measurement of water quality. The MOS should be proportional to the anticipated level of uncertainty; the higher the uncertainty, the greater the MOS. The MOS is generally based on a qualitative assessment of the relative amount of uncertainty as a matter of best professional judgment (BPJ). The MOS can be either explicit or implicit. If an explicit MOS is used, a portion of the total allowable loading is allocated to the MOS. If the MOS is implicit, a specific value is not assigned to the MOS, but is already factored in during the TMDL development process. Use of an implicit MOS is appropriate when assumptions used to develop the TMDL are believed to be so conservative that they sufficiently account for the MOS.

1.2 Targeted Waterbodies for TMDL Development

In May 2008, Illinois EPA prepared a draft Illinois Integrated Water Quality Report and Section 303(d) List-2008 (commonly referred to as the 303(d) List) to fulfill the requirement of Section 305(b), 303(d) and 314 of the CWA (Illinois EPA, 2008). Under US EPA's review and approval, the report presents a detailed water quality assessment process and results for streams and lakes in the State of Illinois. The water quality assessments are based on biological, physicochemical, physical habitat, and toxicity data. Each waterbody has one or more of designated uses which may include aquatic life, aesthetic quality, indigenous aquatic life (for specific Chicago-area waterbodies), primary contact (swimming), secondary contact (non-swimming recreation), public and food processing water supply, and fish consumption. The degree of support (attainment) of a designated use in a waterbody (or segment) is assessed as Fully Supporting (good), Not Supporting (fair), or Not Supporting (poor). Waters in which at least one applicable use is not fully supported is designated as "impaired." Potential causes and sources of impairment are also identified for these waters. The 303(d) List is prioritized on a watershed basis based on the requirements of 40 CFR Part 130.7(b)(4). Watershed boundaries are based on United States Geological Survey (USGS) ten-digit hydrologic units, to provide the state with the ability to address watershed issues at a manageable level and document improvements to a watershed's health (Illinois EPA, 2008). TMDL development is also conducted on a watershed basis so that the impaired waters upstream of an individual segment may be addressed at the same time.

Table 1-1 presents the 2008 Integrated Report (303(d)) List and Stream Assessment Report impaired segments for the Upper Fox River/Chain O' Lakes watershed. The table includes impaired designated uses and potential causes. The segments in bold font are scheduled for TMDL development and are the focus of this report. TMDLs will not be developed for the lakes with surface area of less than 20 acres since the Illinois phosphorus standards apply only to those lakes where surface acreage is 20 or more acres. Nor will TMDLs be developed for segments impaired by water quality variables that do not have numerical WQS.

One river segment and 30 lakes are identified as impaired and selected for TMDL development in the Upper Fox River/Chain O' Lakes watershed (Illinois EPA, 2008). Table 1-1 summarizes these waterbodies, designated uses, and impairments identified by the Illinois EPA. The designated uses for these waterbodies are primarily aquatic life with some aesthetic quality and primary contact recreation uses. Water quality criteria applicable to these waters are the General Use Water Quality Standards. The identified causes for impairment that have numerical WQS include dissolved oxygen (DO), fecal coliform, pH, ammonia and total phosphorus.

Although there is a numerical standard for DO, DO is considered a non-pollutant by Illinois EPA. The Illinois EPA will ascertain potential causes for low dissolved oxygen using the TMDL process and will develop a TMDL only if the cause is attributable to a pollutant. For example, if a 50-acre lake suffers from low DO due to excessive algal densities which is related to elevated phosphorus concentrations, the Illinois EPA will develop a phosphorus TMDL for this waterbody. A TMDL will not be developed for pollutants listed as causes of impairment without numeric WQS, such as total suspended solids, sedimentation/siltation, and cause unknown. For these causes, the TMDL implementation plan can potentially address the impairment by reducing TMDL parameters that are associated with this impairment. Waterbodies and water quality variables targeted for TMDL development are listed in Table 1-2.

Table 1-1: Illinois 2008 Integrated Report 303(d) and Assessment Report Information for Upper Fox River/Chain-O'-Lakes Watershed

Water ID	Segment Name	Size (acres)	Priority	Designated Use	Potential Causes
IL_DT-35	**Fox River**	**4.90 (miles)**	**Medium**	**Primary Contact Recreation**	**Fecal Coliform**
				Fish Consumption	Polychlorinated biphenyls
				Aquatic Life	Sedimentation/Siltation Total Suspended Solids
IL_RGK	**Grays Lake**	**80.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus**
IL_RGZT	**Spring Lake**	**42.92**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_RTC	**Sun Lake**	**24.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus**
IL_RTD	**Lake Catherine**	**164.68**	**Medium**	**Aesthetic Quality**	**Total Phosphorus**
			Medium	Fish Consumption	Polychlorinated biphenyls
IL_RTF	**Fox Lake**	**1881.12**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
			Medium	Fish Consumption	Mercury, Polychlorinated biphenyls
IL_RTH	**Round Lake**	**228.60**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_RTI	**Channel Lake**	**337.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus**
				Fish Consumption	Mercury, Polychlorinated biphenyls
IL_RTJ	**Long Lake**	**393.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_RTM	East Loon Lake	170.00	Medium	Aesthetic Quality	Cause Unknown
IL_RTQ	**Grass Lake**	**1623.42**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
				Aquatic Life	**Total Phosphorus** Sedimentation/Siltation, Total Suspended Solids
				Fish Consumption	Polychlorinated biphenyls
IL_RTR	**Lake Marie**	**516.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
				Fish Consumption	Mercury, Polychlorinated biphenyls
IL_RTT	**Antioch Lake**	**88.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_RTU	**Pistakee Lake**	**1700.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
				Aquatic Life	**Total Ammonia** **Total Phosphorus** Sedimentation/Siltation, Total Suspended Solids
				Fish Consumption	Mercury, Polychlorinated biphenyls
IL_RTUA	**Nippersink Lake**	**718.16**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
				Aquatic Life	**Total Phosphorus** Total Suspended Solids
IL_RTV	**Redhead Lake**	**50.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_RTZG	**Duck Lake**	**110.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_RTZH	**Wooster Lake**	**98.50**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_RTZJ	Lily Lake	89.00	Medium	Aesthetic Quality	Cause Unknown
IL_RTZL	Sullivan Lake	58.00	Medium	Aesthetic Quality	Cause Unknown
IL_STC	Little Silver Lake	41.00	Medium	Aesthetic Quality	Cause Unknown

Table 1-1: Illinois 2008 Integrated Report 303(d) and Assessment Report Information for Upper Fox River/Chain-O'-Lakes Watershed

Water ID	Segment Name	Size (acres)	Priority	Designated Use	Potential Causes
IL_STG	Leisure Lake	12.00	Medium	Aesthetic Quality	Total Phosphorus Total Suspended Solids
IL_STQ	**Davis Lake**	**36.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus**
IL_STR	**North Churchill Lake**	**62.40**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
				Aquatic Life	**Total Phosphorus** Total Suspended Solids
IL_STS	**South Churchill Lake**	**24.81**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
				Aquatic Life	**Total Phosphorus** Total Suspended Solids
IL_STU	Lake Christa	8.90	Medium	Aesthetic Quality	Total Phosphorus Total Suspended Solids
IL_STW	Hook Lake	82.00	Medium	Aesthetic Quality	Cause Unknown, Total Suspended Solids
IL_STX	Countryside Glen Lake	7.90	Medium	Aesthetic Quality	Total Phosphorus Total Suspended Solids
IL_UTA	Lake Matthews	9.00	Medium	Aesthetic Quality	Total Phosphorus Total Suspended Solids
IL_UTK	Lake Holloway	13.00	Medium	Aesthetic Quality	Total Phosphorus Total Suspended Solids
IL_UTL	Cranberry Lake	16.00	Medium	Aesthetic Quality	Cause Unknown
IL_UTM	**Hidden Lake**	**19.00**	**Medium**	**Aquatic Life**	**Dissolved Oxygen, pH** Total Phosphorus Total Suspended Solids
				Aesthetic Quality	Total Phosphorus Total Suspended Solids
IL_UTV	Cross Lake	88.91	Medium	Aesthetic Quality	Cause Unknown
IL_UTW	**Lake Tranquility**	**26.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_UTX	**Mcgreal Lake**	**24.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus**
IL_UTZ	Lake-Of-The-Hollow	75.00	Medium	Aesthetic Quality	Cause Unknown
IL_VTD	**Deep Lake**	**225.50**	**Medium**	**Primary Contact Recreation**	**Fecal Coliform**
				Aesthetic Quality	Cause Unknown
IL_VTH	**Dunn's Lake**	**68.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_VTJ	**Bluff Lake**	**86.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_VTK	**Fish-Duncan Lake**	**96.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_VTT	**Fischer Lake**	**23.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_VTW	**Petite Lake**	**165.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus**
IL_VTZA	**Turner Lake**	**43.00**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids
IL_VTZX	Owens Lake	5.00	Medium	Aesthetic Quality	Total Phosphorus Total Suspended Solids
IL_WTA	**Summerhill Estates Lake**	**49.90**	**Medium**	**Aesthetic Quality**	**Total Phosphorus** Total Suspended Solids

Those parameters in bold have numeric standards and will have TMDL allocations.

Table 1-2: Waterbodies targeted for TMDL development in the Upper Fox/Chain O' Lakes Watershed

Segment ID	Waterbody Name	Waterbody size (acres)	Impairment
IL_RTT	Antioch Lake	88.0	Total Phosphorus
IL_VTJ	Bluff Lake	86.0	Total Phosphorus
IL_RTD	Lake Catherine	164.7	Total Phosphorus
IL_RTI	Channel Lake	337.0	Total Phosphorus
IL_STQ	Davis Lake	36.0	Total Phosphorus
IL_VTD	Deep Lake	225.5	Fecal Coliform
IL_VTH	Dunn's Lake	68.0	Total Phosphorus
IL_RTZG	Duck Lake	110.0	Total Phosphorus
IL_VTK	Fish-Duncan Lake	96.0	Total Phosphorus
IL_VTT	Fischer Lake	23.0	Total Phosphorus
IL_RTF	Fox Lake	1881.1	Total Phosphorus
IL_DT-35	Fox River	4.9 (miles)	Fecal Coliform
IL_RTQ	Grass Lake[1]	1623.4	Total Phosphorus
IL_RGK	Grays Lake	80.0	Total Phosphorus
IL_UTM	Hidden Lake	19.0	pH, Dissolved Oxygen
IL_RTJ	Long Lake	393.0	Total Phosphorus
IL_RTR	Lake Marie	516.0	Total Phosphorus
IL_UTX	McGreal Lake	24.0	Total Phosphorus
IL_RTUA	Nippersink Lake	718.2	Total Phosphorus
IL_STR	North Churchill Lake	62.4	Total Phosphorus
IL_VTW	Petite Lake	165.0	Total Phosphorus
IL_RTU	Pistakee Lake	1700.0	Total Phosphorus Total Ammonia
IL_RTV	Redhead Lake	50	Total Phosphorus
IL_RTH	Round Lake	228.6	Total Phosphorus
IL_STS	South Churchill Lake	24.8	Total Phosphorus
IL_RGZT	Spring Lake	42.9	Total Phosphorus
IL_WTA	Summerhill Lake	49.9	Total Phosphorus
IL_RTC	Sun Lake	24.0	Total Phosphorus
IL_UTW	Lake Tranquility	26.0	Total Phosphorus
IL_VTZA	Turner Lake	43.0	Total Phosphorus
IL_RTZH	Wooster Lake	98.5	Total Phosphorus

[1] Note that Grays Lake is included in the Upper Fox Lake/Chain O' Lakes watershed but the surface flow from the lake has been diverted via a spillway and storm sewer into the Des Plains watershed (Mill Creek).

2.0 Watershed Characterization

As part of the Stage 1 report, relevant geographic and hydrologic characteristics and general information are obtained for the watershed of interest. This section describes the general characteristics of the Upper Fox River/Chain O' Lakes watershed including location (Section 2.1), topography (Section 2.2), land use (Section 2.3), soil information (Section 2.4), population (Section 2.5), climate and precipitation (Section 2.6) and hydrology (Section 2.7).

2.1 Watershed Location

A watershed is a geographic area that shares a hydrologic connection - all the water within that area drains to a common waterway. Water movement can be influenced by topography, soil composition and water recharge (i.e. precipitation, snow melt, groundwater) ("What is a Watershed", 2007). Watersheds are important because pollution at the water's source may impact water quality in all downgradient areas including its convergence with a common waterway. Understanding the watershed is an essential step in the TMDL process – an essential tool in maintaining water quality standards within Illinois.

The Fox River watershed spans across two states, Wisconsin and Illinois with the headwaters located in Wisconsin. The river flows south into Illinois along the western portion of the Chicago Metropolitan suburban area. The watershed as a whole drains approximately 2,658 square miles (sq mi) with 1,720 sq mi located within Illinois (IDNR 1995) (Figure 2-1). The Fox River flows 115.1 miles from Wisconsin, through several Illinois Counties (Grundy, Kane, Kendall, Lake, La Salle, McHenry and Will) before discharging into the Illinois River at Ottawa.

The Illinois EPA 2008 Integrated Report (303(d)) List and Stream Assessment Report (Illinois EPA, 2008) divides the Fox River watershed into two portions: Upper Fox River watershed (USGS HUC:07120006) and the Lower Fox River watershed (USGS HUC:07120007) (Figure 2-1). The Illinois portion of the Upper Fox River is further divided into five smaller sub-watersheds (10-digit hydrologic unit codes). Three of these sub-watersheds (Nippersink Creek, North Branch Nippersink Creek and Squaw Creek) drain through a hydrologically connected system of lakes, commonly known as the Chain O' Lakes, to the Fox River. This Upper Fox River/Chain O' Lakes watershed drains 362 square miles in Lake and McHenry Counties, representing 50% of the Illinios portion of the Upper Fox River watershed. The Upper Fox River/Chain O' Lakes watershed includes the populous cities such as Round Lake Beach and Woodstock. Figure 2-2 illustrates the Upper Fox River/Chain O' Lakes watershed, the unique collection of lakes and identifies those waterbodies that are listed for TMDL development.

2.2 Topography

Topography influences soil types, precipitation, and subsequently watershed hydrology and pollutant loading. For the Upper Fox River/Chain O' Lakes watershed, a USGS 30-meter resolution Digital Elevation Model (DEM) was obtained from the Illinois Natural Resources Geospatial Data Clearinghouse and used in conjunction with 2-foot Lidar data to characterize the topography. The DEM was then cropped to the extents of the Upper Fox River/Chain O' Lakes watershed, as provided by the Illinois EPA, and analyzed. Figure 2-3 displays elevations in color ramp throughout the watershed.

In general, the higher elevations are located in the east/southeast with a gradation to a lower elevation in the west/northwest toward the Upper Fox River and Chain O' Lakes, resulting in an overall surface water flow from southeast to northwest to the Chain O' Lakes. The percent change of elevation across the Upper Fox River Watershed is approximately 25% and ranges from 915 feet to 730 feet.

Figure 2-1: Fox River Watershed

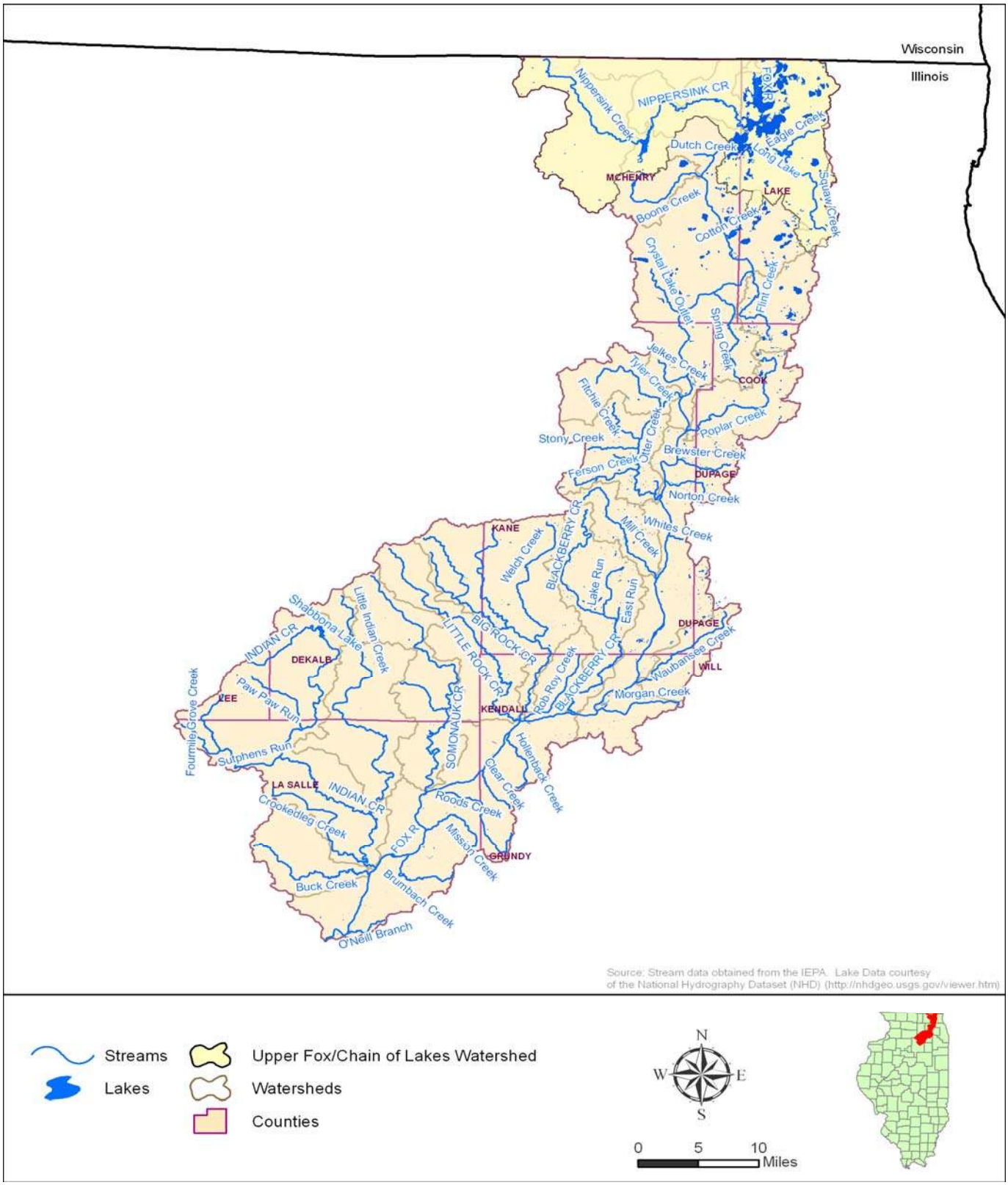


Figure 2-2: Upper Fox River/Chain O' Lakes Watershed Map

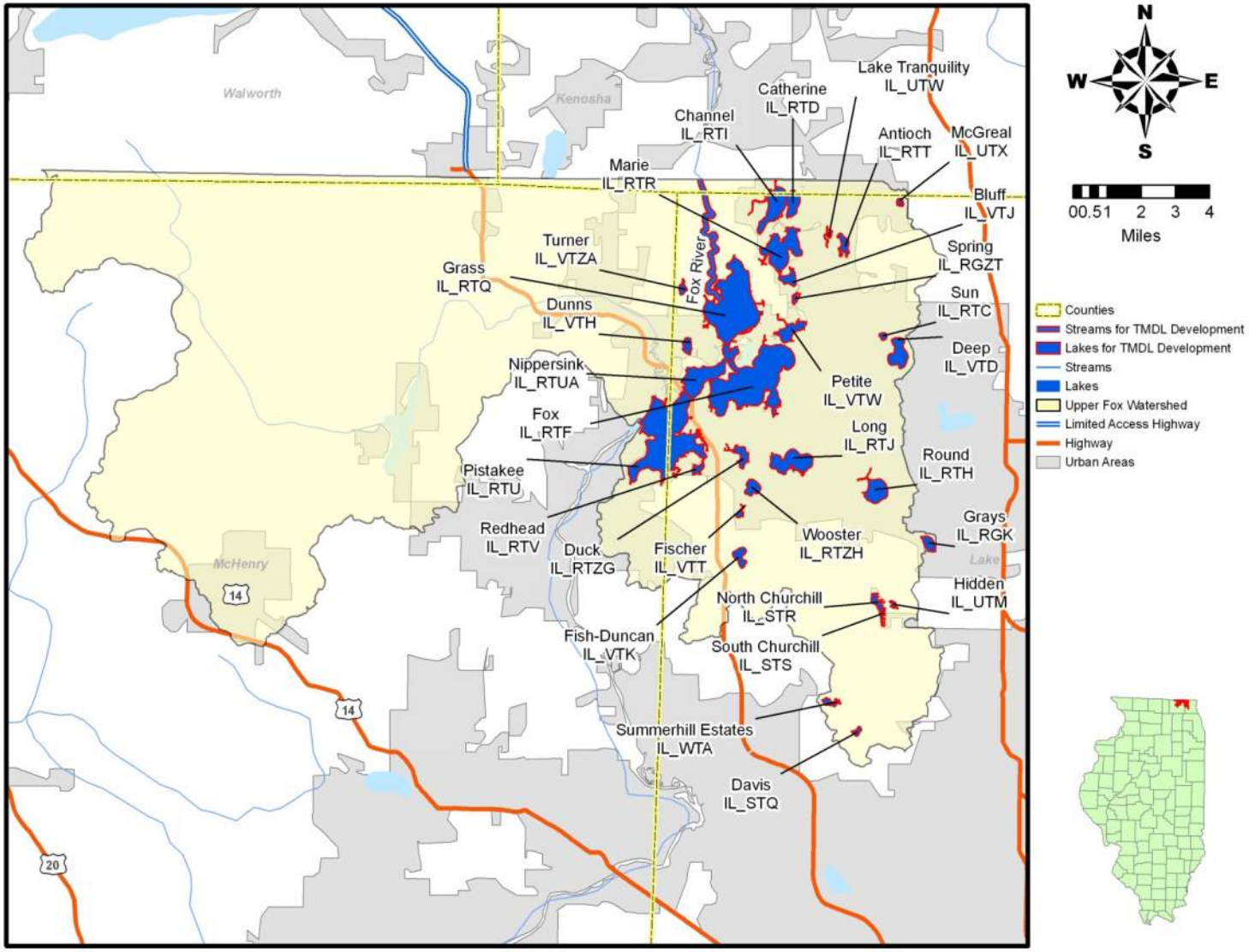
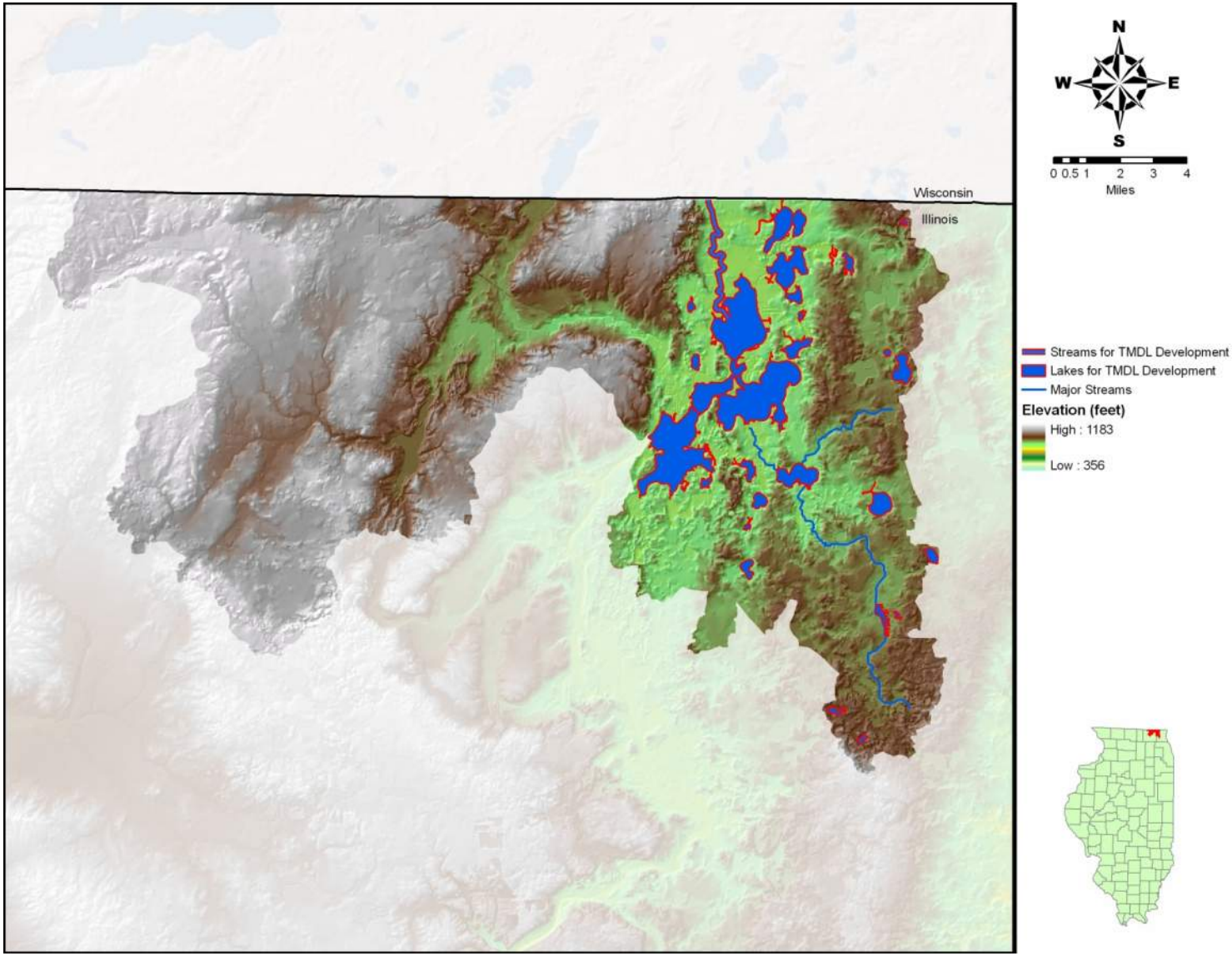


Figure 2-3: Upper Fox River/Chain O' Lakes Watershed Digital Elevation Model (DEM)



The Fox River elevation is 732 feet as it leaves Wisconsin and enters Illinois. It flows southward through the Chain O' Lakes and exits the watershed to the west at about 732 feet. The stream gradient of the Fox River mainstem in this watershed is minimal and is further minimized by the artificially maintained water level by the dam at McHenry (also known as the Stratton Dam), which was constructed in 1907. Although the dam impounds water, the Chain O' Lakes was naturally formed by glaciers.

2.3 Land Use

Land use is as dynamic as the water moving throughout a watershed. It is constantly changing and has a large impact on water quality. Land use data for the portion of Upper Fox River/Chain O' Lakes watershed within Lake County were obtained from Lake County Stormwater Management Commission (SMC). The data set is an update of the 2000 land use inventory data set for the County. The Lake County 2000 land use code definitions have been retained for the most part, but have been modified to identify land uses of special interest to the County and municipalities in 2005.

Land use data for the rest of the watershed were extracted from the 2001 land use inventory provided by the Chicago Metropolitan Agency for Planning (C-MAP). Land use is aggregated to 48 categories, and was created using black and white orthorectified aerial photography that was captured in April 2001. In addition to orthorectified aerial photography for the region, numerous GIS reference layers and several internet resources were used to support the Land Use Inventory. Land use interpretation methods and the consequent classification were conducted using a systematic approach working in thematic waves. The minimum land use classification area size was 1 acre or 2.5 acres (within the City of Chicago 0.5 acre or 1 acre), depending upon the type of land use being classified. Land use categories define homogeneous areas and represent features as they appear on the earth's surface. They are not generalized to any other geography. 2005 land use extents of Lake County were used to remove the exact portion of 2001 land use. The two layers were then merged. Land use codes from each data set were used to define the appropriate description and then combined into the appropriate classes, such as urban, agriculture, forest, water, wetland, barren or exposed lands.

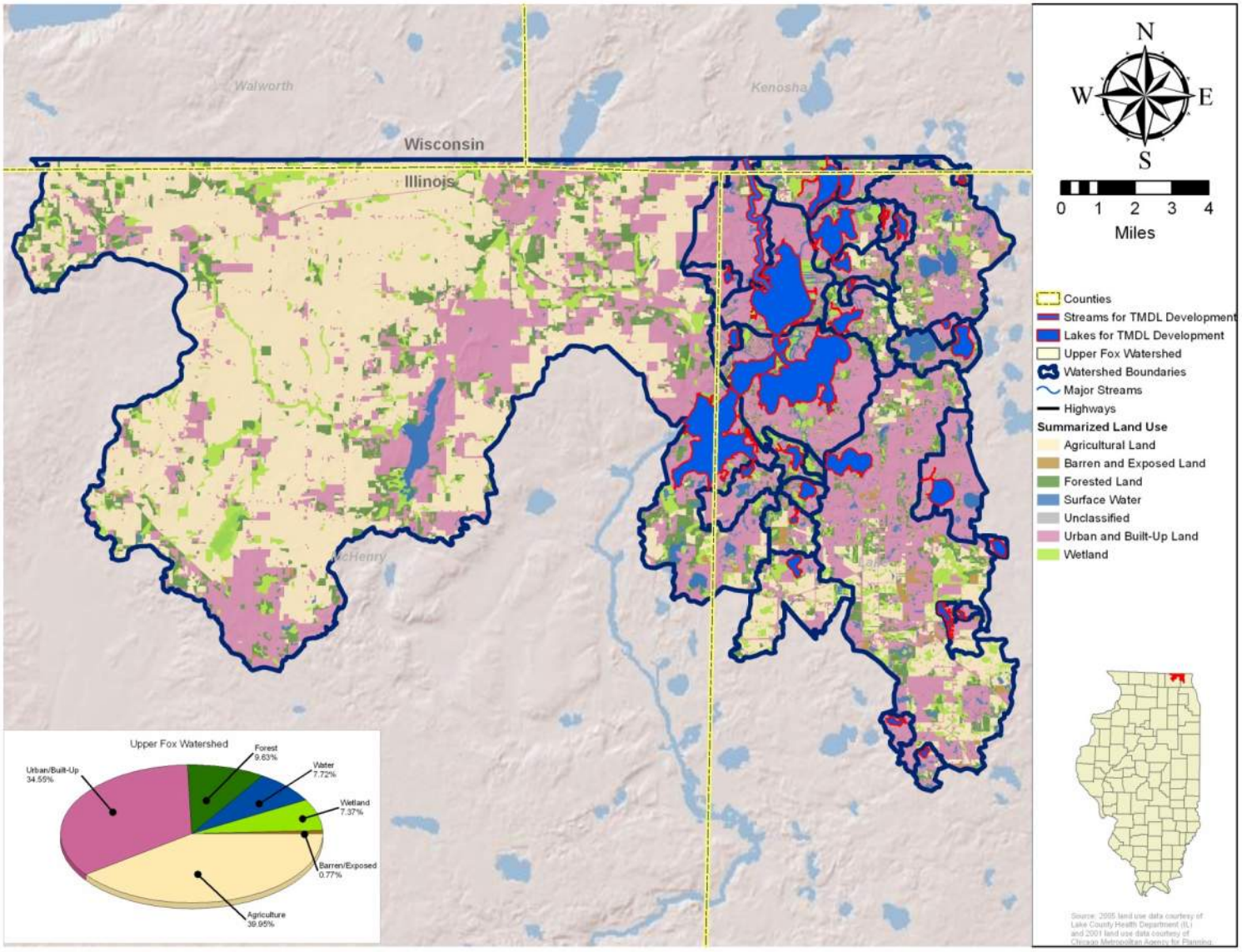
Much of the Upper Fox River/Chain O' Lakes watershed was forested prior to 1840. These forests were clear cut and converted to row crop agriculture. The progression of land use changes from agriculture to residential and urban use has increased with time. Although agricultural areas still dominate the watershed (40%), urban use is a close second, occupying 35% of the total area (Figure 2-4). Much of the urban land is located near the Chain O' Lakes. Forested land accounts for 10%. Surface water and wetlands comprise 8 and 7% of the watershed, respectively.

It is noted that Chicago Metropolitan Agency for Planning (C-MAP) is finalizing the consolidated land use data for the six northeast Illinois Counties. This data will be used for Stage 3 work once available.

2.4 Soils

Soils data and Geographic Information Systems (GIS) files from the Natural Resources Conservation Service (NRCS) were used to characterize soils in the Upper Fox River/Chain O' Lakes watershed. General soils data and map unit delineations for the country are provided as part of the Soil Survey Geographic (SSURGO) database. Field mapping methods using national standards are used to construct the soil maps in the SSURGO database. Mapping scales generally range from 1:12,000 to 1:63,360; SSURGO is the most detailed level of soil mapping prepared by the NRCS. A map unit is composed of several soil series having similar properties. Identification fields in the GIS coverage can be linked to a database that provides information on chemical and physical soil characteristics. The SSURGO database contains many soil characteristics associated with each map unit.

Figure 2-4: Upper Fox River/Chain O' Lakes Watershed Land Use Map



SSURGO data were analyzed based on drainage class (Figure 2-5), hydrologic group (Figure 2-6) and K-factor (Figure 2-7), a coefficient of the Universal Soil Loss Equation (USLE). The drainage class, as stated in the SSURGO database is, "The natural drainage condition of the soil [which] refers to the frequency and duration of wet periods" (Soil Survey Staff, "Table Column Descriptions"). Poorly drained soils can be found in areas where there is frequent flooding such as land adjacent to lakes and streams. Excessively drained areas are also present around the lakes and may be natural in nature or due to anthropogenic sources such as construction of residential and paved areas. The eastern border of the watershed is for the most part, moderately well drained, while portions to the west are well drained.

Soils that remain saturated or inundated for a sufficient length of time become hydric through a series of chemical, physical, and biological processes. Once a soil takes on hydric characteristics, it retains those characteristics even after the soil is drained. Therefore, hydric soils are the best indicator of what is or once was a wetland (SMC 2007). Wetlands help control flooding by retaining water when it rains and then releasing it slowly back into lakes and streams. The longer a soil is inundated the more likely it is that it will become hydric.

The hydrologic soil group classification identifies soil groups with similar infiltration and runoff characteristics during periods of prolonged wetting. Typically, clay soils that are poorly drained have lower infiltration rates, while well-drained sandy soils have the greatest infiltration rates. The United States Department of Agriculture (USDA) has defined four hydrologic groups (A, B, C, or D) for soils. Type A soil has high infiltration while D soil has very low infiltration rate. Figures 2-6 show the distribution of hydrologic soil groups. Generally, areas to the east have a moderately slow infiltration rate (hydrologic group C). Areas near the lakes contain both slow (hydrologic group D) to moderately high infiltration rates (hydrologic group B). High infiltration rates near the lakes may be anthropogenic in nature. The central and much of the western portion of the watershed is mostly hydrologic group B with a moderately high infiltration rate and corresponds to the well drained class.

A commonly used soil attribute of interest is the K-factor, a dimensionless coefficient used as a measure of a soil's natural susceptibility to erosion. Factor values range from 0 for water surfaces to 1.00 (although in practice, maximum K-factor values do not generally exceed 0.67). Large K-factor values reflect greater potential soil erodibility.

The compilation of K-factors from the SSURGO data was performed in several steps. Soils are classified in the SSURGO database by map unit symbol. Each map unit symbol is made up of components consisting of several horizons (or layers). The K-factor was determined by selecting the dominant components in the most surficial horizon per each map unit. The distribution of K-factor values in the Upper Fox River/Chain O' Lakes watershed is shown in Figure 2-7. Areas with the highest K-factor can be found on the western side of the watershed, while the eastern side of the watershed contains moderate to low erosion potential.

Figure 2-5: Upper Fox/Chain O' Lakes SSURGO Drainage Class

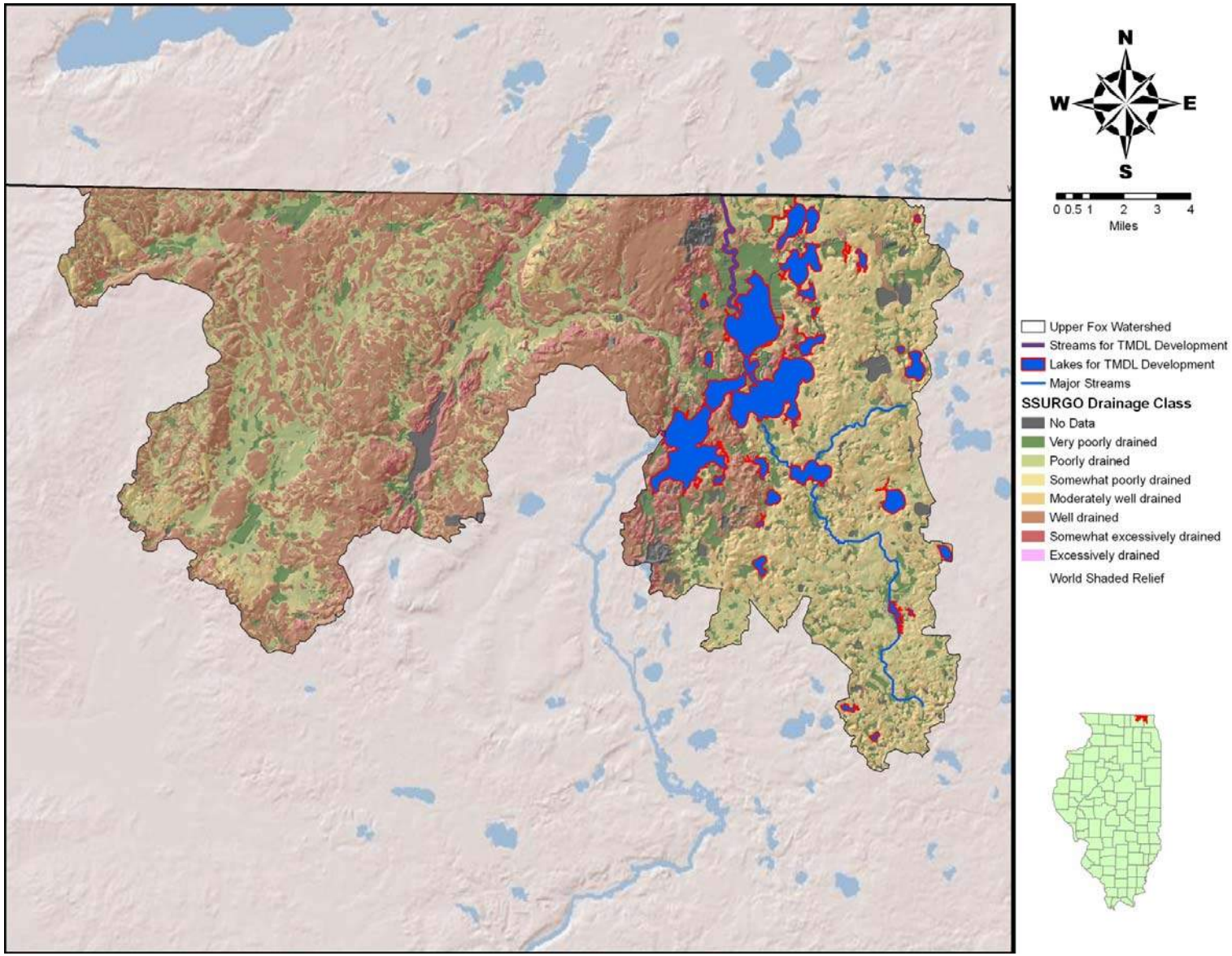


Figure 2-6: Upper Fox/Chain O' Lakes SSURGO Hydrologic Group

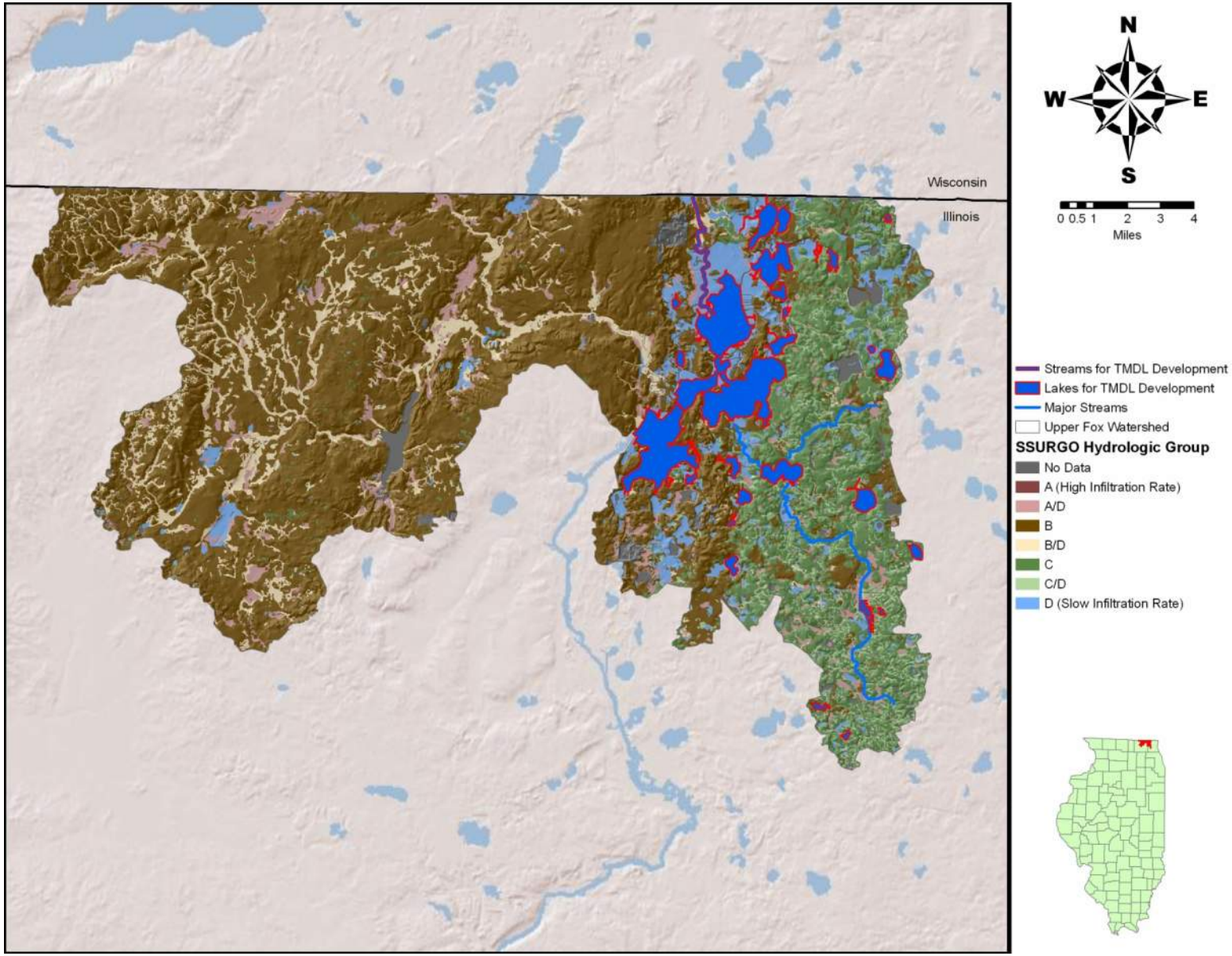
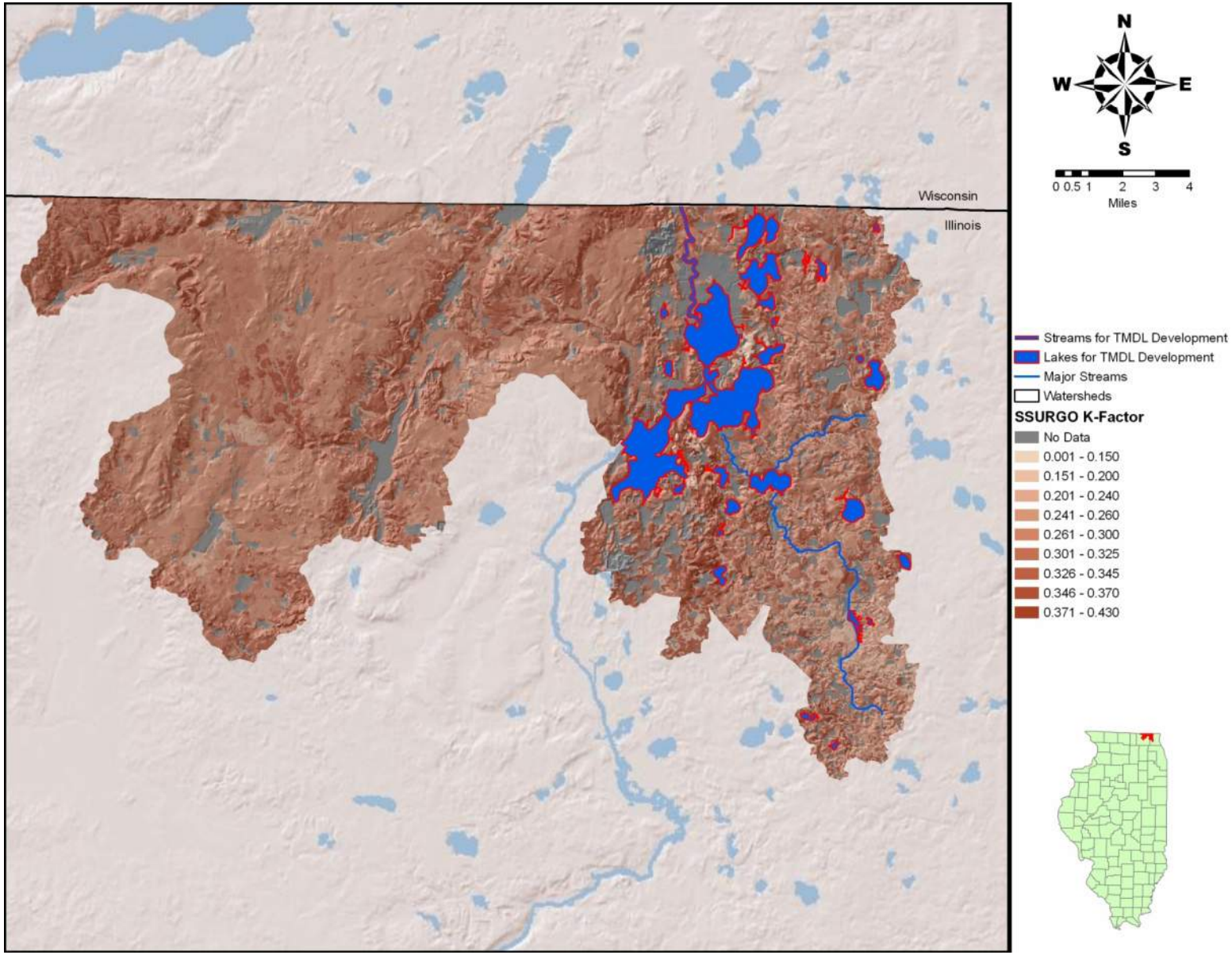


Figure 2-7: Upper Fox/Chain O' Lakes SSURGO K-Factor



2.5 Population

Circumstances in the Upper Fox River/Chain O' Lakes watershed today are not only the product of the geologic and natural processes that have occurred in the watershed, but also a reflection of human impacts and population growth. Development has changed the watershed's natural drainage system as channelization and dredging have replaced slow moving, shallow streams and wetlands. This alteration has affected the way water runs off of the landscape both in increased volume and velocity, resulting in the potential increase in pollutant transport.

The area surrounding the Chain O' Lakes is primarily residential and recreational areas. Land was first developed around the Chain O' Lakes for agriculture in the 1840's. Since that time much of the shorelines of the Chain O' Lakes have been developed for housing, restaurants, marinas and recreation (Kothandaraman et al., 1977). The Fox River watershed as a whole accounts for nearly 11% of the state of Illinois' population at roughly 1,000,000 individuals (McConkey et al., 2004). Census 2000 data in format of TIGER/Line Shape file were downloaded to analyze the population in the targeted TMDL watershed of this report. Census data were also available for groups of census blocks, but the original census block data were used since it is a finer resolution and, therefore, more precise.

The Upper Fox River/Chain O' Lakes watershed accounts for about 198,000 persons with an average of 1,400 persons per square mile. In comparison, the entire Fox River watershed has about 600 persons per square mile. Census blocks with the highest populations can be found in the central western and northwestern portion part of this watershed near the cities of Round Lake Beach and Woodstock, respectively.

The Illinois Department of Commerce and Economic Opportunity provide population projections by municipality on their website ("Population Projections", 2005). Figure 2-8 depicts the percent population change in the watershed from 2000 to 2030. Table 2-1 provides the most recent census population data and projected population numbers by town. In general, the south-central portion of the watershed is projected the most growth at an increase by 7000%. The town of Volo with a population of 180 persons in 2000, is projected to grow to 13,686 persons by 2030 – a significant increase at 7500%. The eastern portion of the watershed will also see growth but not as much as great as the southwest. Antioch and Lake Villa are proposed to grow by 94-248%, while Round Lake Park is said to increase by 249-377%. This magnitude of growth will result in landuse changes and have the potential to impact water quality if these areas are not responsibly developed, utilizing the most effective and innovative technologies to protect the water resources within the Upper Fox River/Chain O' Lakes watershed.

Figure 2-8: Upper Fox River/Chain O' Lakes Population Projection

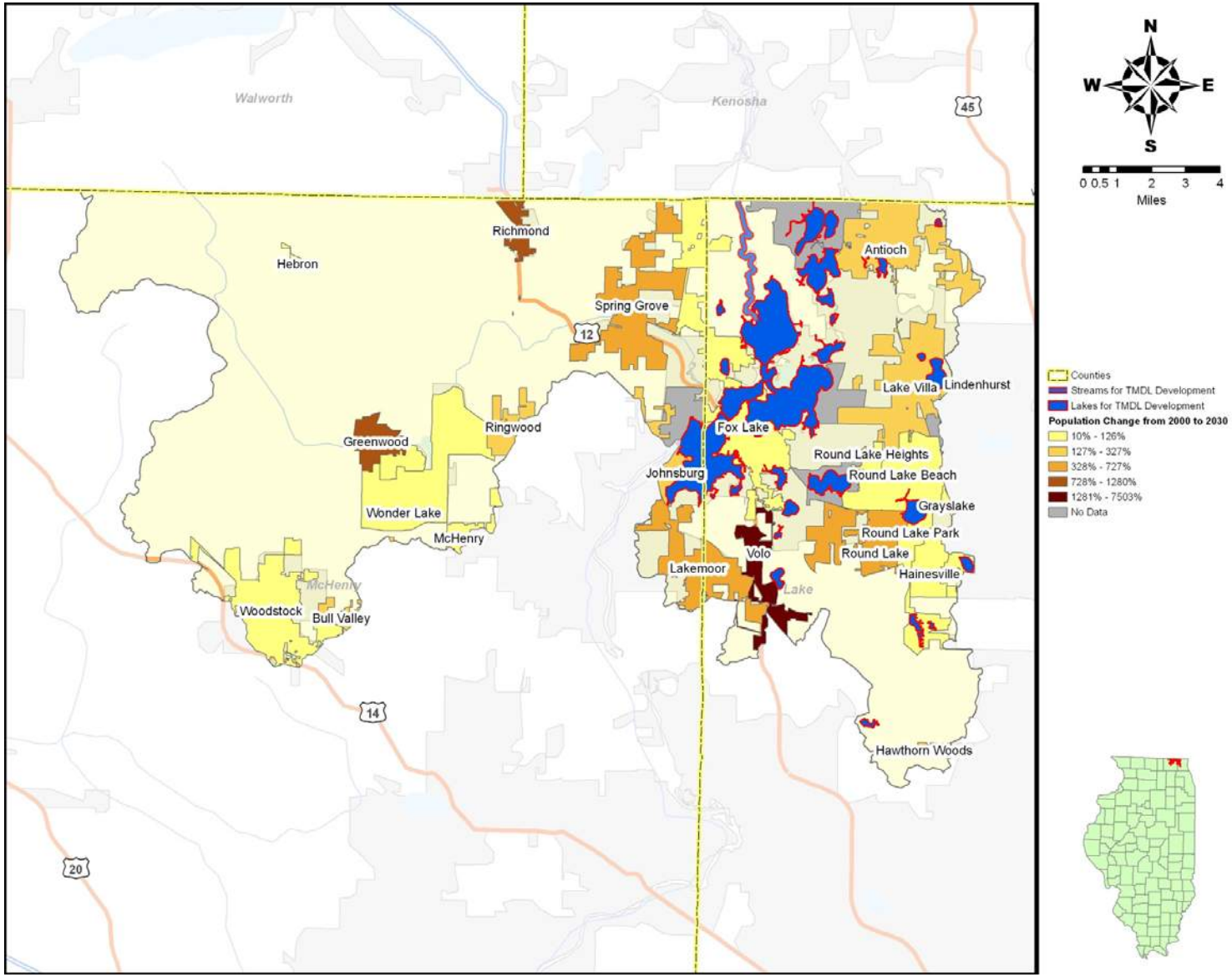


Table 2-1: Upper Fox River/Chain O' Lakes Watershed Population and Projections

Town/Village	2000 Population	2000 Population/Mi^2	Projected 2030 Population	Projected 2030 Population/Mi^2	Area (Mi^2)
Antioch	8788	1209	30594	4208	7.3
Bull Valley	726	127	2435	424	5.7
Fox Lake	9178	1013	12589	1390	9.1
Grayslake	18506	1969	24094	2563	9.4
Greenwood	244	154	3289	2082	1.6
Hainesville	2129	1145	4118	2214	1.9
Hawthorn Woods	6002	1057	15951	2808	5.7
Hebron	1038	1504	2074	3006	0.7
Johnsburg	5391	828	23024	3537	6.5
Lakemoor	2788	614	23055	5078	4.5
Lake Villa	5864	913	16546	2577	6.4
Lindenhurst	12539	3051	19843	4828	4.1
McHenry	21501	1790	48502	4038	12.0
Mundelein	30935	3430	34126	3783	9.0
Richmond	1091	796	15059	10992	1.4
Ringwood	471	196	1890	787	2.4
Round Lake	5842	1583	27338	7409	3.7
Round Lake Beach	25859	5041	29900	5828	5.1
Round Lake Heights	1347	2245	2552	4254	0.6
Round Lake Park	6038	1973	9954	3253	3.1
Spring Grove	3880	598	18523	2854	6.5
Volo	180	68	13686	5145	2.7
Wonder Lake	7463	1077	2715	392	6.9
Woodstock	20151	1923	30522	2912	10.5

2.6 Climate and Precipitation

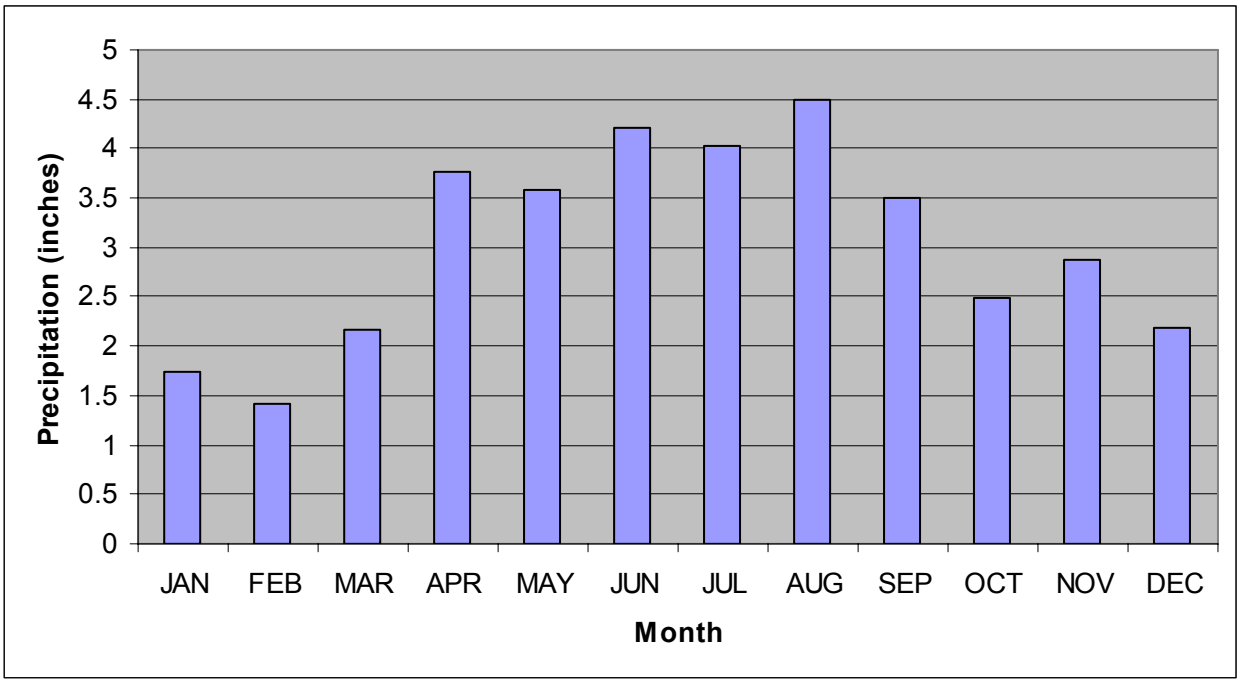
Northeast Illinois has a continental climate, with highly variable weather. The temperatures of continental climates are not buffered by the influence of a large waterbody (like an ocean, inland sea or Great Lake). Areas with continental climates often experience wide temperature fluctuations throughout the year. Summer maximum temperatures are generally in the 80s or low 90s while daily high temperatures in the winter are generally in the 20's or 30's ^{o}F (McConkey, 2004). Temperature and precipitation data were obtained from the Illinois State Climatologist Office website. There are several climate monitoring stations within the Upper Fox/Chain O' Lakes watershed. One of them is in the city of Antioch, which is located north portion of the watershed.

Climate data were analyzed for the city of Antioch between the years of 1971 to 2007 although data were not available for all years. Based on the available data, the mean high summer temperature is 78.9° F and the mean low temperature in winter is 4.9° F. Mean annual high temperatures are about 52° F, while mean annual low temperatures are about 43.9° F.

The mean monthly precipitation in Antioch from 1971-2007 can be found in Figure 2-9. Antioch receives most of its precipitation in the spring and summer months, with the greatest precipitation occurring in August at

around 4.5 inches. The least precipitation is received in February at around 1.42 inches on average. Annual total precipitation averages about 36.5 inches.

Figure 2-9: Mean Monthly Precipitation in Antioch, IL (1971-2000)



2.7 Hydrology

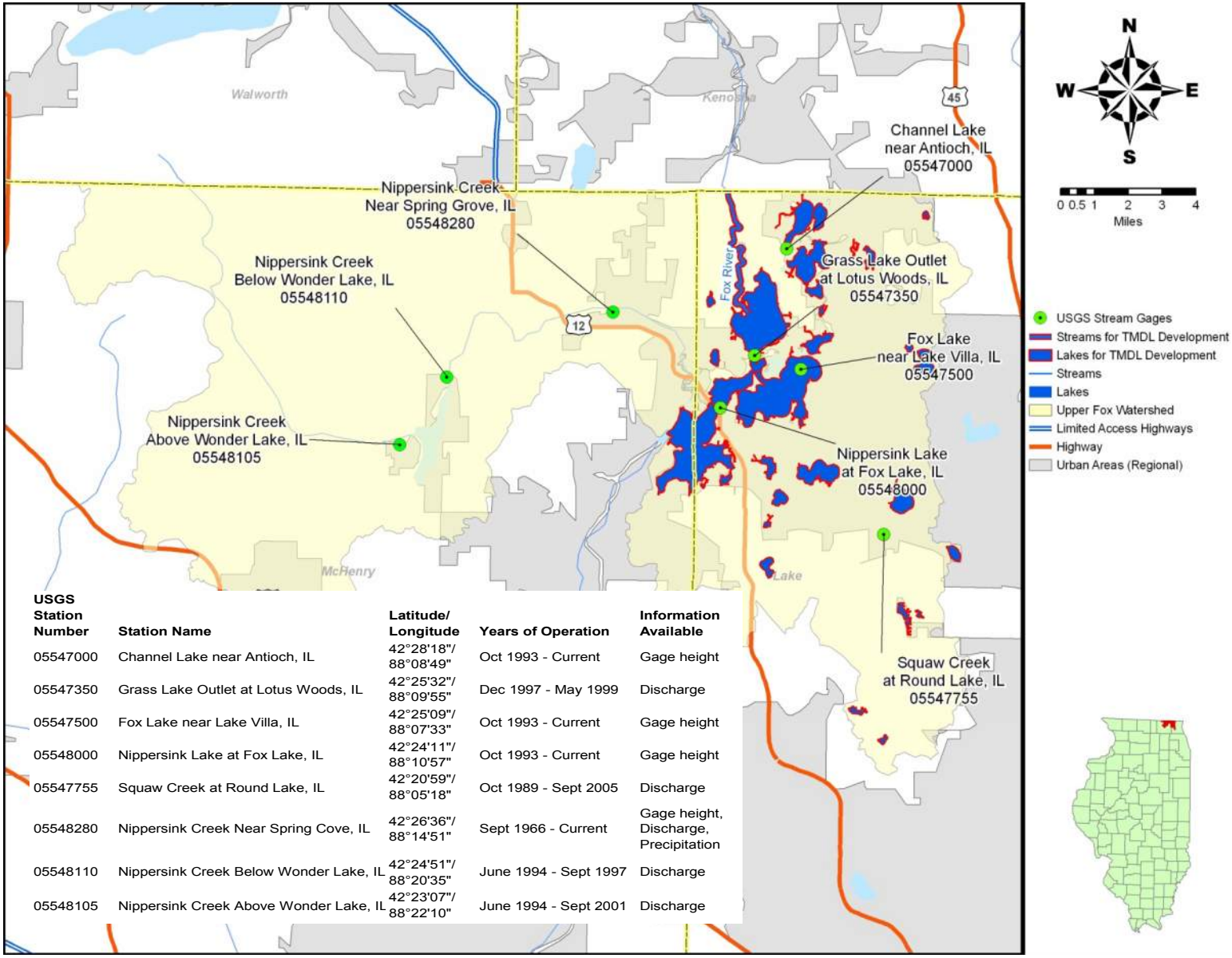
Understanding how water moves and flows is an important component of understanding a watershed. All parameters discussed in the previous sections (i.e. topography, soils, and precipitation) impact hydrology. Hydrological data are available from the United States Geological Survey website (USGS Water Data for the Nation http://waterdata.usgs.gov/nwis). The USGS maintains stream gages throughout the US which monitor conditions such as gage height, stream flow and precipitation at select locations.

There are eight USGS gages within the Upper Fox/Chain O' Lakes, five of which have stream flow (or discharge) information (Figure 2-10). Data for three of these gages (Nippersink Creek, Squaw Creek and Grass Lake) are summarized in Figures 2-11 through 2-16. Data for the other two gages are not summarized since they are upstream of the Nippersink Creek gage described herein. The Grass Lake Outlet at Lotus Woods, IL (05547350) gage is located between the confluence of Grass Lake and Fox Lake (both part of the Chain O' Lakes) in the northwestern portion of the watershed and contains data from December 1997 through May 1999. The Squaw Creek at Round Lake, IL (05547755) gage is located in the south central portion of the watershed along Squaw Creek and contains data from October 1989 through September 2005. The Nippersink Creek near Spring Cove (05548280) is located in McHenry County north of Route 12. This is the only Real Time gage (provides a continuous record of information) in the Upper Fox River/Chain O' Lakes watershed. Data used for the Nippersink Creek gage is from September 1966 through September 2008.

Flow data for the period of record were used to establish flow duration curves for the Grass Lake, Squaw Creek and Nippersink Creek near Spring Cove gages. These duration curves show the percentage of time flows are met or exceeded based on the period of record. They can be used to determine the percentage of time a given flow is expected to be equaled or exceed. Alternatively the duration curve could be used to determine the flow that is equaled or exceed for some percentage of time. Flow duration curves were developed by ranking flows from highest to lowest and calculating the probability of occurrence (presented as

a percentage or duration interval), where zero corresponds to the highest flow. Flow duration curves and mean monthly stream flow for these gages are provided in Figures 2-11 through 2-16.

Figure 2-10: Upper Fox River/Chain O' Lakes Watershed USGS Gage Stations



USGS Station Number	Station Name	Latitude/ Longitude	Years of Operation	Information Available
05547000	Channel Lake near Antioch, IL	42°28'18"/ 88°08'49"	Oct 1993 - Current	Gage height
05547350	Grass Lake Outlet at Lotus Woods, IL	42°25'32"/ 88°09'55"	Dec 1997 - May 1999	Discharge
05547500	Fox Lake near Lake Villa, IL	42°25'09"/ 88°07'33"	Oct 1993 - Current	Gage height
05548000	Nippersink Lake at Fox Lake, IL	42°24'11"/ 88°10'57"	Oct 1993 - Current	Gage height
05547755	Squaw Creek at Round Lake, IL	42°20'59"/ 88°05'18"	Oct 1989 - Sept 2005	Discharge
05548280	Nippersink Creek Near Spring Cove, IL	42°26'36"/ 88°14'51"	Sept 1966 - Current	Gage height, Discharge, Precipitation
05548110	Nippersink Creek Below Wonder Lake, IL	42°24'51"/ 88°20'35"	June 1994 - Sept 1997	Discharge
05548105	Nippersink Creek Above Wonder Lake, IL	42°23'07"/ 88°22'10"	June 1994 - Sept 2001	Discharge

Figure 2-11: Mean Daily Flow Duration Curve for Grass Lake Outlet at Lotus Woods, IL (USGS 05547350) 1997-1999.

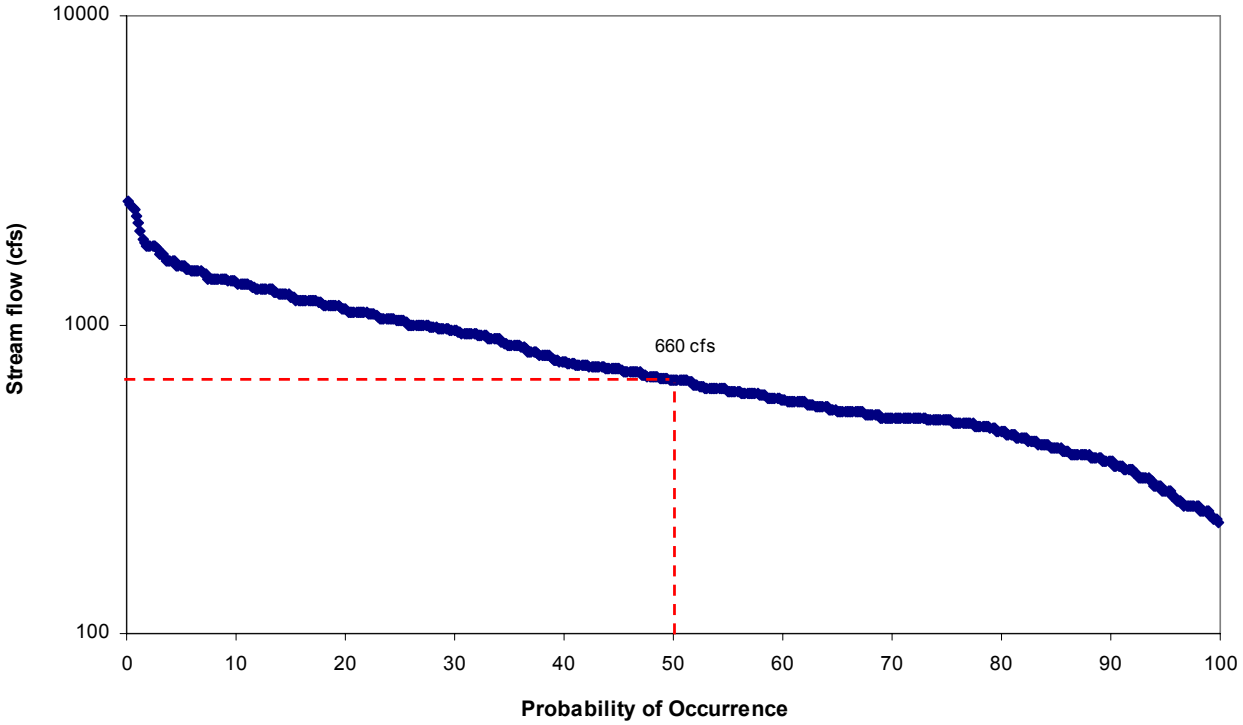


Figure 2-12: Mean Monthly Flow for Grass Lake Outlet at Lotus Woods, IL (USGS 05547350) 1997-1999.

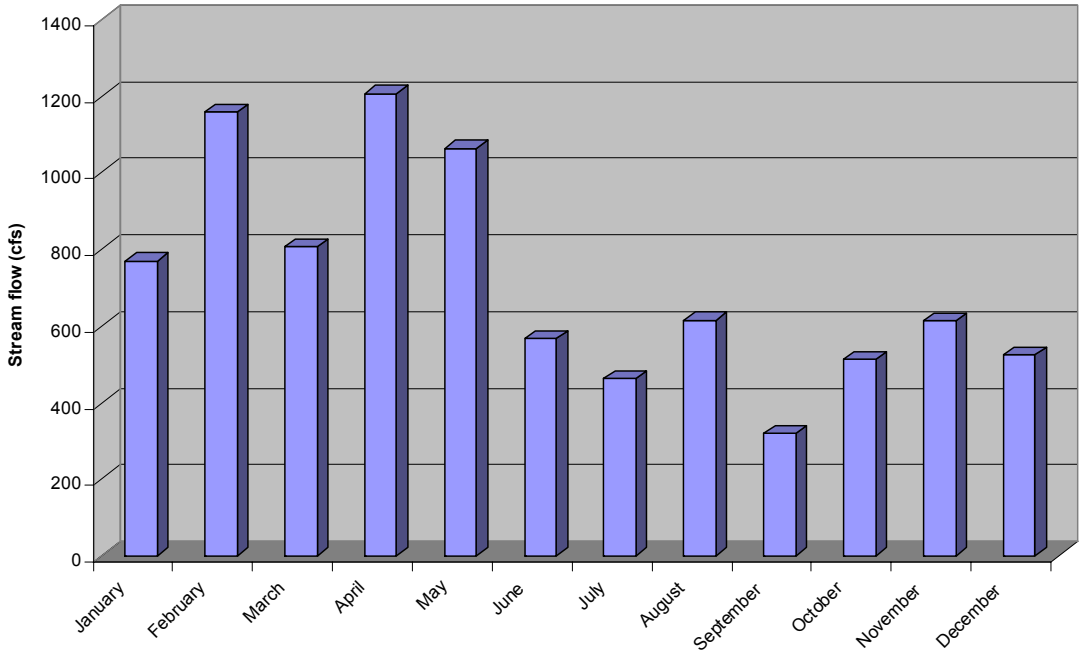


Figure 2-13: Mean Daily Flow Duration Curve for Squaw Creek at Round Lake, IL (USGS 05547755) 1989-2005.

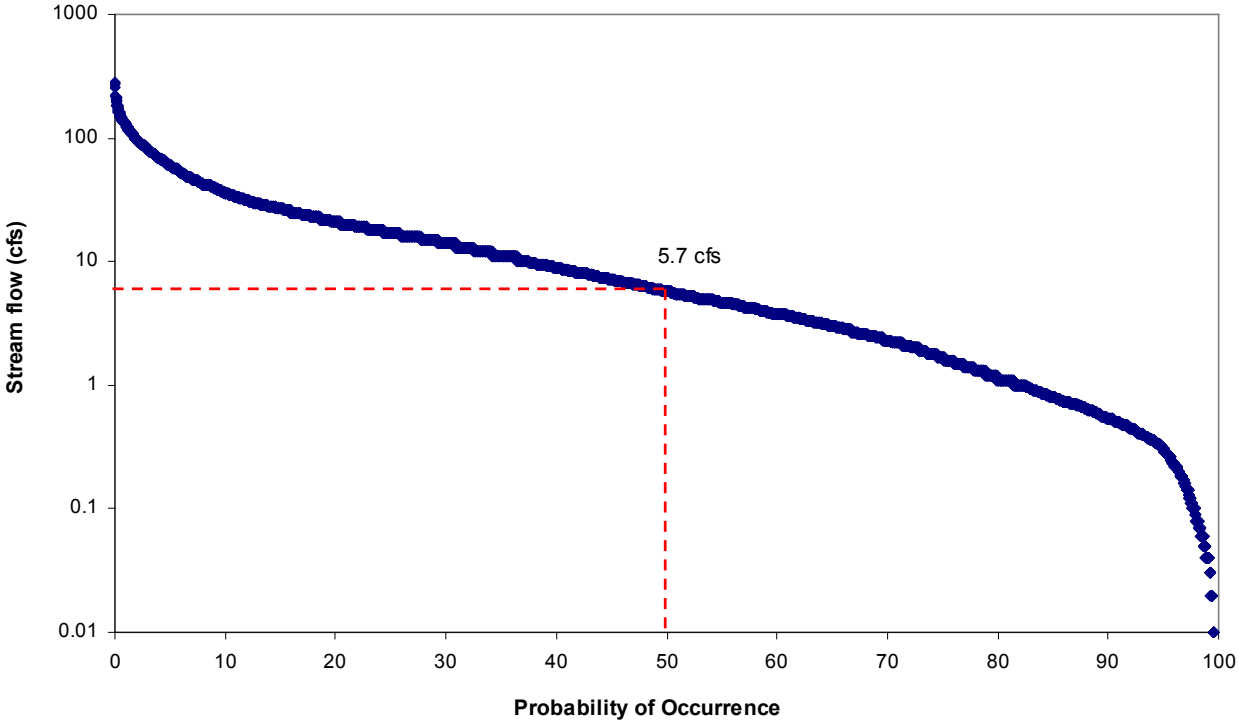


Figure 2-14: Mean Monthly Stream Flow for Squaw Creek at Round Lake, IL (USGS 05547755) 1989-2005

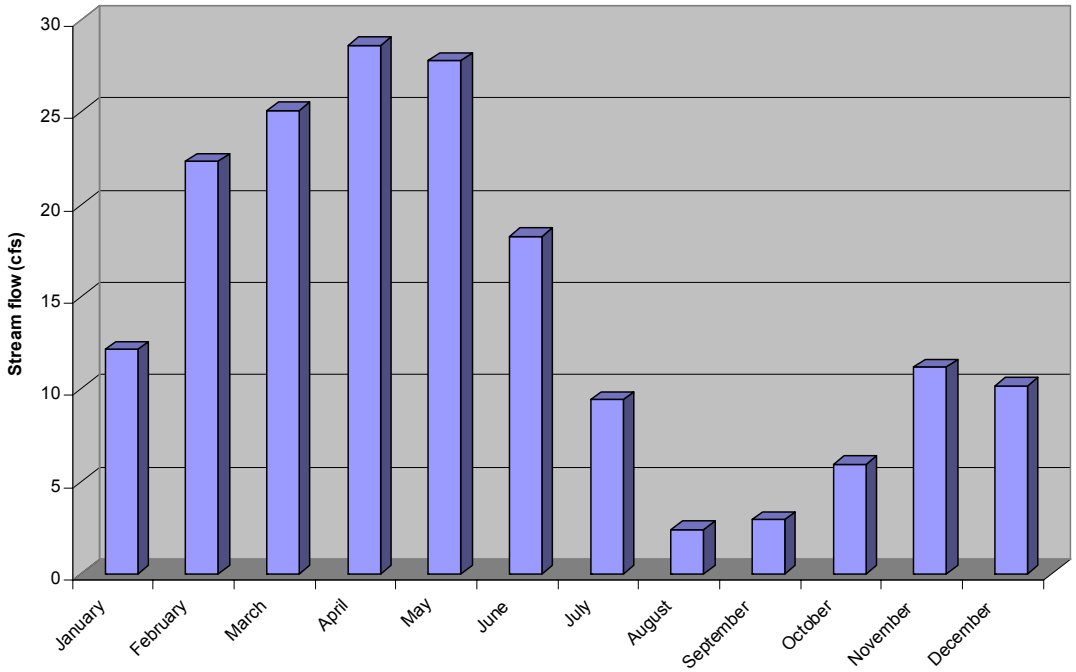


Figure 2-15: Mean Daily Flow Duration Curve for Nippersink Creek near Spring Cove, IL (USGS 05548280) 1966-2008

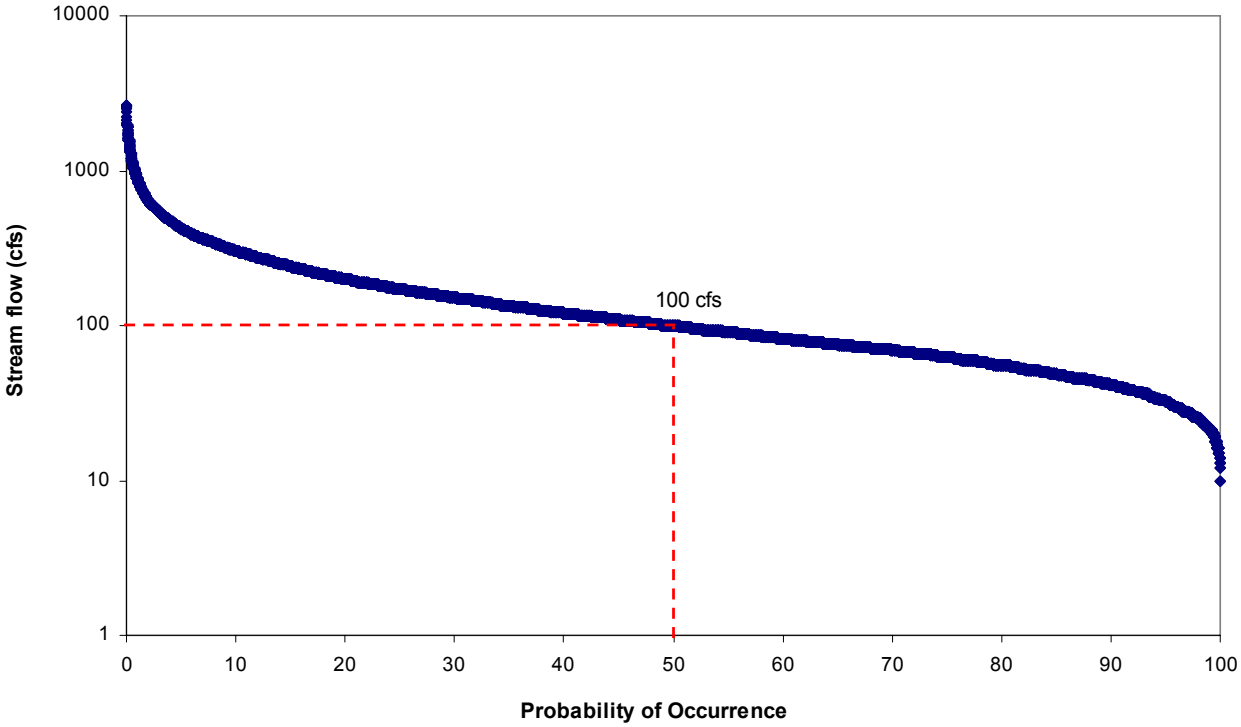
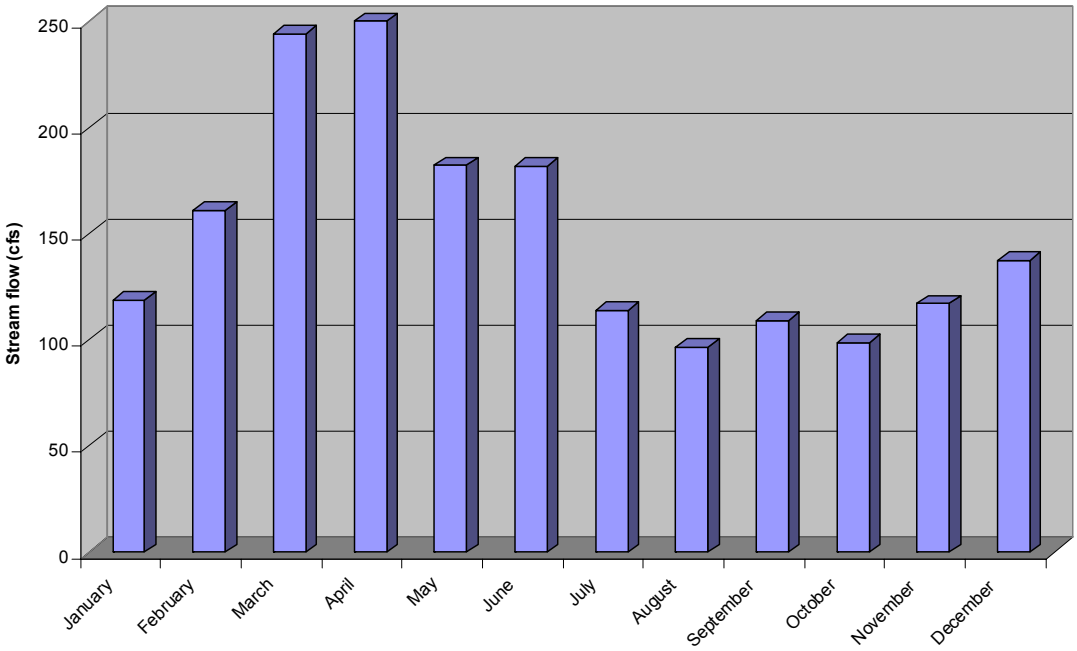


Figure 2-16: Mean Monthly Stream Flow for Nippersink Creek near Spring Cove, IL (USGS 05548280) 1966-2008



The Grass Lake gage has been discontinued but provides mean daily stream flow for 919 square miles (sq mi) from December 1997 through May 1999 (McConkey et al., 2004). The minimum and maximum mean daily stream flow recorded at the Grass Lake gage was 230 and 2500 cubic feet per second (cfs), respectively. The median daily stream flow, obtained from the flow duration curve (50% probability of occurrence), is 660 cfs (Figure 2-11). However the period of record at this gage is short. The mean daily mean flow is 786 cfs. Mean monthly stream flow for the period of record (1997-1999) at the Grass Lake gage is provided in Figure 2-11. The greatest monthly mean stream flow for the period of record occurs in April while the lowest mean monthly flow occurs in September (Figure 2-12). The highest stream flow for this gage generally occurs during the late winter and spring months, likely in response to winter snow melt and spring precipitation.

The Squaw Creek gage (1989-2005) captures stream flow from a much smaller area (17.2 sq mi; McConkey et al., 2004). Minimum and maximum mean daily stream flow for the Squaw Creek gage was 0 and 284 cfs, respectively. The median daily flow is 5.7 cfs (Figure 2-13), with a mean daily flow of 14.6 cfs. Like the Grass Lake gage data, stream flows are highest in the late winter and spring months, with lower flows in the fall. Mean monthly flow is greatest in April and lowest in August (Figure 2-14).

The Nippersink Creek near Spring Cove gage (1966-2008) provides stream 192 square mile catchment. Minimum and maximum mean daily flow for this gage was 10 and 2660 cfs respectively. The median flow is 100 cfs (Figure 2-15), with a mean daily flow of 151 cfs. Stream flow for this gage is highest on average in March and April, with lower flows during the summer and early fall.

The water in the Chain O' Lakes moves in a southwesterly direction toward the Fox River at times of high inflow rates (in the late winter and spring months). When flow rates diminish in the fall, water does not pass as quickly through the Chain O' Lakes and thus flow to the Fox River is much lower. To illustrate this, one can compare hydraulic residence times (HRTs) or detention times of water in these lakes. In April, the HRT is about five days compared to 21 days in September. Water spends a shorter amount of time in the lakes in the spring, when there is greater flow to flush the water through the lake system downstream to the Fox River. The reverse is true during the fall; the HRT in the fall is higher because there is lower flow and water is retained in the lake basin longer (Kothandaraman et al., 1977). The artificial manipulation of water level at the dam also greatly affects HRTs. USGS recorded water levels in Fox River, Fox Lake, and Nippersink Lake. In addition, Lake County SMC collected precipitations data at multiple locations within the watershed. These data will be used in Stage 3 for model development.

3.0 Public Participation and Involvement

The Illinois EPA is committed to keeping the watershed stakeholders and general public informed and involved throughout the TMDL process. Success for any TMDL implementation plan relies on a knowledgeable public able to aid in the follow-through needed for their watershed to meet the recommended TMDL. It is important to engage the local citizens as early in the process as possible by providing opportunities to learn and process information. This is to ensure that concerns and issues are identified at an early stage, so that they can be addressed and facilitate maximum cooperation in the implementation of the recommended courses of actions identified in the TMDL process. All stakeholders should have access to enough information to allay concerns, gain confidence in the TMDL process and understand the purpose and the regulatory authority that will implement any recommendations.

Illinois EPA, along with ENSR/AECOM, will hold up to two public meetings within the Upper Fox River/Chain O' Lakes watershed throughout the course of TMDL development. The first public meeting was held at the University Center of Lake County, in Grayslake, Illinois on August 25, 2009. The responsiveness summary for the meeting is included in Appendix F. General information regarding the process of TMDL development in Illinois can be found at http://www.epa.state.il.us/water/tmdl. This link also contains paths to notice of public meetings and other TMDL-related watershed information for the entire state of Illinois.

Background information about watersheds, watershed management, best management practices and the Clean Water Act (CWA) can be found on the EPA's water website at http://www.epa.gov/watertrain/.

For other reports and studies concerning the Fox River Watershed please visit the Illinois Rivers Decision Support System: Fox River Watershed Investigation website (http://ilrdss.sws.uiuc.edu/fox/). The website contains reports, data and additional links to other sources specifically related to this watershed. Lake County reports can be found at: http://www.lakecountyil.gov/Health/want/LakeReports.htm. This website contains detailed lake reports for lakes sampled by Lake County's Lake Management Unit.

4.0 Applicable Water Quality Standards and TMDL Targets

Water pollution control programs are designed to protect the beneficial uses of the water resources within the state. Each state has the responsibility to set water quality standards that protect these beneficial uses, also called "designated uses." Illinois waters are designated for various uses including aquatic life, wildlife, agricultural use, primary contact (e.g., swimming, water skiing), secondary contact (e.g., boating, fishing), industrial use, drinking water, food-processing water supply and aesthetic quality. Illinois' WQS provide the basis for assessing whether the beneficial uses of the state's waters are being attained.

4.1 Illinois Pollution Control Board

The Illinois Pollution Control Board (IPCB) is responsible for setting WQS to protect designated uses. The federal CWA requires the states to review and update their WQS every three years. Illinois EPA, in conjunction with US EPA, identifies and prioritizes those standards to be developed or revised during thie three-year period. The IPCB has established four primary sets (or categories) of narrative and numeric water quality standards for surface waters: general use, public and food processing, secondary contact and indigenous aquatic life, and Lake Michigan basin standards. Each set of standards is intended to help protect various designated uses established for each category.

Illinois EPA is also responsible for developing scientifically based water quality criteria and proposing them to the IPCB for adoption into state rules and regulations. The Illinois WQS are established in the Illinois Administrative Rules Title 35, Environmental Protection; Subtitle C, Water Pollution; Chapter I, Pollution Control Board; Part 302, Water Quality Standards.

Water resource management activities involving interstate waters are also coordinated with various interstate committees and commissions. The Illinois EPA participates in water resource management activities of the Association of State and Interstate Water Pollution Control Administrators, International Joint Commission of the Great Lakes Water Quality Board, Ohio River Valley Water Sanitation Commission, Upper Mississippi River Conservation Committee, Upper Mississippi River Basin Association, Council of Great Lakes Governors, and other interstate committees, and commissions

4.2 Designated Uses

The waters of Illinois are classified by designated uses assessed in 2008 (Table 4-1). Designated uses applicable to the Upper Fox/Chain O' Lakes watershed include: aesthetic quality, aquatic life, and primary contact recreation. The corresponding water quality standard classification for these designated uses is the General Use classification.

The General Use classification is defined by IPCB as: The General Use standards will protect the state's water for aquatic life, wildlife, agricultural use, secondary contact use and most industrial uses and ensure the aesthetic quality of the state's aquatic environment. Primary contact uses are protected for all General Use waters whose physical configuration permits such use.

Table 4-1: Upper Fox River Designated Uses and Assessment Levels

Waterbody Name	Designated Use	Assessed?	Assessment Level?
Antioch Lake, Bluff Lake, Davis Lake, Dunn's Lake, Duck Lake, Fish-Duncan Lake, Fischer Lake, Grays Lake, Long Lake, McGreal Lake, Petite Lake, Redhead Lake, Spring Lake, Summerhill Estates Lake, Sun Lake, Lake Tranquility, Turner Lake	Aquatic Life	Yes	Fully Supporting
	Fish Consumption	No	Not Assessed
	Primary Contact	No	Not Assessed
	Secondary Contact	No	Not Assessed
	Aesthetic Quality	Yes	Not Supporting
Lake Catherine, Channel Lake, Fox Lake,	Aquatic Life	Yes	Fully Supporting
	Fish Consumption	Yes	Not Supporting
	Primary Contact	No	Not Assessed
	Secondary Contact	No	Not Assessed
	Aesthetic Quality	Yes	Not Supporting
Fox River	Aquatic Life	Yes	Not Supporting
	Fish Consumption	No	Not Supporting
	Primary Contact	No	Not Supporting
	Secondary Contact	No	Not Assessed
	Aesthetic Quality	No	Not Assessed
Deep Lake	Aquatic Life	Yes	Fully Supporting
	Fish Consumption	No	Not Assessed
	Primary Contact	Yes	Not Supporting
	Secondary Contact	No	Not Assessed
	Aesthetic Quality	Yes	Not Supporting
Grass Lake, Pistakee Lake	Aquatic Life	Yes	Not Supporting
	Fish Consumption	Yes	Not Supporting
	Primary Contact	No	Not Assessed
	Secondary Contact	No	Not Assessed
	Aesthetic Quality	Yes	Not Supporting
Hidden Lake, Nippersink Lake, North Churchill Lake, South Churchill Lake	Aquatic Life	Yes	Not Supporting
	Fish Consumption	No	Not Assessed
	Primary Contact	No	Not Assessed
	Secondary Contact	No	Not Assessed
	Aesthetic Quality	Yes	Not Supporting
Lake Marie	Aquatic Life	Yes	Fully Supporting
	Fish Consumption	Yes	Not Supporting
	Primary Contact	No	Not Assessed
	Secondary Contact	No	Not Assessed
	Aesthetic Quality	Yes	Not Supporting
Round Lake, Wooster Lake	Aquatic Life	Yes	Fully Supporting
	Fish Consumption	No	Not Assessed
	Primary Contact	Yes	Fully Supporting
	Secondary Contact	Yes	Fully Supporting
	Aesthetic Quality	Yes	Not Supporting

4.3 Assessing Designated Use Attainment

Designated use attainment is based on waterbody type and applies to aquatic life, fish consumption, primary and secondary contact, and aesthetic quality. The following sections regarding use attainment in Illinois were directly selected and excerpted from Illinois EPA's Integrated Water Quality Report and Section 303(d) List(IEPA, 2008):

Aquatic life use assessments in streams are typically based on the interpretation of biological information, physicochemical water data and physical-habitat information from the Intensive Basin Survey, Ambient Water Quality Monitoring Network or Facility-Related Stream Survey programs. The primary biological measures used are the fish Index of Biotic Integrity, the new macroinvertebrate Index of Biotic Integrity and the Macroinvertebrate Biotic Index. Physical-habitat information used in assessments includes quantitative or qualitative measures of stream-bottom composition and qualitative descriptors of channel and riparian conditions. Physicochemical water data used include measures of "conventional" parameters (e.g., dissolved oxygen, pH, temperature), priority pollutants, non-priority pollutants, and other pollutants (USEPA 2002 and www.epa.gov/waterscience/criteria/wqcriteria.html). In a minority of streams for which biological information is unavailable, *aquatic life* use assessments are based primarily on physicochemical water data. Physicochemical data (from water and sediment) and habitat information play primary roles in identifying potential causes and sources of *aquatic life* use impairment.

Assessments of *aquatic life* use in lakes are based primarily on physical and chemical water quality data collected via the Ambient Lake Monitoring Program, the Illinois Clean Lakes Program, or by non-Illinois EPA persons under an approved quality assurance project plan. The physical and chemical data used for *aquatic life* use assessments include: Secchi-disk transparency, chlorophyll *a*, total phosphorus (epilimnetic samples only), nonvolatile suspended solids (epilimnetic samples only), and percent surface area macrophyte coverage. Data are collected a minimum of five times per year (April through October) from one or more established lake sites. Data are considered usable for assessments if meeting the following minimum requirements (Figure C-2): 1) at least four out of seven months (April through October) of data are available; 2) at least two of these months occur during the peak growing season of June through August (this requirement does not apply to NVSS); and 3) usable data are available from at least half of all lake sites within any given lake each month. A whole-lake TSI value is calculated for the median Secchi-disk transparency, median total phosphorus (epilemnetic sample depths only), and median chlorophyll *a* values. A minimum of two parameter-specific TSI values are required to calculate parameter-specific use support determinations. An assessment is then made based on the parameter-specific use support determinations. The 0.05 mg/L Illinois General Use Water Quality Standard for total phosphorus in lakes (35 Ill. Adm. Code 302.205) has been incorporated into the weighting criteria used to assign point values for the Aquatic Life Index (ALI).

Fish consumption use is associated with all water bodies in the state. The assessment of *fish consumption* use is based on water body-specific fish-tissue data and also on fish-consumption advisories issued by the Illinois Fish Contaminant Monitoring Program (FCMP). A list of water bodies having advisories can be found in the Illinois Department of Natural Resources' (IDNR) publication ***2007 Illinois Fishing Information*** (http://dnr.state.il.us/fish/digest/). Fish-consumption advisories are incorporated into the process for assessing *fish consumption* use as explained below.

The FCMP uses the U.S. Food & Drug Administration's (FDA) Action Levels as criteria for determining the need for advisories, except for polychlorinated biphenyls (PCBs), mercury, and chlordane. For these contaminants the FDA criteria have been replaced by a risk-based process developed in the *Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory* (Anderson et al. 1993, herein after referred to as the Protocol). The Protocol requires the determination of a Health Protection Value (HPV) for a contaminant, which is then used with five meal consumption frequencies (eight ounces of uncooked filet): 1) Unlimited (140 meals/year); 2) One meal/week (52 meals/year); 3) One meal/month (12 meals/year); 4) One meal/two months (six meals/year); and 5) Do not eat (0 meals/year). The level of contaminant in fish is then calculated that will not result in exceeding the HPV at each meal consumption frequency. The Protocol also assumes a 50%

reduction of contaminant levels for organic chemicals (not used for mercury) when recommended cleaning and cooking methods are used. The HPVs, target populations, critical health effects to be protected by the HPVs, and the criteria for PCBs, mercury and chlordane for the various meal frequencies, are listed in Table C-13 (*of the 2008 Integrated Water Quality Report*) as well as the FDA action levels for other contaminants.

According to Illinois water quality standards, "primary contact" means "*...any recreational or other water use in which there is prolonged and intimate contact with the water involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard, such as swimming and water skiing*" (35 Ill. Adm. Code 301.355). The assessment of *primary contact* use is based on fecal coliform bacteria data. The General Use Water Quality Standard for fecal coliform bacteria specifies that during the months of May through October, based on a minimum of five samples taken over not more than a 30-day period, fecal coliform bacteria counts shall not exceed a geometric mean of 200/100 ml, nor shall more than 10 percent of the samples during any 30-day period exceed 400/100 ml (35 Ill. Adm. Code 302.209). This standard protects *primary contact* use of Illinois waters by humans. Due to limited state resources, fecal coliform bacteria is not normally sampled at a frequency necessary to apply the General Use standard, i.e., at least five times per month during May through October, and very little data available from others are collected at the required frequency. Therefore, assessment guidelines are based on application of the standard when sufficient data is available to determine standard exceedances; but, in most cases, attainment of *primary contact* use is based on a broader methodology intended to assess the likelihood that the General Use standard is being attained.

To assess *primary contact* use, Illinois EPA uses all fecal coliform bacteria from water samples collected in May through October, over the most recent five-year period (i.e., 2002 through 2006 for this report). Based on these water samples, geometric means and individual measurements of fecal coliform bacteria are compared to the concentration thresholds in Tables C-16 and C-17 (*of the 2008 Integrated Water Quality Report*). To apply the guidelines, the geometric mean of fecal coliform bacteria concentration is calculated from the entire set of May through October water samples, across the five years. No more than 10% of all the samples may exceed 400/100 ml for a water body to be considered Fully Supporting.

According to Illinois water quality standards, "secondary contact" means *"...any recreational or other water use in which contact with the water is either incidental or accidental and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing, commercial and recreational boating and any limited contact incident to shoreline activity"* (35 Ill. Adm. Code 301.380). Although secondary contact use is associated with all waters of the state, no specific assessment guidelines have been developed to assess secondary contact use because existing water quality standards have no water quality criterion that specifically address this use. However, consistent with the meanings of these two uses, in any water where primary contact use is assessed as Fully Supporting, secondary contact use is also assessed as Fully Supporting. In all other circumstances secondary contact use is not assessed.

Attainment of *public and food processing water supply* use is assessed only in waters in which the use is currently occurring, as evidenced by the presence of an active public-water-supply intake. The assessment of *public and food processing water supply* use is based on conditions in both untreated and treated water (Table C-21). By incorporating data through programs related to both the federal Clean Water Act and the federal Safe Drinking Water Act, Illinois EPA believes that these guidelines provide a comprehensive assessment of *public and food processing water supply* use.

Assessments of *public and food processing water supply* use recognize that characteristics and concentrations of substances in Illinois surface waters can vary and that a single assessment guideline may not protect sufficiently in all situations. Using multiple assessment guidelines helps improve the reliability of these assessments. When applying these assessment guidelines, Illinois EPA also considers the water-quality substance, the level of treatment available for that substance, and the monitoring frequency of that substance in the untreated water.

Assessments of *aesthetic quality* use are based primarily on physical and chemical water quality data collected by the Illinois EPA through the Ambient Lake Monitoring Program or the Illinois Clean Lakes Program, or by non-Illinois EPA persons under an approved quality assurance project plan. The physical and chemical data used for *aesthetic quality* use assessments include: Secchi-disk transparency, chlorophyll *a*, total phosphorus (epilimnetic samples only), nonvolatile suspended solids (epilimnetic samples only), and percent surface area macrophyte coverage. Data are collected a minimum of five times per year (April through October) from one or more established lake sites. Data are considered usable for assessments if meeting the following minimum requirements: 1) At least four out of seven months (April through October) of data are available, 2) At least two of these months occurs during the peak growing season of June through August (this requirement does not apply to NVSS) and 3) Usable data are available from at least half of all lakes sites within any given lake each month. As outlined in Figure C-3 (*of the 2008 Integrated Water Quality Report*), a whole-lake TSI value is calculated for the median Secchi-disk transparency, median total phosphorus (epilimnetic sample depths only), and median chlorophyll *a* values. A minimum of two parameter-specific TSI values are required to calculate a parameter-specific use support determination. An assessment is then made based on the parameter specific use support determinations. The 0.05 mg/L Illinois General Use Water Quality Standard for total phosphorus in lakes (35 Ill. Adm. Code 302.205) has been incorporated into the weighting criteria used to assign point values for the (Aesthetic Quality Index) (AQI). Table C-25 (*of the 2008 Integrated Water Quality Report*) lists the guidelines for identifying potential causes of *aesthetic quality* use impairment.

4.4 Applicable Illinois Water Quality Standards

To make 303(d) listing determinations for aquatic life uses, Illinois EPA first collects biological data and if these data suggest that impairment to aquatic life exists, then a comparison of available water quality data with WQS and criteria occurs. Table 4-2 summarizes the applicable General Use WQS for impaired water quality variables within the Upper Fox River/Chain O' Lakes Creek watershed.

Table 4-2: Applicable Water Quality Standards for the Upper Fox River/Chain O' Lakes Watershed

Parameter	Units	Regulatory Statute	General Use Water Quality Standard
Dissolved Oxygen (above thermocline in thermally stratified waters or entire water column in unstratified waters[4)]	mg/L	Title 35, Subtitle C, Chapter I, Part 302.206	March – July 5.0 instantaneous minimum 6.0 as daily mean averaged over 7 days August – February 3.5 instantaneous minimum 4.0 as daily mean averaged over 7 days 5.5 as daily mean averaged over 30 days
Fecal Coliform	cfu/100 ml	Title 35, Subtitle C, Chapter I, Part 302.209	May – October 200 geometric mean based on a minimum of 5 samples taken over any 30 day period 400 maximum not to be exceeded in more than 10% of samples taken during any 30 day period
pH	SU	Title 35, Subtitle C, Chapter I, Part 302.204	6.5 – 9.0 except for natural causes
Total Ammonia Nitrogen	mg/L	Title 35, Subtitle C, Chapter I, Part 302.212	≤ 15 at any time Not to exceed Acute Standard at any time[1] 30-day average not to exceed Chronic Standard[2] 4-day average not to exceed Sub-Chronic Standard[3]
Total Phosphorus	mg/L	Title 35, Subtitle C, Chapter I, Part 302.205	Not to exceed 0.05 in any reservoir or lake with a surface area of at least 20 acres or in any stream at the point where it enters any such lake or reservoir

[1] Acute Standard (AS): $AS = \frac{0.411}{1 + 10^{7.204-pH}} + \frac{58.4}{1 + 10^{pH-7.204}}$

[2] Chronic Standard (CS): Where T = water temperature in degrees Celsius

Early Life Stage Present (or March-October)

Water temperature ≤ 14.51 ºC

$$CS = \left\{ \frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right\} (2.85)$$

Water temperature > 14.51 ºC

$$CS = \left\{ \frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right\} \left(1.45 * 10^{0.028*(25-T)}\right)$$

Early Life Stage Absent

Water temperature ≤ 7 ºC

$$CS = \left\{ \frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right\} \left(1.45 * 10^{0.504}\right)$$

Water temperature > 7 ºC

$$CS = \left\{ \frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right\} \left(1.45 * 10^{0.028(25-T)}\right)$$

[3] Sub-Chronic Standard (SCS) = 2.5 times the Chronic Standard

[4] In order for DO to be listed as a cause, the aquatic life use must first be assessed as impaired.

Table 4-3: Guidelines for Assessing *Primary Contact* Use in Illinois Streams and Inland Lakes

Degree of Use Support	Guidelines
Fully Supporting (Good)	No exceedances of the fecal coliform bacteria standard in the last five years and the geometric mean of all fecal coliform bacteria observations ≤200/100 ml, and ≤10% of all observations exceed 400/100 ml.
Not Supporting (Fair)	One exceedance of the fecal coliform bacteria standard in the last five years (when sufficient data is available to assess the standard) or The geometric mean of all fecal coliform bacteria observations in the last five years ≤200/100 ml, and >10% of all observations in the last five years exceed 400/100 ml or The geometric mean of all fecal coliform bacteria observations in the last five years >200/100 ml, and ≤25% of all observations in the last five years exceed 400/100 ml.
Not Supporting (Poor)	More than one exceedance of the fecal coliform bacteria standard in the last five years (when sufficient data is available to assess the standard) or The geometric mean of all fecal coliform bacteria observations in the last five years >200/100 ml, and >25% of all observations in the last five years exceed 400/100 ml

Table 4-4: Guidelines for Identifying Potential Causes of Impairment of *Primary Contact* (Swimming) Use in Illinois Streams and Inland Lakes

Potential Cause	Basis for Identifying Cause - Numeric Standard[1]
Fecal Coliform	Geometric mean of at least five fecal coliform bacteria observations collected over not more than 30 days during May through October >200/100 ml or > 10% of all such fecal coliform bacteria observations exceed 400/100 ml or Geometric mean of all fecal coliform bacteria observations (minimum of five samples) collected during May through October >200/100 ml or > 10% of all fecal coliform bacteria observation exceed 400/100 ml.

1. The applicable fecal coliform standard (35 Ill. Adm. Code, 302, Subpart B, Section 302.209) requires a minimum of five samples in not more than a 30-day period. However, because this number of samples is seldom available in this time frame the criteria are also based on a minimum of five samples over the most recent five-year period.

4.5 TMDL Targets

In order for a water body to be listed as Full Support, it must meet all of its applicable designated uses. Because WQS are designed to protect those designated uses, a pollutant's numeric WQS is therefore used as the target or endpoint for establishing a TMDL. Table 4-3 summarizes the targets that will be used in the TMDL development for the Upper Fox River/Chain O' Lakes watershed.

Table 4-5: TMDL Targets for Impaired Waterbodies in the Upper Fox River/Chain O' Lakes Watershed

Segment ID	Waterbody Name	Impairment	TMDL Target	Units
IL_DT-35	Fox River	Fecal Coliform	≤ 200 single sample ≤ 200 geomean ≤ 400 <10% samples	cfu/100 ml
IL_RGK	Grays Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RGZT	Spring Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTC	Sun Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTD	Lake Catherine	Total Phosphorus	≤ 0.05	mg/L
IL_RTF	Fox Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTH	Round Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTI	Channel Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTJ	Long Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTQ	Grass Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTR	Lake Marie	Total Phosphorus	≤ 0.05	mg/L
IL_RTT	Antioch Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTU	Pistakee Lake	Total Ammonia Total Phosphorus	≤ 15 or AS[2] ≤ 0.05	mg/L mg/L
IL_RTUA	Nippersink Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTV	Redhead Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTZG	Duck Lake	Total Phosphorus	≤ 0.05	mg/L
IL_RTZH	Wooster Lake	Total Phosphorus	≤ 0.05	mg/L
IL_STQ	Davis Lake	Total Phosphorus	≤ 0.05	mg/L
IL_STR	North Churchill Lake	Total Phosphorus	≤ 0.05	mg/L
IL_STS	South Churchill Lake	Total Phosphorus	≤ 0.05	mg/L
IL_UTM	Hidden Lake	Dissolved Oxygen pH	* 6.5 – 9.0	mg/L SU
IL_UTW	Lake Tranquility	Total Phosphorus	≤ 0.05	mg/L
IL_UTX	McGreal Lake	Total Phosphorus	≤ 0.05	mg/L
IL_VTD	Deep Lake	Fecal Coliform	≤ 200 single sample ≤ 200 geomean ≤ 400 <10% samples	cfu/100 ml
IL_VTH	Dunn's Lake	Total Phosphorus	≤ 0.05	mg/L
IL_VTJ	Bluff Lake	Total Phosphorus	≤ 0.05	mg/L
IL_VTK	Fish-Duncan Lake	Total Phosphorus	≤ 0.05	mg/L
IL_VTT	Fischer Lake	Total Phosphorus	≤ 0.05	mg/L
IL_VTW	Petite Lake	Total Phosphorus	≤ 0.05	mg/L
IL_VTZA	Turner Lake	Total Phosphorus	≤ 0.05	mg/L
IL_WTA	Summerhill Lake	Total Phosphorus	≤ 0.05	mg/L

[1] Apply general standard of 15 mg/L or Acute Standard calculated using average summer epilimnion pH (Table 4-1), which ever is lower

*Refer to Table 4-2 for the dissolved oxygen standard.

5.0 Water Quality Analysis

This section discusses the pollutants of concern for the Upper Fox River/Chain O' Lakes watershed. The available water quality data were analyzed, assessed, and compared with WQS to verify the impairments of the 31 segments. The water quality conditions in the watershed were evaluated by sampling location and time. Available potential point and non-point source data were also assessed and discussed in more detail throughout the remainder of the section.

Section 5.1 provides a summary of water quality data for each pollutant. Detailed information for each impaired segment and potential causes and sources of impairment are provided in Section 6.0 of this document.

5.1 Monitoring Programs

Illinois EPA maintains a comprehensive monitoring program designed to accommodate varying waterbody types and designated uses. Their ambient water quality monitoring program consists of 214 stream stations that are samples once every six weeks and are analyzed for at least 55 parameters. For pesticide analyses Illinois EPA founded a pesticide monitoring subnetwork that allows for further screening of toxic organic substances. A facility-related stream survey program was also developed that specifically caters to field studies (macroinvertebrate, water chemistry, stream flow, habitat data) to analyze impacts from municipal and industrial dischargers.

For inland lakes, Illinois EPA also conducts an ambient lake monitoring program that is responsible for the sampling of approximately 50 inland lakes. Another lake program is the Clean Lakes Program which is a two-part program consisting of Phase 1 diagnostic-feasibility studies and Phase 2 implementation projects. Lake sampling conducted through the Clean Lakes Program include water sampling twice per month from April through October and monthly from November through March for a one-year period.

Illinois EPA also operates in conjunction with other agencies to monitor its surface waters. Intensive basin surveys are conducted by both Illinois EPA and the Illinois Department of Natural Reosurces. The data from these surveys provide much of the data used for aquatic life assessments. The Fish Contaminant Monitoring Program (FCMP) focuses on determining the levels of contaminants in sport fish and also is responsible for issuing fish consumption advisories. The FCMP operates under a Memorandum of Agreement (MOA) that details the responsibilities of those cooperating agencies (Departments of Agriculture, Natural Resources, Nuclear Safety, Public Health, and EPA).

Illinois EPA also administered the Volunteer Lake Monitoring Program (VLMP) in 1981. This program consists of citizen volunteers that are trained on lake ecosystems as well as cost-effective methods of collecting data. VLMP monitoring is conducted twice per month from May through October and typically consists of three monitoring stations per site.

Ambient data are also collected through the Lakes Management Unit (LMU) of Lake County. This program has been monitoring Lake County lakes since the late 1960's. Since 2000, 32 different lakes have been studied per year and data have been collected for various parameters. Detailed reports are written for each lake study and can be found at: http://www.lakecountyil.gov/Health/want/LakeReports.htm.

5.2 Water Quality Data

The Upper Fox River/Chain O' Lakes watershed has 31 impaired segments targeted for TMDL development, 30 of which are lakes and one is a river segment. Available data used for assessing these waterbodies originated from over 80 water quality stations within the Upper Fox River/Chain O' Lakes watershed. Figure 5-

1 shows the water quality data stations within the watershed that contain data relevant to the impaired segments (individual watershed maps are provided in Appendix A).

Data used for analysis are a combination of both legacy and modernized US EPA Storage and Retrieval (STORET) databases, Lake County data, Fox River Study Group (FRSG) data, and Illinois EPA database data. The compiled database ranges from 1972 through 2008. The completed water quality database is included in Appendix B.

Data relevant to impairments were compiled for each impaired waterbody and summarized. The following parameters are grouped by impairment and discussed in relation to the relevant Illinois numeric WQS. For all assessments, compliance is determined at the surface of a stream or at the one-foot depth from the lake surface.

5.2.1 Dissolved Oxygen

Hidden Lake is the only segment targeted for TMDL development due to low DO concentrations. DO was measured five times in Hidden Lake during 2002 at up to five depths. DO concentrations were below the instantaneous minimum numerical WQS of 5.0 mg/L in June and July 2002. DO remained below 5.0 mg/L in August, but did not drop below the 3.5 mg/L WQS in August 2002 (Figure 5-2). Temperature and DO concentrations did not vary greatly with water depth and indicate no thermal or DO stratification. Percent DO saturation, defined as the percent DO present compared with the amount that could be available at a given temperature, was below 63% during the period of WQS non-compliance.

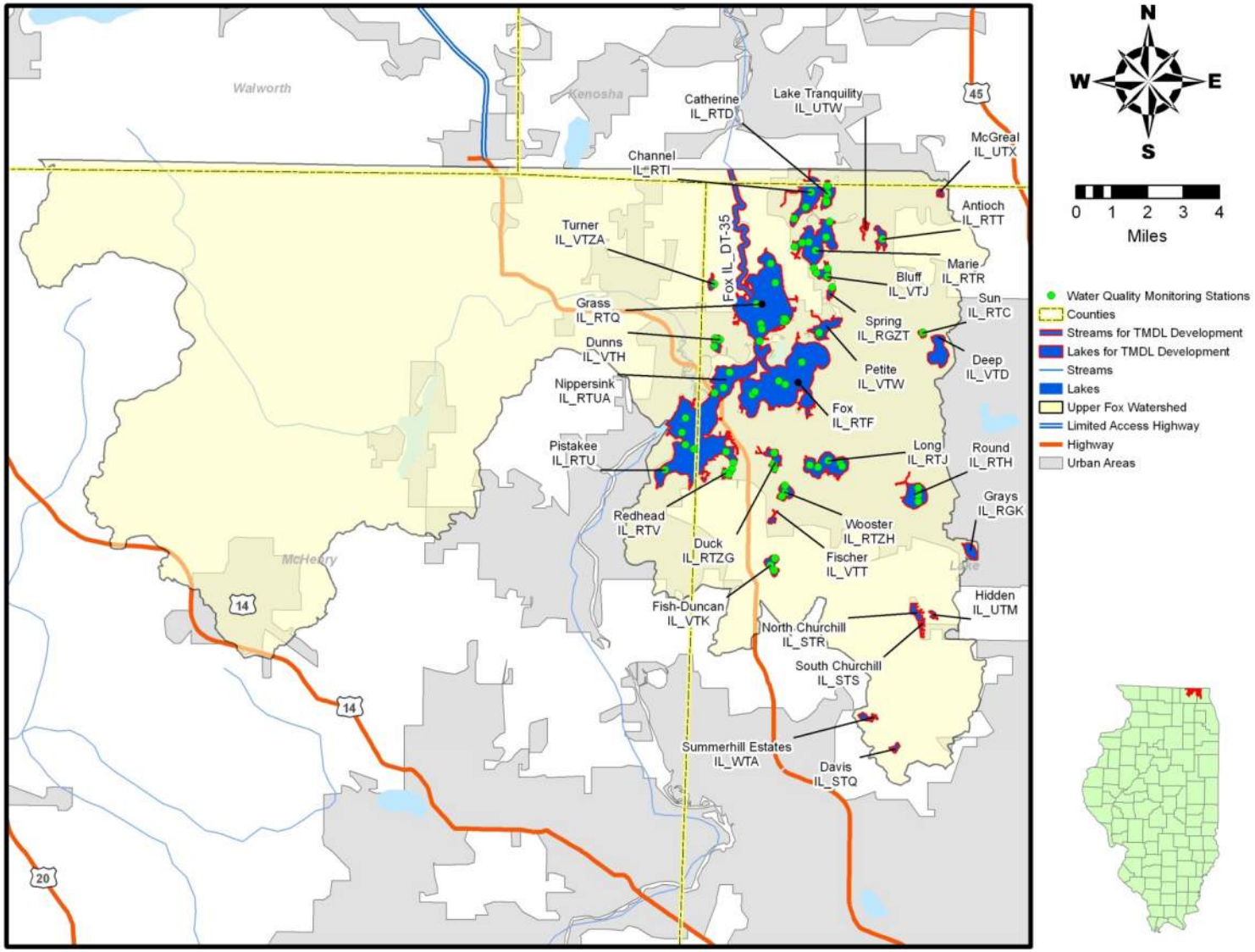
Low dissolved oxygen is likely related to eutrophication which is caused by point and non-point sources. Eutrophication is an environmental phenomenon that occurs when waterbody hypoxia or anoxia is induced from excessive nutrient inputs. In some waterbodies, particularly lakes, estuaries, or even low-flow streams, nutrients can stimulate algal blooms, which can lead to oxygen consumption when the dead plant material decomposes. The decomposing plant material is a source of Biochemical Oxygen Demand (BOD). As the decay sinks to the bottom of the waterbody, the sum of all biological and chemical processes can likewise further consume oxygen, and this process is known as Sediment Oxygen Demand (SOD).

Non-point sources of nutrients include urban and agricultural runoff. Point sources of nutrients are generally wastewater treatment facilities. All active NPDES point sources discharging within each impaired segment's watershed are described in Section 6.0. A general description of non-point sources is also provided in Section 6.0.

5.2.2 pH

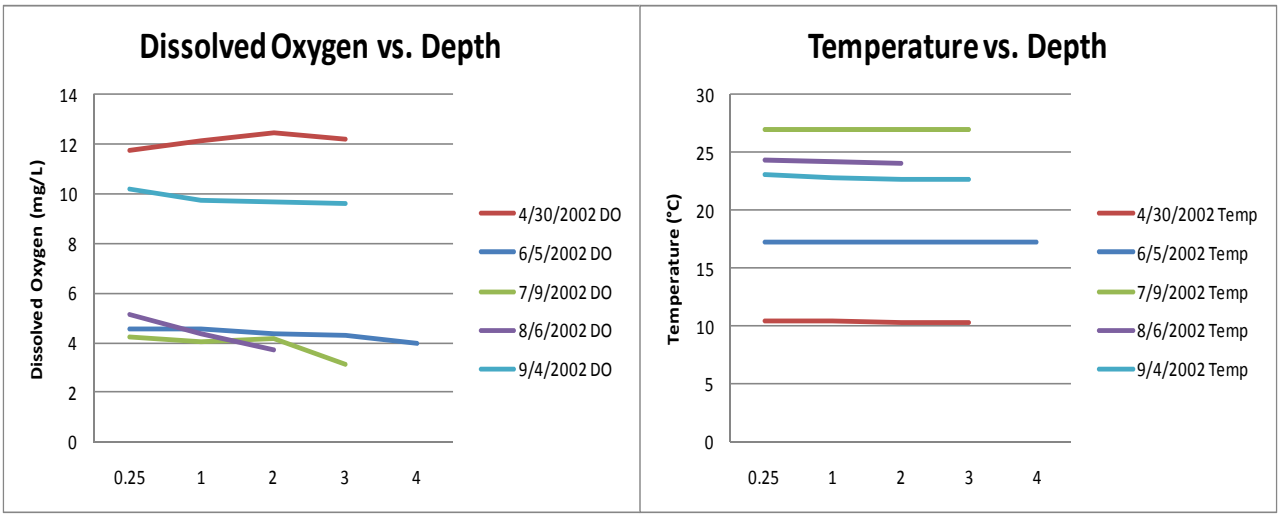
Hidden Lake is targeted for a TMDL due to elevated pH. The WQS for pH is between 6.5 and 9.0 standard units (SU). pH measured in Hidden Lake in 2002, throughout the water column (down to 4' water depth), ranged from 7.7 to 9.1 SU. Values exceeding 9.0 SU were measured on September 4, 2002. These elevated pH values and low DO are likely the result of eutrophication and excessive algal densities. There are no chlorophyll *a* data to confirm this, but phosphorus concentrations are excessive in Hidden Lake (>0.18 mg/L). This waterbody is not targeted for a phosphorus TMDL, however, since the numerical WQS for phosphorus (≤ 0.05 mg/L) only applies to waterbodies with surface acreage greater than or equal to 20 acres. If it is later determined that phosphorus is responsible for the pH impairments then a phosphorus TMDL endpoint will be established.

Figure 5-1: Upper Fox River/Chain O' Lakes Water Quality Sample Locations



Note: Some monitoring stations are not shown on this map as their locations are unknown. Location information will be determined for Stage 3.

Figure 5-2: Hidden Lake Temperature and Dissolved Oxygen Profiles.



It is recommended that further sampling be conducted in Hidden Lake as part of Stage 2 to determine the cause of elevated pH and low DO. If these impairments are found to be related to TP concentrations than a TP TMDL should be prepared. Potential sources for elevated nutrients and therefore elevated pH, are the same as for low DO discussed above. All active NPDES point sources discharging within each impaired segment's watershed are described in Section 6.0. A general description of non-point sources is also provided in Section 6.0.

5.2.3 Fecal Coliform

The Fox River segment DT-35 and Deep Lake are targeted for TMDL development due to excessive fecal coliform numbers. The distribution of fecal coliform for each impaired segment in the Upper Fox River/Chain O' Lakes watershed is presented in Figure 5-3 and is compared to the WQS. The WQS for fecal coliform is a 200 cfu/100ml geometric mean based on a minimum of five samples collected over any 30 day period or a 400 cfu/100ml maximum not to be exceeded in more than 10% of samples collected during any 30 day period.

Data for Deep Lake includes samples from eight days in 2001. Sampling occurred twice on each day with the exception of the October sample when only one sample was collected. A total of 15 samples were analyzed for fecal coliform bacteria. Two samples, both collected on 7/10/2001, contained excessive bacteria concentrations well above the 200 cfu/ml WQS (2800 and 3700 cfu/ml).

Thirty one samples from the Fox River portion located in the Upper Fox River/Chain O' Lakes watershed were analyzed for fecal coliform from May 1999 through July 2008 (Figure 5-3). Twenty nine percent (9 samples) exceeded the 200 cfu/100 ml WQS.

Figure 5-3: Fox River and Deep Lake Fecal Coliform

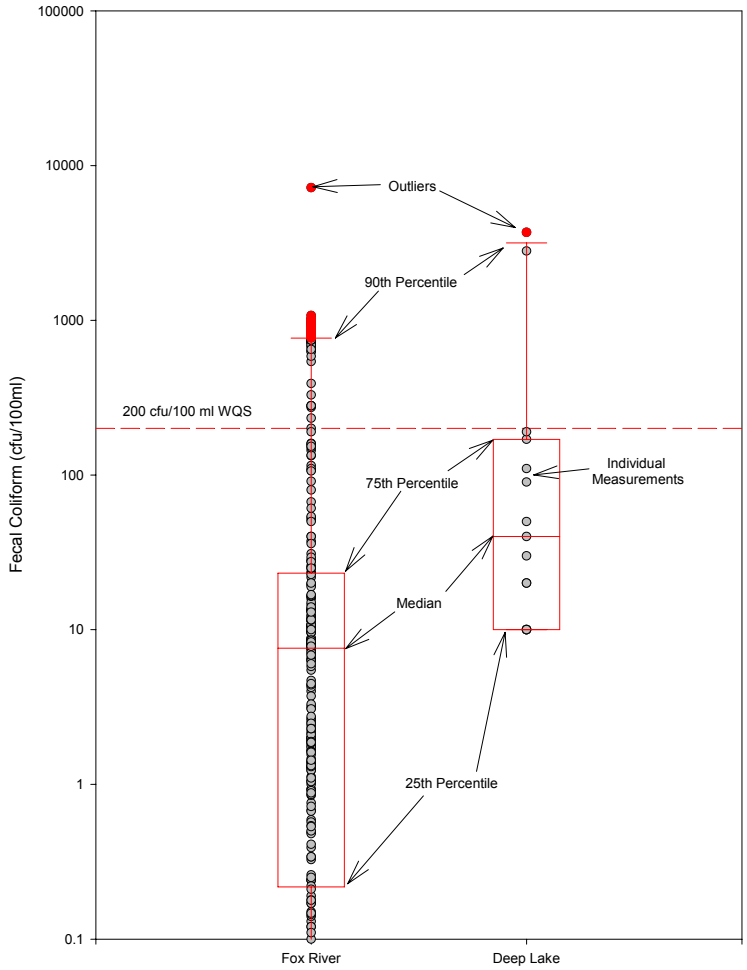
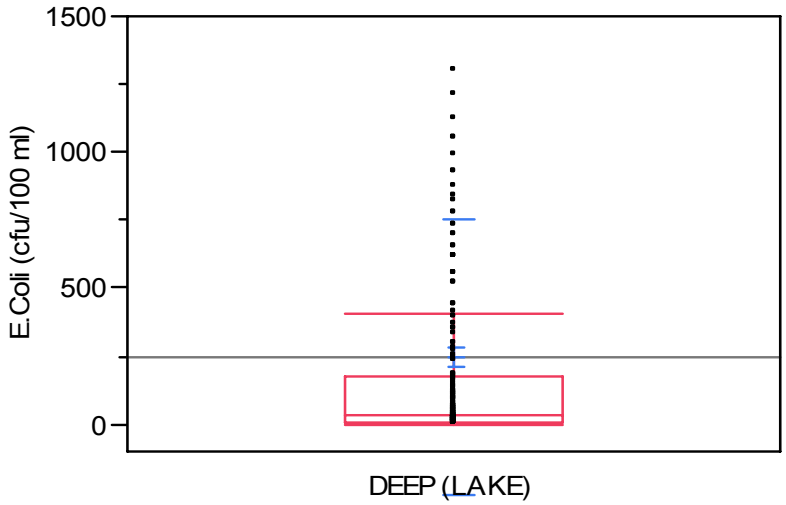


Figure 5-4: Deep Lake *E.Coli*



E. coli, another pathogen indicator species, was also sampled within Deep Lake. 246 *E. coli* samples were collected in Deep Lake at multiple locations and multiple times per day from May 2002 to August 2007. Although Illinois does not have a numerical standard for *E. coli*, the US EPA document "Ambient Water Quality Criteria for Bacteria – 1986" states a freshwater bathing criteria of a geometric mean from five samples within a 30 day period not exceed 126 cfu/100ml (US EPA 1986). Although geometric means were not calculated for each 30 day period for this analysis, 71 individual samples exceeded 126 cfu/100ml equating to 29% of the samples collected in Deep Lake.

Sources of bacteria in the Upper Fox River/Chain O' Lakes watershed are potentially storm water related. These potential sources may include failing systems, combined sewer overflows (CSO), sanitary sewer overflows (SSO), sewer pipes connected to storm drains, recreational activities, wildlife including birds along with domestic pets and animals and direct overland storm water runoff. Note that bacteria from wildlife is generally considered a natural condition unless some form of human inducement, such as feeding, is causing congregation of wild birds or animals. But this source is often difficult to separate from others. Further, some WWTPs within the Upper Fox River/Chain O' Lakes maintain disinfection exemptions and these facilities also serve as potential sources of bacteria. Such exemptions allow WWTPs to discharge without disinfection if they are able to prove that bacterial water quality standards can be met further downstream. Stage 3 of TMDL development will identify those WWTPs that have been assigned disinfection exemptions.

All active NPDES point sources discharging within each impaired segment's watershed are described in Section 6.0. A general description of non-point sources is also provided in Section 6.0.

5.2.4 Total Ammonia Nitrogen

Pistakee Lake was targeted for an ammonia nitrogen TMDL due to available data for ammonia (1987). More recent data (2008) have shown that both acute and chronic standard violations no longer exist, and as such, Illinois EPA expects to de-list Pistakee Lake for its ammonia impairment. Surface water (1.0 ft water depth) ammonia nitrogen concentrations ranged from 0.03 to 1.46 mg/L, with an average of 0.32 mg/L.

Table 5-1: Pistakee Lake 2008 Surface Ammonia-N Concentrations and Water Quality Standards

Date	Station	NH3 (mg/l)	temp ©	pH	Acute Standard	exceedance	Usability
7/7/2008	RTU-1	ND	24.5	8.38	4.03602655	no	usable
7/7/2008	RTU-3	ND	24.5	8.36	4.195718573	no	usable
8/6/2008	RTU-1	ND	27	8.36	4.195718573	no	usable
8/6/2008	RTU-3	0.0600	27	8.48	3.327964404	no	usable
9/3/2008	RTU-1	0.0700	25.1	8.24	5.298706304	no	usable
9/3/2008	RTU-3	0.0300	25.1	8.16	6.18881402	no	usable
10/22/2008	RTU-1	0.1750	13.1	7.61	16.76052785	no	usable
10/22/2008	RTU-3	0.0841	10.6	7.85	11.09847562	no	usable

Date	Station	NH3 (mg/l)	temp ©	pH	Chronic Standard	exceedance	Usability
7/7/2008	RTU-1	ND	24.5	8.38	1.162000184	no	usable
7/7/2008	RTU-3	ND	24.5	8.36	1.201587432	no	usable
8/6/2008	RTU-1	ND	27	8.36	1.127182088	no	usable
8/6/2008	RTU-3	0.0600	27	8.48	0.920813759	no	usable
9/3/2008	RTU-1	0.0700	25.1	8.24	1.441499912	no	usable
9/3/2008	RTU-3	0.0300	25.1	8.16	1.638201139	no	usable
10/22/2008	RTU-1	0.1750	13.1	7.61	3.936232762	no	usable
10/22/2008	RTU-3	0.0841	10.6	7.85	2.987931888	no	usable

Elevated ammonia concentrations are likely related to eutrophication which may be caused by point and non-point sources. Point sources of total ammonia nitrogen are generally waste water treatment facilities. All active NPDES point sources discharging within each impaired segment's watershed are described in Section 6.0. A general description of non-point sources is also provided in Section 6.0.

5.2.5 Total Phosphorus

Compliance with the TP WQS for this report is based on samples collected at three feet or less from the water surface. A three foot depth maximum was used due lack of data at the one foot depth for many of the impaired lake segments. The WQS for total phosphorus is a maximum concentration of 0.05 mg/L and is applicable only to lakes with a surface area of 20 acres or greater. Twenty eight lake segments in the Upper Fox River/Chain O' Lakes watershed are targeted for TP TMDL development.

A database was created for this TMDL analysis and includes 1,786 phosphorus samples collected between September 1972 and August 2007 from the 28 impaired segments. Many of the lakes contained data from multiple depths and multiple stations on any given day. To summarize in-lake TP concentrations for the 28 segments, surface water samples (samples collected at water depths less than or equal to three feet) were averaged by date across the lake; 996 individual samples collected at ≤ 3ft (Table 5-2) were averaged to yield 636 data points. A majority of the 996 samples were collected prior to 2005. A summary of the averaged data (636 points) are presented in Table 5-3 and graphically represented as box and whiskers plots in Figure 5-5. Overall 63% of the average TP concentrations were equal to or exceeded the 0.05 mg/L WQS. Individual box plots and time-series figures for each waterbody are included in Appendix E.

Elevated phosphorus concentrations are potentially the result of point and non-point sources. Non-point sources of nutrients within the Upper Fox River/Chain O' Lakes watershed may include urban and agricultural runoff. Point sources of nutrients are generally from waste water treatment facilities. All active NPDES point sources discharging within each impaired segment's watershed are described in Section 6.0. A general description of non-point sources is also provided in Section 6.0.

Table 5-2: Upper Fox River/Chain O' Lakes Surface Total Phosphorus Samples by Year

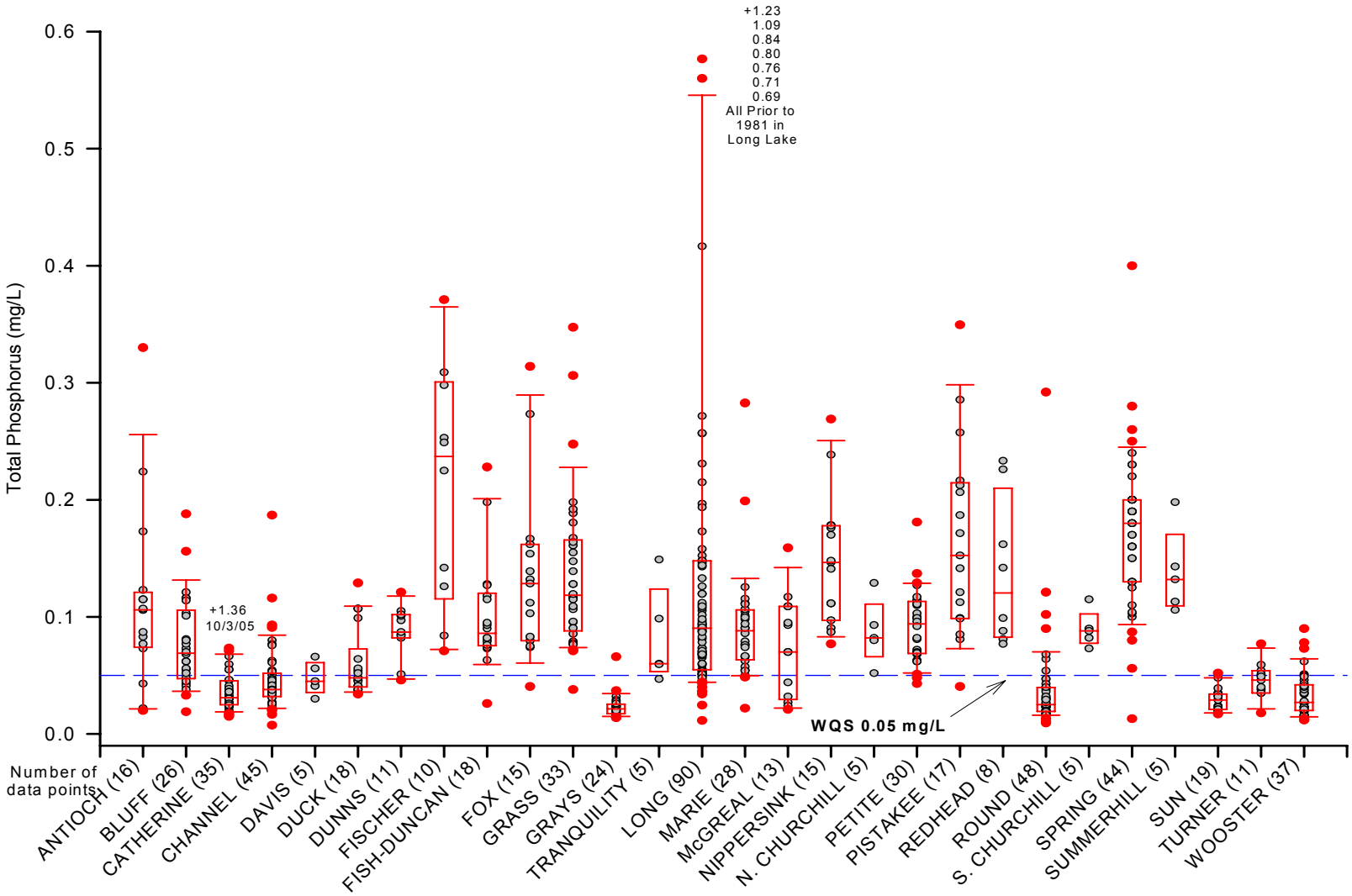
Lake Name	Total Number of Samples	Number of Stations	Available Data
Antioch	16	1	1988-89,1992-93,2001
Bluff	26	1	1987-88, 1993, 1996, 1998-99, 2002, 2005
Catherine	73	8	1981, 1984, 1987, 1990, 1993, 1996, 1998-00, 2002, 2005
Channel	97	3	1979, 1981, 1984, 1987, 1990, 1993, 1996, 1998-99, 2002-03, 2005
Davis	5	1	2000
Duck	18	1	1988-89, 1995, 1997, 2001, 2006
Dunn's	11	1	1989, 1997, 2002
Fischer	10	1	2001, 2006
Fish-Duncan	18	1	1988-89, 1997, 2002, 2006
Fox	32	5	1973, 1979, 1983, 1999, 2002, 2004-05
Grass	69	5	1973, 1983, 1987, 1990, 1993, 1996, 1999, 2002, 2005
Grays	30	3	1988, 1991, 1996, 1998, 2002
Tranquility	10	2	2002
Long	195	5	1973, 1977, 1979-86, 1988, 1991, 1996, 1999, 2000-03, 2005-07
Marie	57	5	1973, 1987, 1993, 1996, 1999, 2002, 2005
McGreal	13	1	1992-93, 2002
Nippersink	27	2	1996, 1999, 2002, 2005
N Churchill	5	1	2003
Petite	30	2	1987, 1989, 1990, 1993, 1996, 1998-99, 2002, 2005
Pistakee	35	5	1973, 1983, 1987, 1999, 2002, 2005
Redhead	12	3	1981, 1988, 2002
Round	84	3	1977, 1979-80, 1989, 1991, 1995-96, 1999, 2002-03, 2005
S Churchill	5	1	2003
Spring	44	1	1972-76, 1999, 2002
Summerhill	5	1	2004
Sun	19	1	1991-93, 2001
Turner	11	2	1989, 1997, 1999, 2002, 2006
Wooster	39	3	1983, 1989, 1992, 1995, 1999, 2003, 2005-07

Table 5-3: Upper Fox River/Chain O' Lakes Surface Total Phosphorus Concentration Summary (1998 – 2008)

Lake Name	Number of Data Points after Averaging by Date	Minimum Conc. (mg/L)	Maximum Conc. (mg/L)	Average Conc. (mg/L)	Median Conc. (mg/L)	# ≥ WQS (0.05 mg/L)	% Exceed WQS (0.05 mg/L)
Antioch	5	0.08	0.33	0.14	0.12	5	100
Bluff	13	0.03	0.19	0.07	0.07	10	77
Catherine	22	0.02	1.36	0.09	0.03	2	9
Channel	28	0.02	0.19	0.04	0.04	5	18
Davis	5	0.03	0.07	0.05	0.05	2	40
Duck	10	0.03	0.13	0.07	0.05	6	60
Dunn's	5	0.08	0.12	0.10	0.09	5	100
Fischer	10	0.07	0.37	0.21	0.24	10	100
Fish-Duncan	10	0.07	0.13	0.10	0.09	10	100
Fox	15	0.03	0.16	0.08	0.08	10	67
Grass	15	0.04	0.25	0.11	0.09	12	80
Grays	8	0.02	0.07	0.03	0.02	1	13
Tranquility	5	0.05	0.15	0.08	0.06	4	80
Long	35	0.02	0.15	0.08	0.06	25	71
Marie	13	0.03	0.12	0.07	0.07	10	77
Mcgreal	5	0.02	0.16	0.09	0.10	4	80
Nippersink	10	0.08	0.27	0.16	0.16	10	100
N Churchill	5	0.05	0.13	0.09	0.08	5	100
Petite	14	0.02	0.13	0.07	0.08	10	71
Pistakee	16	0.02	0.35	0.13	0.11	10	63
Redhead	5	0.08	0.23	0.14	0.14	5	100
Round	24	0.002	0.1	0.03	0.02	2	8
S Churchill	5	0.07	0.12	0.09	0.09	5	100
Spring	5	0.01	0.1	0.07	0.09	4	80
Summerhill	5	0.11	0.20	0.14	0.13	5	100
Sun	5	0.03	0.05	0.04	0.04	1	20
Turner	10	0.02	0.06	0.03	0.03	1	10
Wooster	28	0.01	0.09	0.04	0.03	4	14

Surface data include samples collected at or less than 3' from the surface. Data were averaged across the lake (i.e., includes multiple stations when available) by date including all depths at or below 3' from the surface.

Figure 5-5: Average Surface Phosphorus Concentrations by Date for Impaired Lakes (1972-2007)



6.0 Impaired Segments and Potential Sources

This section provides a brief description of each impaired segment within the Upper Fox River/Chain O' Lakes watershed. Much of the information provided in this section was obtained from the Lake County Health Department (LCHD) Environmental Health Services Lakes Management Unit (LMU) and from the Fox Chain O' Lakes Investigation and Water Quality Management Plan (Kothandaraman et al., 1977). The LCHD has been collecting water quality data from lakes since the 1960's. Detailed lake reports have been developed for a number of lakes in the County. For those lakes not covered by LCHD reports, the 1977 study and information provided in the Illinois Integrated Water Quality Report and Section 303(D) List – 2008, were used to characterize the listed segments. Since most of these segments are hydraulically connected, they are discussed in an upstream to downstream order. The LCHD's detailed lake report can be found in the following website: http://www.lakecountyil.gov/Health/want/LakeReports.htm.

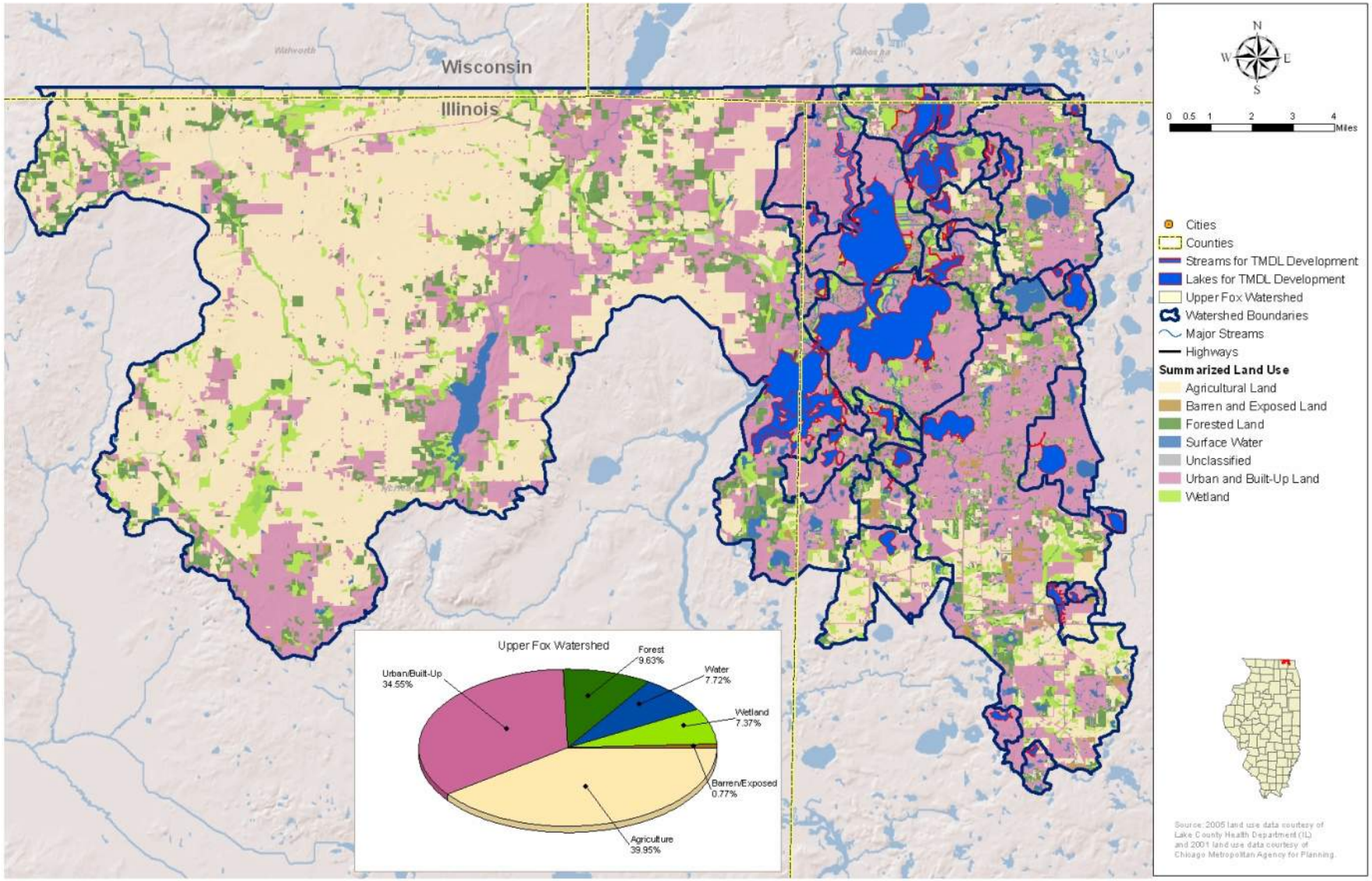
Segment subwatersheds were delineated using ArcMap software based on LCHD, Lake County Stormwater Management Commission (SMC) information and topographic maps (two foot surveys). Land use within each segment subwatershed is based on data provided by Lake County from 2005 land use where available. In areas where 2005 data were not available, 2001 data provided by the Chicago Metropolitan Agency for Plan were used. A majority of the segment watersheds were covered under the Lake County 2005 data. Small portions of watersheds for the following segments utilized 2001 data: Grass, Nippersink, Fox Lake, Turner, Dunn's, Redhead and Louise. Figure 6-1 provides a land use map with each impaired segment's watershed boundary. The watershed areas described below do not include the area of the lake itself. Individual maps for each waterbody as well as a summary of land use data for all watersheds can be found in Appendix A and C respectively.

Lakes with high watershed-to-lake area ratios have a large portion of the hydrologic budget stemming from surface water flow. Water quality in these lakes is highly dependant on in-flow water quality. In-lake water quality typically declines with increasing watershed-to-lake ratios. Lakes with watershed-to-lake ratios <10:1 are less likely to have eutrophication problems. These ratios have been calculated for all the lake segments and are discussed below.

In addition, the water quality condition of a water body is related to the level of development or urbanization in its watershed. The more developed an area is, the higher the percentage of impervious surface. The Center of Watershed Protection published a document entitled "*Impacts of Impervious Cover on Aquatic Systems*" (2003) which summarizes two dozen studies documenting a strong relationship between impervious cover and stream water quality. They concluded that stream quality declines with increased impervious cover such that drainage areas containing >10% impervious cover were impacted and areas with >25% were impaired (CWP 2003).

Impervious cover (IC) was estimated for each watershed by using the land use data for each segment and multiplying this area by the estimated impervious percentage based on the land use category. The estimated IC percentage was derived from the Center of Watershed Protection's study of the Chesapeake Bay Watershed (CWP 2001). Similar to the Chesapeake Bay Study, the average of the low and high IC percentage for all residential land use was used to characterize imperviousness for the Fox River/Upper Chain O' Lakes due to insufficient residential use data (i.e., low and high).

Figure 6-1: Impaired Segment Watershed Land Use



6.1 Non-Point Sources and Subwatershed Characteristics

When discussing surface water total phosphorus concentrations in the paragraphs below, the average of surface concentration from all stations and at water depths ≤ 3 feet on a given sampling date were calculated before determining statistics unless otherwise noted. For example, the minimum value is the minimum average of all in-lake stations sampled on a given day at depths ≤ 3 feet. These data are presented in Section 5 in Table 5-3 and illustrated on Figure 5-5.

6.1.1 Fox River

The Fox River segment located in the northwest portion of the Upper Fox River/Chain O' Lakes watershed extends from the Wisconsin border to the Chain O' Lakes on the western portion of Grass Lake. This segment is 4.9 miles and is impaired for fecal coliform.

The Illinois portion of the watershed is approximately 3,911 acres. The majority of this area is classified as open space (60%). Industrial, warehousing, and wholesale trade make up the next largest area (10%). All other areas are less than 10% of the Illinois portion of this watershed. Impervious cover for the area accounts for approximately 12% of the total area.

Thirty one samples from the Fox River portion located in the Upper Fox River/Chain O' Lakes watershed were analyzed for fecal coliform from May 1999 through July 2008 (Figure 5-3). Twenty-nine percent (9 samples) exceeded the 200 cfu/100 ml WQS.

Sources of fecal coliform in this portion of the Fox River stemming from Wisconsin are unknown. Sources of bacteria in the Fox River in the Illinois portion of the watershed are potentially storm water related. Sources may include combined sewer overflows (CSO)[2], sanitary sewer overflows (SSO), illicit connections (sewer pipes connected to storm drains), failing systems, recreational activities, wildlife including birds along with domestic pets and animals and direct overland storm water runoff. Note that bacteria from wildlife is generally considered a natural condition unless some form of human inducement, such as feeding, is causing congregation of wild birds or animals. But this source is often difficult to separate from others. There are no active NPDES dischargers in the Illinois portion of the Fox River segment DT-35. Dischargers upstream of this segment in Wisconsin have the potential to impact water quality within this segment. Additional investigations into the Wisconsin's impacts on the Fox River water quality will be conducted in Stage 3 of the TMDL.

6.1.2 Davis Lake

Davis Lake is located in the southern portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is a shallow impoundment with 33.1 surface acres created by flooding an existing wetland in 1940. Maximum and mean water depths are 18.0 and 9.0 feet respectively (LCHD 2001).

The watershed of Davis Lake is 441 acres. The watershed-to-lake area ratio is 13:1, slightly higher than the 10:1 threshold when one would expect to have water quality problems. The Davis Lake watershed is primarily open space (31%) and residential (22%) and contains approximately 12% impervious surface.

Although shallow, this impoundment does experience strong thermal stratification during the summer months. The LMU 2000 Summary Report of Davis Lake (LCHD 2001) notes that Davis Lake undergoes anoxia (DO < 1.0 mg/L) in water depths below 3.6 feet in July. Surface water DO concentrations are also lower than desirable with concentrations below 5.0 mg/L in July, August and September. Fish kills are not uncommon in Davis Lake due to oxygen depletion, but this condition is consistent with similar bog type lakes like Davis Lake.

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[2] There may be CSOs in the watershed, but there are no known outfalls in Lake County.

Davis Lake is listed as impaired due to excessive phosphorus concentrations. Water quality data for Davis Lake is limited to the 2000 study conducted by the LMU. Concentrations of surface TP ranged from 0.03 to 0.07 mg/L, with an average of 0.05 mg/L (Table 5-3, Figure 5-5, Appendix E). The July and August samples contained concentrations above WQS (0.07 and 0.06 mg/L respectively). Hypolimnetic concentrations were much higher and ranged from 0.30 to 0.84 mg/L, with an average of 0.57 mg/L.

The lake does not experience algal blooms but contains extensive stands of submerged rooted aquatic plants, dominated by coontail (*Ceratophyllum demersum*). Coontail was observed at 91% of sampled sites in 2000 (LCHD 2001). Eutrophic lakes are typically algal or rooted plant dominated; rarely does co-dominance exist. It is believed that rooted plants are outcompeting algae for resources and therefore planktonic blooms are limited in Davis Lake and water clarity remains desirable; Secchi disk transparency (SDT) was 8.1 feet on average.

Potential sources of phosphorus entering Davis Lake, according to the LMU, includes Owens Lake and internal loading. Much of the watershed is undeveloped and therefore non-point sources are limited. Although not specifically discussed as internal loading in the 2000 Summary Report, the recycling of phosphorus from sediments is likely significant. The extensive stands of rooted plants decay and accumulate phosphorus in bottom sediments which can be released under anoxic conditions or resuspended due to turbulence. There are no active NPDES discharges in the Davis Lake watershed.

6.1.3 Summerhill Estates Lake

Summerhill Estates Lake is located in the southern portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is a small shallow glacial lake with 49.9 surface acres. Maximum and mean water depths are 6.3 and 3.2 feet respectively (LCHD 2005).

The watershed encompasses 395 acres resulting in a watershed-to-lake ratio of 8:1. The flushing rate of Summerhill Estates is 1.5 years (LCHD 2005). The southern portion of the watershed is used as residential (11%) while the remaining portion is primarily open space (69%). Summerhill Estates' watershed is 11% impervious. Use of this waterbody is limited to the lakeside residents (approximately 10 homes).

The LMU 2004 Summary Report of Summerhill Estates Lake (LCHD 2005) notes that Summerhill Estates Lake undergoes a sharp decline in surface water DO concentrations in June with low concentrations continuing through July with rebounding concentrations in August and September. The drop in DO is assumed to be the result of decomposition of an invasive species (curly leaf pondweed, *Potamogeton crispus*). This plant reaches excessive densities in the early summer and dies off mid-summer.

Summerhill Estates Lake is listed as impaired due to excessive phosphorus concentrations. Water quality data for Summerhill Estates Lake is limited to the 2004 study conducted by the LMU. Concentrations of surface TP ranged from 0.11 to 0.20 mg/L, with an average of 0.14 mg/L (Table 5-3, Figure 5-5, Appendix E). All five samples collected contained concentrations above WQS.

The lake experiences late summer algal blooms and contains extensive stands of submerged rooted aquatic plants, dominated by curly leaf pondweed (LCHD 2005). Eutrophic lakes are typically algal or rooted plant dominated; rarely does co-dominance exist due to competition for resources. Summerhill Estates Lake does experience both, however, not concurrently. Curly leaf pondweed is an early summer plant, dying off mid-summer. The desiccation of this plant reduces resource competition and releases phosphorus. These factors provide an ideal environment for planktonic blooms. Blue green algal blooms have been documented in Summerhill Estates Lake, but were not present during the 2004 study. It is suspected that blooms in Summerhill Estates Lake would be much worse if the rooted plants did not curtail bloom formation in early summer.

Potential sources of phosphorus entering Summerhill Estates Lake, according to the LMU, are limited due to the small watershed. Based on information provided in the LMU report, sources potentially include residential

septic systems, internal loading (plant decomposition and sediment release and resuspension) and agricultural runoff. Lawn fertilizer runoff, while not listed by the LMU, is also a potential source of TP. There are no active NPDES discharges in the Summerhill Estates Lake watershed.

6.1.4 North and South Churchill Lake

North Churchill Lake and South Churchill Lake are located in Round Lake Park the southern portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2) and are owned by the Saddlebrook Farms Retirement Community. Both lakes were artificially created in the 1990's during the development for Saddlebrook Farms, a retirement community, and are shallow (LCHD 2003). North Churchill Lake is slightly larger and deeper than South Churchill Lake. North Churchill Lake is 62.1 acres with a maximum and mean depth of 11.0 and 5.5 feet respectively. South Churchill Lake is 24.8 acres with a maximum and mean depth of 9.0 and 4.5 feet respectively. The lakes are connected by a small channel and drain to Squaw Creek.

The watershed of South Churchill Lake is 504 acres with a watershed-to-lake area ratio of 20:1. The watershed is primarily used for row crop, grain or grazing (41%), residential (16%) and transportation, communication, and utilities (17%). Fifteen percent of the watershed is impervious. The North Churchill Lake watershed is 640 acres and includes South Churchill Lake and its watershed. The watershed-to-lake area ratio is 10:1, the threshold at which one would expect to have water quality problems. However, South Churchill Lake drains to North Churchill Lake and characteristics of the South Churchill Lake watershed are ones in which water quality problems are likely (high watershed-to-lake area ratio and high IC%). The North Churchill Lake watershed is 14% impervious surface.

The LMU 2003 Summary Report of North Churchill Lake and South Churchill Lake (LCHD 2003) notes that these lakes do not thermally stratify because of their shallow morphometry. Surface concentrations of DO remain above 5.0 mg/L throughout the summer, but concentration near the bottom in both lakes were below this threshold during the summer. Bottom waters in North Churchill Lake & South Churchill Lake did not go anoxic during 2003, but concentrations in North Churchill Lake were very low (<2.0 mg/L at and below 9' in August).

Both the North Churchill Lake and South Churchill Lake are impaired due to excessive phosphorus concentrations. These lakes also have poor water clarity and high suspended solid concentrations. Water quality data for the North Churchill Lake and South Churchill Lake are limited to the 2003 study conducted by the LMU. Concentrations of surface TP in North Churchill Lake ranged from 0.05 to 0.13 mg/L, with an average of 0.09 mg/L in North Churchill Lake (Table 5-3, Figure 5-5, Appendix E). South Churchill Lake had similar concentrations: range 0.07 – 0.12 mg/L and an average of 0.09 mg/L. Bottom TP concentrations in both lakes were similar to surface concentrations. All 10 surface samples in 2003 exceeded the WQS. Water clarity in both lakes is poor and averaged just above a half of foot (0.6 and 0.7 feet in North Churchill Lake and South Churchill Lake respectively). The poor clarity is related to high total suspended solids (TSS) concentrations. Average seasonal TSS for North Churchill Lake and South Churchill Lake are 77 and 44 mg/L respectively, 6-10 times the Lake County median.

Filamentous forms of algae were noted in South Churchill Lake but neither lake experienced an algal bloom during the 2003 study (LCHD 2003). TP concentrations are high enough to support frequent nuisance blooms, but high turbidity and low clarity appear to be limiting algal growth. Rooted plant growth is also limited in these lakes.

Potential sources of phosphorus and other nutrients entering North Churchill Lake and South Churchill Lake, according to the LMU, include stormwater which carries runoff containing fertilizers and eroding soils from the shoreline and construction sites. Significant erosion of the shoreline was documented by the LMU due to poorly constructed walls and buffers. High TSS can also be attributed to the excessive carp population in these lakes. Carp disturb bottom sediments during rooting and foraging which increases TSS and nutrients while

decreasing water clarity. Stormwater from a local greenhouse was also noted as a significant source in the LMU 2003 Summary Report.

Effluent from a waste water treatment facility (WWTF) and excessive carp may also be substantial sources of nutrients within these lakes. There is a WWTF for Saddlebrook Farms within the watershed. This facility sprays treated effluent on fields for irrigation (LCHD 2003). It is likely that some of the nutrients are transported to these lakes during runoff events.

6.1.5 Hidden Lake

Hidden Lake is located in the Saddlebrook Farms retirement community in the southern portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2) and is owned by the Saddlebrook Farms Retirement Community. Hidden Lake is a small, shallow, artificially created waterbody. The lake is 19.1 acres with a maximum and mean depth of 6.0 and 3.0 feet respectively. The outlet structure was not operational at the time of the LMU study (2002) and the lake level was lower than normal. Under normal conditions, water would top the spillway and drain to Squaw Creek.

The watershed of Hidden Lake is 140 acres resulting in a watershed-to-lake area ratio of 7:1, below the 10:1 threshold when one would expect to have water quality problems. The Hidden Lake watershed is primarily residential (30%) and open space (22%). Nineteen percent of the watershed is impervious surface, a level where water quality issues are highly likely.

The LMU 2002 Summary Report of Hidden Lake (LCDH 2003) shoreline assessment revealed a high level of development. Ninety-six percent of the shoreline is developed of which 43% is manicured lawn. These land uses do not provide an ideal environment for pollutant mitigation. Also discouraging is the fact that 53% of the shoreline had some level of erosion. Historical use of the watershed was agricultural.

The LMU 2002 Summary Report of Hidden Lake (LCHD 2003) notes that this lake does not thermally stratify because of its shallow morphometry. Concentrations of DO were below 5.0 mg/L in June, July and August (Figure 5-2). Extensive algal blooms, which occurred concurrently with the low DO, consume oxygen during respiration and decomposition and is the presumed cause for the low DO.

Hidden Lake is impaired due to low DO and high pH. Both of these water quality variables can be attributable to excessive algal densities, which are linked with excessive phosphorus concentrations. During photosynthesis, algae remove carbon dioxide from the water increasing hydroxide concentration (increasing pH). During respiration, algae will consume oxygen reducing the amount available for other biota. Oxygen is also consumed during the decomposition process. The more organic material available for breakdown, the more oxygen is consumed. The extensive algal blooms observed in Hidden Lake explain the low DO and high pH values observed (>9.0 on September 4, 2002).

Hidden Lake is not listed as impaired for excessive TP concentrations since the standard is applicable only to lakes with surface acreage of ≥ 20. However, elevated TP concentrations fuel algal blooms which have resulted in the impairment conditions. TP concentrations in Hidden Lake are excessive with values ranging from 0.19 to 0.27 mg/L and an average of 0.22 mg/L, well above the 0.05 mg/L standard for larger lakes. Controlling phosphorus in Hidden Lake may result in increased DO and lower pH.

Hidden Lake also suffers from poor water clarity and high suspended solid concentrations. Like the Churchill Lakes, poor clarity and high TSS concentrations are likely due to an extensive carp population. Water clarity in Hidden Lake ranged from 0.4 to 0.8 feet (average 0.6 feet) and can be explained by high TSS concentrations and algal blooms (LCHD 2003). Average TSS for Hidden Lake was 74 mg/L respectively, 12 times the Lake County median. The low light and disruptive nature of carp has severely limited the aquatic vegetation in Hidden Lake, so much so that aquatic vegetation was listed as "nonexistent" in the LMU 2002 Summary Report of Hidden Lake (LCHD 2002).

Potential sources of phosphorus, and therefore indirect cause of low DO and high pH, include stormwater and internal recycling. There are two large stormwater drainage pipes that discharge directly to Hidden Lake. Discharge from these pipes is so severe that sediment deposition deltas have formed. The LMU noted that although there are significant stormwater related sources (including fertilizers and erosion) the majority of the input is suspected to be internal. Potential internal sources include waterfowl, sediment resuspension and flux of phosphorus from sediments accumulated during decomposition of organic matter. There are no active NPDES dischargers within the Hidden Lake watershed.

6.1.6 Grays Lake

Grays Lake is located in the southern portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is a glacial lake with 80 surface acres. Maximum and mean water depths are 20 and 5.7 feet respectively. Historically, water from Grays Lake flowed into Squaw Creek which is a part of the Upper Fox River drainage system, but flow has since been diverted from the lake into Mill Creek through a spillway and storm sewer system. Mill Creek is a part of the Des Plains Watershed. Stage 3 of the TMDL for Grays Lake will be completed with the Chain O' Lakes watershed.

The watershed of Grays Lake is small (176 acres) in proportion to the lake area (ratio 2:1). The low watershed-to-lake area ratio suggests that water quality is likely desirable. However, 36% of the watershed is residential with the majority of it concentrated along the shoreline. The shoreline of Grays Lake is highly developed (96%) and composed of rip rap (39%) and seawall (37%) (LCDH 2002). The impervious cover in Grays Lake watershed is relatively high at 15%.

The LMU 2002 Summary Report of Grays Lake (LCDH 2002) notes that the lake thermally stratifies during the summer months (June-Sept) and mixes in the fall. DO concentrations remain above 5.0 mg/L throughout the year except in July and August where less than 10% of the volume of the lake becomes anoxic.

Grays Lake is listed as impaired due to excessive TP concentrations. Water quality data for Grays Lake were collected in 1988, 1991, 1996, 1998 and 2002. Surface water TP concentrations for more recent data (i.e. after 1998) ranged from 0.02 to 0.07 mg/L, with an average of 0.03 mg/L (Table 5-3, Figure 5-5, Appendix E). Thirteen percent were above the 0.05 mg/L WQS. The highest TP concentration occurred in May 2002 before the lake underwent stratification (LCDH 2002). Bottom concentrations were only slightly higher (average = 0.04 mg/L).

Grays Lake is dominated by aquatic rooted vegetation. The most frequent species is *Chara sp.*(a macro alga) which occurred at 41% of sites sampled in 2002. The lake contains invasive aquatic plants, Eurasian watermilfoil (*Myriophyllum spicatum*) and curly leaf pondweed, which are controlled through the use of herbicides. Eutrophic lakes are typically algal or rooted plant dominated; rarely does co-dominance exist. It is believe that rooted plants are outcompeting algae for resources and therefore planktonic blooms are limited in Grays Lake. Water clarity is above average; Secchi disk transparency (SDT) was 8.46 feet on average.

The Grays Lake Park District has managed Grays Lake for the past 30 years conducting activities ranging from fish stocking to herbicides control of nuisance plant growth such as Eurasian watermilfoil and curly leaf pondweed. The reduction of these two plants may be the reason for the dominance of *Chara sp*. in Grays Lake. During sampling in 2002 milfoil was only found at four of the 153 sites.

Potential sources of phosphorus entering Grays Lake, according to the LMU 2002 study, include internal loading from nutrient rich sediment. External phosphorus inputs to the lake may consist of fertilizer runoff and erosion however rainfall data did not correspond with this assumption, pointing towards internal loading from bottom sediment being the dominate source of phosphorus into the lake. There are no active NPDES dischargers within the Grays Lake watershed.

6.1.7 Round Lake

Round Lake is located in the eastern mid section of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is a glacial lake with 228.6 surface acres. Maximum and mean water depths are 32 and 8.4 feet respectively (LCDH 2004).

The watershed encompasses 2,549 acres resulting in a watershed-to-lake area ratio of 11:1. The watersheds land use is mostly residential (37%), transportation, communication, and utilities (17%) and open space (16%). Impervious cover is high (23%) above the threshold where water quality issues are likely. Fish and wildlife are abundant throughout the Round Lake watershed and support recreational fishing and hunting.

The LMU 2003 Summary Report of Round Lake (LCDH 2004) notes that the lake thermally stratifies during the summer months, starting at 12 feet in June and dropping to a low 28 feet in September. DO concentrations remained above 5.0 mg/L throughout the year except during the summer months. Concentrations below 1.0 mg/L were recorded in August at 17' or deeper as recently as 2005.

Round Lake is listed as impaired due to excessive TP concentrations. Phosphorus data in 1977, 1979, 1980, 1989, 1991, 1996, 1999, 2002, 2003 and 2005 are available from Illinois EPA, Lake County and the Legacy STORET database (Appendix B). Recent surface water TP data (i.e. after 1998) ranged from 0.001 to 0.10 mg/L, with an average of 0.03 mg/L. 2005 surface TP concentrations ranged from 0.01 to 0.06 mg/L, with an average of 0.02 mg/L (three stations evaluated independently). One sample collected in August was above the WQS. 2005 bottom TP concentrations were higher than surface concentrations. Values ranged from 0.03 to 0.125, with an average of 0.06 mg/L.

Round lake is dominated by Eurasian watermilfoil found at 65% of all sample sites. Other species of aquatic vegetation such as coontail, Illinois pondweed (*Potamogeton illinoensis*) and *Chara sp.* are common in this lake as well. Eutrophic lakes are typically algal or rooted plant dominated; rarely does co-dominance exist. It is believed that aquatic vegetation is outcompeting algae for resources and therefore planktonic blooms are limited in Round Lake. Water clarity in Round Lake is above the Lake County mean and averaged 7.3' historically. There is also a concern that over management of aquatic vegetation will result in nuisance algal blooms.

Potential sources of phosphorus entering Round Lake, according to the LMU 2003 study, have been traced to stormwater runoff flushing a mixture of road salt and lawn fertilizer into the lake. It has been suggested that no-phosphorus lawn fertilizers be used within the watershed. Internal loading may also be a source in Round Lake given the higher concentrations at the bottom and low DO concentrations. There are no active NPDES dischargers within the Round Lake watershed.

6.1.8 Fish-Duncan Lake

Fish-Duncan Lake is located in the south-central portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). Fish-Duncan Lake (also known as Fish Lake) is 95.7 acres and was formed by glacial activity. The lake has a maximum and mean depth of 17.0 and 8.5 feet respectively. The Fish-Duncan Lake outlet is located on the northeast portion of the lake and flows north to Fisher Lake.

The Fish-Duncan Lake watershed is approximately 3,186 acres, resulting in a lake to watershed ratio of 33:1. This is a large watershed relative to lake area and therefore water quality of the watershed greatly impacts in-lake water quality. The flushing rate of Fish-Duncan is about 228 days (LCHD 2003), meaning that the entire lake volume is replaced 1.6 times per year. The majority of the watershed is agricultural land (row crop, grain, grazing - 46%) and wetland (14%). All other land uses comprise <10% of the total watershed area. IC is below the threshold (9%) where water quality impacts are likely.

Fish-Duncan Lake was thermally stratified from June through August in 2006. There was ample oxygen in the top layer (epilimnion) to support aquatic life. However, the bottom layer (hypolimnion) was anoxic.

Fish-Duncan Lake is impaired due to excessive phosphorus concentrations. This lake also experience blue-green algal blooms. Phosphorus data in 1988, 1997, 2002 and 2006 are available from Lake County and the Legacy STORET database. A summary of the recent surface TP from these years are provided in Table 5-3 Figure 5-5, and Appendix E. Surface TP ranged from 0.07 to 0.13 mg/L, with an average of 0.10 mg/L. All of the samples were above the 0.05 mg/L WQS including all surface TP concentrations in. Bottom TP concentrations in 2006 ranged from 0.08 to 0.28 mg/L.

Water clarity in Fish-Duncan has been linked to TSS concentrations (LMU 2006). Elevated TSS concentrations in 2006 (18 mg/L) occurred concurrently with a blue-green algal bloom. 2006 water clarity averaged 3.5 feet. Average TSS in 2006 was 11.0 mg/L.

Thirty four percent of Fish-Duncan's lake bottom is covered by rooted plants. Unfortunately, the rooted plant community is dominated by the invasive species Eurasian watermilfoil. Curly leaf pondweed, also invasive, was also identified in Fish-Duncan Lake.

Potential sources of phosphorus and other nutrients entering Fish-Duncan, according to the LMU, include stormwater and internal loading. Transportation land use was found to contribute the highest volume of runoff (24% of all runoff from the watershed). Agriculture land contributed the second most at 18%. Given the high TP concentrations in the hypolimnion and summertime anoxic conditions, internal loading may also be a substantial source of phosphorus in Fish-Duncan Lake. There are no active NPDES dischargers within the Fish-Duncan Lake watershed.

6.1.9 Wooster Lake

Wooster Lake is located in the middle portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is a glacial lake made up of 98.5 acres with a maximum and mean depth of 28.0 and 16.3 feet respectively.

The Wooster Lake watershed is large (4,806 acres) resulting in a watershed to lake ratio of 49:1. Wooster Lake receives water from Fish-Duncan and Fischer Lakes, their watersheds and lands surrounding Wooster Lake. Land use is primarily agricultural (row crop, grain, grazing 29%) with 12% classified as forested, grasslands, or vegetation and 12% wetlands. Twelve percent of the watershed is impervious.

The land use along the shoreline of Wooster Lake is predominately developed (70%). Shrubs, lawns, and wetlands largely make up the 2.0 mile shoreline creating buffers from erosion. When assessed, 31% of the shoreline was classified as slightly eroding and 4% was classified as moderately eroding. No points along the shoreline were flagged for severe erosion (LCHD 2006).

The LMU 2007 Summary Report of Wooster Lake (LCHD 2007) notes that the lake stratifies during the summer months. DO concentrations were above 5.0 mg/L in the epilimnion, but anoxic conditions exist in waters as shallow as 10 feet.

Wooster Lake is impaired due to high phosphorus concentrations. TP data are available from the Illinois EPA, Lake County and the Legacy STORET database for 1983, 1989, 1992, 1995, 1999, 2003 and 2005-2007. The recent average surface TP ranged from 0.01 to 0.09 mg/L, with an average of 0.04 mg/L (Appendix B). Fourteen percent were above the 0.05 mg/L. Average TP concentrations have more than doubled since 1995 (LCHD 2007). Surface TP concentrations in 2007 ranged from 0.03 to 0.08 mg/L, with an average of 0.05 mg/L (1995 average 0.02 mg/L). Bottom TP concentrations in 2007 were higher than surface water, ranging from 0.06 to 0.41 mg/L, with an average of 0.24 mg/L.

Other water quality variables have indicated a decline in water quality as well. TSS levels in Wooster Lake have been increasing since 1995, although on average they remain lower than the Lake County average (LCHD 2007). The higher values were recorded shortly after heavy rain events. Specific conductivity has increased by 43% since 1995. Blooms of bluegreen algae (*Aphanizomenon sp.*) are also on the rise.

The aquatic plant community in Wooster Lake covers approximately 45-49% in 2007. Eurasian watermilfoil dominated early while coontail dominated later in the growing season. Rooted plants were observed in water depths as great as 18 feet in May, but plant growth was limited to depths shallower than 11 feet. The LCHD postulates that if this healthy plant community were to be reduced, then algal growth would likely increase and water clarity would decrease (LCHD 2007).

Potential sources of phosphorus into Wooster Lake were not identified in the 2005-2007 summary reports. However, the large watershed and large percentage of agricultural and developed land suggest that runoff accounts for a large portion of the phosphorus load to Wooster Lake. In addition, the lack of oxygen in bottom waters coupled with high bottom TP concentrations, suggests that internal loading may be a substantial source. Camp Henry Horner is the only active NPDES discharger within the Wooster Lake watershed.

6.1.10 Duck Lake

Duck Lake is located in the Central portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2) and is managed by the Duck Lake Waterway Association. It is a natural slough pothole lake comprised of 110.4 surface acres. Maximum and mean water depths are 9.0 and 4.5 feet respectively. Duck Lake is located downstream of Fish-Duncan, Fischer and Wooster Lakes. Duck Lake discharges to the east into Squaw Creek to Fox Lake.

Duck Lake watershed is large (5,477 acres) and receives runoff from diverse sources. The primary use of the watershed is comprised of agricultural (row crop, grain, grazing 28%) with 13% classified as forested, grasslands, or vegetation and 13% wetlands. IC is also estimated at 12%. Shoreline erosion increased from the previous LMU 2001 study. Since that time rip rap and other restoration techniques were implemented along the banks to improve the condition (LCHD 2006).

The LMU 2006 Summary Report of Duck Lake (LCHD 2006) notes that this lake does not thermally stratify because of its shallow morphometry. Surface concentrations of DO remain above 5.0 mg/L throughout the summer, but concentration near the bottom were below this threshold during the summer. Bottom waters in Duck Lake did not go anoxic during 2006 (LCHD 2006).

Duck Lake is listed as impaired due to excessive phosphorus concentrations. Data are available for TP from Lake County and from the Legacy STORET database for 1988, 1989, 1995, 1997, 2001 and 2006. Recent surface water TP concentrations ranged from 0.03 to 0.13 mg/L with an average of 0.07 mg/L (only one station sampled; Table 5-3, Figure 5-5, Appendix E). The range of surface TP concentrations in 2006 was 0.03 - 0.052 mg/L, which was much lower than in 2001 (0.06 – 0.13 mg/L). Average bottom TP concentration in 2001 was similar to the surface average (0.10 mg/L). Bottom waters were not sampled for TP in 2006.

Rooted plant biomass is controlled in Duck Lake using herbicides. Prior to an herbicide treatment in 2001 submerged vegetation covered 61% of the lakes bottom, after the treatment vegetation decreased to 29%. The dominate species in Duck Lake is Eurasian watermilfoil followed by coontail and white water lily (*Nymphaea odorata*). The drop in rooted aquatic vegetation from the herbicide treatment resulted in an increase in algal blooms and TP (LCHD 2006).

Potential sources of phosphorus entering Duck Lake, according to the LMU 2001 Report, include runoff from surrounding agricultural farms, wetland runoff, and resuspension of sediments by stormwater, motor boats, wind, waves and carp. The Camp Henry Horner wastewater treatment facility is a potential source as it is located in the Wooster Lake watershed, a contributing watershed to Duck Lake.

6.1.11 Fischer Lake

Fischer Lake is located in the middle portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is a man made lake comprised of 98.5 acres with a maximum and mean depth of 11.0 and 5.5 feet respectively (LCHD 2002).

The watershed of Fischer Lake is 4,290 acres and encompasses Fish-Duncan Lake and its watershed. The watershed area to lake area ratio is very large (44:1) and suggests that water quality impacts are likely. The Fischer Lake watershed is primarily row crop, grain, or grazing lands (36%) and contains approximately 11% impervious surface. Residential areas comprise only 7%, but much of this development is concentrated along the shoreline. Sixty-three percent of the shoreline of Fischer Lake is developed (LCHD 2002). Riprap, lawn, seawall and beaches largely make up the 1.7 mile shoreline. Erosion occurs along 63% of the shoreline with 32% of the shoreline erosion categorized as severe (LCHD 2002).

The LMU 2001 Summary Report of Fischer Lake describes the lake as having polymictic characteristics, meaning the lake thermally stratifies and mixes several times throughout the year (LCHD 2002). Stratification occurred during the months of May-July although it is believed the lake mixed at various times between sample dates. During stratification bottom DO levels did reach anoxic levels. In August, mixing occurred throughout the lake and DO was sufficient enough to support aquatic life (LCDH2002).

Fischer Lake is impaired due to high phosphorus concentrations. TP data are limited to the 2001 and 2006 studies performed by Lake County. The average surface TP during the period of record ranged from 0.07 to 0.37 mg/L and averaged 0.21 mg/L (Table 5-3, Figure 5-5, Appendix E). Surface and bottom TP concentrations in 2006 each averaged 0.23 mg/L.

The LMU 2001 study found the aquatic plant community in Fischer Lake to be very minimal, about 5% of the lakes bottom area was covered with vegetation. Eurasian watermilfoil and pondweed (*Potamogeton sp*.) were the most commonly found species in the lake. The over abundance of algae and the high solids levels due resuspension of sediment limits light availability and therefore limits macrophyte growth in Fischer Lake. Water clarity in Fischer Lake is poor. The minimum Secchi disk transparency was 0.8 feet in August 2006. Average transparency in 2001 and 2006 was only 2.3 feet.

Phosphorus enters the lake from the surrounding watershed and from internal loading via resuspension and flux during periods of anoxia. Likely watershed sources consist of fertilizers and proximal agricultural fields. A large population of Canada geese also inhabits the lake adding feces which are highly concentrated with phosphorus (LCDH 2002). The Camp Henry Horner wastewater treatment facility is located in the Wooster Lake watershed and may be a substantial source of phosphorus for Fischer Lake depending on attenuation and uptake of phosphorus upstream.

6.1.12 Redhead Lake

Redhead Lake is located in the southeast portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). Redhead Lake is a shallow glacially formed lake that contains only portion of the open water it has today (51 surface acres). Redhead Lake's increased size was due to the impounding of water by the McHenry and Algonquin dams, erected in 1907 and 1946 respectively. The lake has a current maximum and mean depth of 4.5 and 2.3 feet respectively. Redhead Lake receives water from Lake of the Hollow and a small creek to the east. Redhead Lake drains to the southeast portion of Pistakee Lake.

Redhead Lake's watershed is large (1,326 acres) resulting in a large watershed-to-lake area ratio (26:1). The majority of the watershed is classified as open space (42%) with residential areas the next most abundant land use (19%). Much of Redhead Lake's shoreline remains undeveloped (68%). However, 20% of the developed area consisted of manicured lawns.

Water quality data collected in Redhead Lake is available from Lake County and Legacy STORET for 1981, 1988 and 2002 (Appendix B). DO concentrations in Redhead Lake remained above 5.0 mg/L during all investigations. The lake is very shallow and does not thermally stratify. Surface water TP concentrations, however, were above WQS (0.05 mg/L) for all dates. 2002 TP data ranged from 0.08 to 0.23 mg/L, with an average of 0.14 mg/L. Redhead Lake is listed as impaired due to excessive TP concentrations.

Redhead Lake also has poor water clarity and high TSS. Water clarity in 2002 averaged 1.3 feet, below the average water clarity of all Lake County lakes. TSS concentrations were high, with an average of 37 mg/L. LMU 2002 Summary Report of Redhead Lake (LCHD 2003) suggests that 33% of TSS was attributable to organic particles, like algae. Redhead Lake has thick growths of rooted plant and algae, both filamentous and planktonic.

The rooted plant community in Redhead Lake is dominated by Eurasian watermilfoil and coontail. Curly leaf pondweed was also noted in Redhead Lake. Plant growth covered 50-60% of the surface area of Redhead Lake and is considered undesirable.

Potential sources of phosphorus and other nutrients entering Redhead Lake, according to the LMU, include stormwater and internal loading. Stormwater runoff containing fertilizers and nutrients and solids from erosion may be substantial sources of pollutants to Redhead Lake. The 2002 Summary Report also notes failing septic systems, goose feces and internal sources (sediments and algae) as potential sources. There are no active NPDES dischargers located within this watershed.

6.1.13 Long Lake

Long Lake is located in the middle portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is glacial lake comprised of 392.6 acres with a maximum and mean depth of 30.0 and 13.1 feet respectively (LCHD 2007).

The watershed is large, encompassing 24,820 acres, resulting in a watershed-to-lake ratio of 63:1. Long Lake receives drainage from the Eagle and Squaw Creek watersheds from the north and south respectively. The Round Lake Drain also discharges to Long Lake from the southeast. The lake's outlet is located in the northwest portion and discharges to Squaw Creek to Fox Lake. Land use in the watershed is primarily residential (20%), open space (17%) row crop, grain or grazing (15%) and transportation, communication, and utilities (11%). Impervious cover is estimated at 16%.

The LMU 2007 Summary Report of Long Lake (LCHD 2007) documents week stratification from June through September 2007. DO concentrations below 5.0 mg/L were recorded in Long Lake and were believed to be the result of a planktonic algal bloom (LCHD 2007). Anoxic conditions were recorded during the summer at water depths as shallow as 10 feet.

Long Lake is listed as impaired due to excessive TP. Phosphorus data are available from Illinois EPA, Lake County and the Legacy STORET database for 1973, 1977, 1979-1986, 1988, 1991, 1996, 1999-2002 and 2005-2007 (Appendix B). Recent average surface TP concentrations ranged from 0.02 to 0.15 mg/L, with an average of 0.08 mg/L. Seventy-one percent were above the 0.05 mg/L WQS (Table 5-3, Figure 5-5, Appendix E). 2007 surface TP concentrations ranged from 0.04 to 0.14 mg/L, with an average of 0.09 mg/L; four of the five samples were equal to or exceeded the WQS. 2007 bottom TP concentrations were higher with a range of 0.04 to 1.33 mg/L and averaged 0.60 mg/L.

The LMU 2007 study found the aquatic plant community in Long Lake covers between 19 and 31% of the lake bottom. Rooted plants were limited to depths shallower than eight feet. The community is dominated by Eurasian watermilfoil with coontail the second most common species. Curly leaf pondweed also was considered dense in Long Lake. Some lake side residents have been treating spot areas with herbicides to control plant densities.

Runoff from roads and lawns from storm events has been identified as a major source of phosphorus in Long Lake. Sediment is also a potential source of phosphorus under anoxic conditions (LCHD2007). Long Lake receives water from Squaw Creek and its tributaries which receive treated sanitary wastewater from Freemont School District and Camp Hickory Ingleside. Baxter Healthcare discharges stormwater and treated process water to an unnamed ditch prior to entering Squaw Creek.

6.1.14 Deep Lake

Deep Lake is located in the eastern mid section of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2) and is owned by Lake Villa as well as private residences. It is a glacial lake with 225.7 surface acres and maximum and mean water depths of 48.0 and 17.5 feet respectively (LCHD 2004). Recreational activities on the lake include swimming, boating, and fishing.

Deep Lake receives water from residential areas to the east, Cedar Lake to the west and its watershed and the downtown Lake Villa business district to the south. The watershed (1,401 acres) is small relative to lake area (ratio of 6:1). The watershed land use is predominantly lakes, reservoirs, or lagoons (37%), residential (17%), and forested, grasslands, or vegetation (17%). Impervious cover is estimated at 14%. Homes on the lake utilize septic systems or sewer systems.

The LMU 2003 Summary Report of Deep Lake (LCDH 2004) notes that the lake thermally stratified from May-September. DO concentrations remained above 5.0 mg/L in 69% of the lake volume. Ninety-four percent was > 1.0 mg/L, leaving only a small portion of the lake anoxic.

Many in-lake management techniques have been implemented to control rooted plant growth and algal blooms. Herbicides, harvesting and aeration have been employed at various times during the lakes history. Deep Lake is dominated by Eurasian watermilfoil. Algal blooms do not appear to be an issue for Deep Lake at this time, rather lake level, rooted plant growth, boat operations, runoff and failing septic systems are the largest management concerns (LCDH 2004).

Deep Lake is listed as impaired due to high levels of pathogen indicator species (fecal coliform and/or *E. coli*). Pathogen indicator data are available from 2001 through 2007. The LCHD routinely samples two locations in Deep Lake (Deep Lake Apartments Beach and Jack & Lidia's Resort). The Apartments Beach location was sampled for fecal coliform on eight days in 2001. A total of 15 samples were analyzed for fecal coliform bacteria. Two samples, both collected on 7/10/2001, contained excessive bacteria concentrations (fecal coliform and *E .coli*) above the 200 cfu/ml WQS (2800 and 3700 cfu/ml; Figures 5-3 and 5-4).

E. coli was also sampled 246 times from May 2002 to August 2007 at both locations (Appendix B). Although Illinois does not have a numerical standard for *E. coli*, the US EPA document "Ambient Water Quality Criteria for Bacteria – 1986" states a freshwater bathing criteria of a geometric mean from five samples within a 30 day period not exceed 126 cfu/100ml (US EPA 1986). Although geometric means were not calculated for each 30 day period for this analysis, 71 individual samples exceeded the 30 day geometric mean EPA freshwater bathing criteria of 126 cfu/100ml equating to 29% of the samples collected in Deep Lake.

Sources of pathogen indicators can be narrowed down to waterfowl (mainly Canada geese), runoff, and failing septic systems leaking into the watershed (LCDH 2004). Storm events wash waste from roads and failing septic systems into the lake, and high wind and wave action can stir up waste that is dormant in the sediment creating higher than normal bacteria levels. Historically untreated sewer that was discharged to the Lake Villa Creek during periods of overflow were the cause of high bacteria, but cross connections have been removed leaving stormwater as a primary source of poor water quality. There are no active NPDES dischargers in the Deep Lake watershed.

6.1.15 Sun Lake

Sun Lake is located in the eastern mid section of the Upper Fox River/Chain O' Lakes watershed in the Forest Preserve property (Figure 2-2). The Lake is owned and managed by Lake County Forest Preserve District. It is a glacial pothole slough with characteristics similar to a bog system. It is comprised of 24.5 surface acres and maximum and mean water depths of 19.2 and 9.6 feet respectively (LCHD 2003).

The Sun Lake watershed is large (1,671 acres) and includes Cedar and Deep Lake and their watersheds. As a result, a large portion of the watershed land use is classified as lakes, reservoirs, or lagoons (32%). Seventeen percent is open space, 16% is forested, grasslands, or vegetation, and 15% is residential. The watershed-to-lake ratio is 68:1 and percent IC is 13%.

Sun Lake is used by the public for shoreline fishing. No boating of any kind is allowed on the lake. The shoreline (0.9 miles) consists of wetlands and woods. The lake and surrounding areas provides a favorable habitat for wildlife. The invasive species purple loosestrife (*Lythrum salicaria*) was located along the entire shoreline (LCDH 2003). The rooted aquatic plant community is also dominated by an invasive species, Eurasian watermilfoil.

The LMU 2001 Summary Report of Sun Lake (LCDH 2003) reported that the lake thermally stratified. DO concentrations remain above 5.0 mg/L in the epilimnion for the entirety of the summer study period. For the summer months anoxia did not occur until a depth of 10-14 feet was reached (LCDH 2003).

Sun Lake is impaired due to excessive phosphorous levels. TP data are available from the Legacy STORET database and Lake County from 1991 through 1993 and 2001. Epilimnetic TP levels have increased gradually since 1991 (LCDH 2003). Since 1998, surface TP levels ranged from 0.03 to 0.052 mg/L, with an average of 0.04 mg/L (Table 5-3, Figure 5-5, Appendix E). One sample exceeded the 0.05 mg/L WQS. Bottom concentrations, however, were higher.

There have been limited new residential/commercial developments in the watershed since the previous studies were conducted. The increase of phosphorus into Sun Lake is potentially caused by internal nutrient loading (plant decomposition and sediment release & resuspension). There are no active NPDES dischargers in the Sun Lake watershed.

6.1.16 McGreal Lake

McGreal Lake is located in the located in the northeast corner of the Upper Fox River/Chain O' Lakes watershed, which is privately owned by the Rettinger family (Figure 2-2). McGreal Lake is a relatively small and shallow waterbody created from a flooded wetland. This 24.5 acre lake has a maximum and mean depth of 9.2 and 4.6 feet respectively. The structure of McGreal Lake is separated into two lobes by a dam at the southern end of the lake. No lake management association is involved with McGreal Lake and all issues are addressed by property owners (LCHD 2003).

McGreal Lake receives water from a small creek, agricultural areas, and six residential properties around the lake. The McGreal watershed is small relative to lake area (6:1), but the majority of the watershed is residential (49%) with 15% IC. Fifty-four percent of the lakes shoreline is developed and consists almost completely of buffer (90.2%). As a result of the dominance of shrubs and buffer a large number of birds and waterfowl inhabit the shoreline.

The LMU 2002 Summary Report of McGreal Lake (LCHD 2003) notes that the lake thermally stratifies during the months of June-August. In July, McGreal Lake underwent a sharp decrease in surface water DO as a result of massive amounts of curly leaf pondweed decomposition, depleting the water of DO. Anoxia occurred between 5-7 feet.

McGreal Lake is impaired due to high concentrations of phosphorus. Phosphorus data are limited to the Lake County data collected in 1992, 1993 and 2002. Since 1998 the average surface TP levels ranged from 0.02 to 0.16 mg/L, with and average of 0.09 mg/L (Table 5-3, Figure 5-5, Appendix E). Four of the five surface samples exceeded the 0.05 mg/L WQS. Average bottom TP concentration in 2002 was 0.23 mg/L.

The dominant plant species in McGreal Lake is Eurasian watermilfoil. Twelve other plant species are present in the lake including curly leaf pondweed, and coontail. In the months of May and June curly leaf pondweed

dominates the lake but naturally dies off and is replaced by a population of coontail. After the die off, water clarity drops and an algal bloom usually occurs. Unlike many other lakes rooted aquatic vegetation and algae are able to successfully compete for light resources because of their growth patterns in McGreal Lake (LCHD 2003).

McGreal Lake TP levels were directly correlated with rainfall amounts. This correlation suggests that elevated phosphorus may be influenced by non-point source runoff. A faulty septic system was also observed draining raw effluent into a tributary of McGreal Lake (LCHD 2003). There are no active NPDES dischargers in the of McGreal Lake watershed.

6.1.17 Antioch Lake

Antioch Lake is located in the northern portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is a shallow manmade lake operated/owned by Osmond Enterprises and a private citizen. The lake is 89 surface acres created from the flooding of a natural slough in the 1930s. Maximum and mean water depths are 9.0 and 4.5 feet respectively. Antioch Lake discharges to the north into Lake Tranquility.

Antioch Lake receives water from a small creek and several swale/culverts draining the surrounding lands. The watershed area is approximately 442 acres and is small relative to lake size (5:1). Water quality impacts are not generally associated with such low ratios, but the majority of the land use is residential (40%) and transportation, communication, and utilities (11%), both of which have high IC. The IC for the Antioch watershed is estimated at 21%, a point where impaired conditions are common.

The LMU 2001 Summary Report of Antioch Lake (LCHD 2002) notes that the lake does not commonly stratify due to its shallow characteristics; this allows for wind and waves to effortlessly mix oxygen throughout the water column. During the 2001 LMU study DO concentrations remained above 5.0 mg/L at the surface. Concentrations below this threshold were at or below 5 feet in July. Anoxic conditions were present at 7 feet in July and August.

Antioch Lake is listed as impaired due to excessive phosphorus concentrations. Phosphorus data are available from the Legacy STORET database and Lake County for 1988, 1989, 1992, 1993 and 2001 (Appendix B). Recent TP ranged from 0.08 to 0.33 mg/L, with an average of 0.14 mg/L. All of the water quality data points exceeded the 0.05 mg/L WQS (Table 5-3, Figure 5-5, Appendix E). Concentrations of surface and bottom TP were the same. This is not surprising given the shallow morphometry of Antioch Lake.

In 2001, Antioch Lake was treated with herbicides significantly reducing the rooted plant biomass which previously covered 96% of the lakes bottom. Before the treatment the lake was populated with Eurasian watermilfoil, curly pondweed, and white water lily. Without the competition from rooted aquatic vegetation algal populations are able to thrive in Antioch Lake. Algal blooms are a common occurrence in Antioch Lake.

Potential sources of phosphorus entering Antioch Lake, according to the LMU 2001 Report, include inputs from the watershed and internal loading from the bottom sediment. Although not specifically discussed as internal loading in the 2001 Summary Report, the recycling of phosphorus from sediments is likely. There are no active NPDES dischargers in the of Antioch Lake watershed.

6.1.18 Lake Tranquility

Lake Tranquility is located in the northern portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is a 26.7 acre lake that was artificially created in 1940-1941 through dredging of an existing slough and is currently operated/owned by the Heron Harbor Homeowners Association. Maximum and mean water depths are 10.9 and 5.5 feet respectively. Lake Tranquility discharges through a wetland complex to Lake Marie.

Water enters Lake Tranquility on the northeast end as well as water from two detention basins located on the southern end. The watershed is approximately 249 acres (watershed-to-lake ratio 9:1). Much of this area is

residential (35%) with 18% used for transportation, communication, and utilities. As a result the IC percentage is high 26% and water quality problems are expected.

The lake is used primarily for recreation by the public and residents around the lake (LCHD 2003). The shoreline is dominantly undeveloped (69%) and wetland and shrubs encompass most of the area. Some areas were noted in the 2002 LMU study as eroding including a 33 foot section that was classified as severely eroded (LCHD 2003).

The LMU 2002 Summary Report of Lake Tranquility (LCHD 2003) notes that the lake thermally stratifies during the summer months (Jun-Aug). Surface DO concentrations were above 5.0 mg/L during 2002. Anoxia was measured at depths at or greater than 7 feet in August. In the 2002 LMU report it is noted that in 1990 an aeration system was installed in the lake at the southern channel.

Lake Tranquility is listed as impaired due to excessive TP concentrations. Water quality data are limited to the 2002 LMU data (Appendix B). TP in Lake Tranquility varied at two different sites due to sediment resuspension by aerators. At site 1 located away from the aeration system, TP ranged from 0.04 mg/L to 0.07 mg/L. At site 2 located near the aeration system, TP increased to 0.10 mg/L. Overall, surface TP levels ranged from 0.05 to 0.15 mg/L, with an average of 0.08 mg/L (Table 5-3, Figure 5-5, Appendix E).

Annual herbicide and algaecides treatments are conducted in Lake Tranquility to control rooted aquatic vegetation and algae. Invasive species such as Eurasian watermilfoil, coontail, and curly leaf pondweed dominate the aquatic vegetation population. Several native species were found, but occurrence was rare. Lake Tranquility has a moderate algal population but blooms are controlled using algaecides. Lake Tranquility's water clarity was observed at two sites. Site 1 located away from aerators had an average Secchi disk transparency of 2.9 feet. Site 2 located near the aeration system obtained a transparency of 1.4 feet.

Potential sources of phosphorus entering Lake Tranquility, according to the LMU 2002 study, include runoff during storm events and internal loading from nutrient rich sediment. Internal loading from the aeration system creating constant sediment resuspension has resulted in higher levels of phosphorus in Lake Tranquility. There are no active NPDES dischargers in the of Lake Tranquility watershed.

6.1.19 Turner Lake

Turner Lake is located in the western portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is glacial slough comprised of 45.6 acres with a maximum and mean depth of 10.0 and 5.0 feet respectively. The Turner Lake watershed is 576 acres and is mostly open space (54%) and residential (22%). The watershed-to-lake area ratio is 13:1 and IC is estimated at 13%.

Due to the shallow morphology of Turner Lake polymictic mixing may occur. During a May 2002 sampling date the lake was weakly stratified, but in July a thermocline had established at 6 feet. The lake was mixed again in August (LCHD 2003). During months when Turner Lake was not stratified (May, August, and September) DO concentrations remained above 5.0 mg/L throughout the water column. In June and July DO concentrations in the hypolimnion were anoxic. An aeration system was installed in Turner Lake and runs during the winter to avoid fish kills.

Turner Lake is impaired due to high phosphorus concentrations. TP data are available from the Legacy STORET database, Illinois EPA and Lake County for 1989, 1997, 1999 and 2002 (Appendix B). Recent average surface TP concentrations ranged from 0.02 to 0.059 mg/L, with an average of 0.05 mg/L (Table 5-3, Figure 5-5, Appendix E). Thirty-six percent were above the 0.05 mg/L WQS. In 2002 the average concentration of TP was 0.05 mg/L; hypolimnion average concentration was also 0.05 mg/L.

The LMU 2002 study found the aquatic plant community in Turner Lake to be dominated by white water lily (60%), Eurasian watermilfoil (57%), *Chara spp*. (47%) and bladderwort (42%). Nine other aquatic macrophytes

were also found at less than 20% of all sample sites. The occurrence of algal blooms was not mentioned in the 2002 Summary Report.

Potential sources of phosphorus entering Turner Lake are likely from resuspension of phosphorus rich sediment during mixing and stormwater runoff from nearby farms and developments (LCHD 2003). There are no active NPDES dischargers in the of Turner Lake watershed.

6.1.20 Dunn's Lake

Dunn's Lake is located in the western portion of the Upper Fox River/Chain O' Lakes watershed (Figure 2-2). It is a 68 acre lake which receives water from surrounding lands and discharges to the south eventually draining to Nippersink Lake.

The Dunn's Lake watershed is relatively small (455 acres) resulting in a low watershed to lake ratio (7:1). The most dominant land uses are open space (36%) and residential (26%). Transportation, communication, and utilities make up another 14% of the watershed. Impervious cover is higher than desirable (15%) and likely contributes to the water quality problems in Dunn's Lake.

Dissolved oxygen levels in Dunn's Lake were above 5.0 mg/L during 1989 and 2002 (available data) at the surface and for most of the water column. DO below 5.0 mg/ was limited to depths at or greater than 6 feet in July 2002 and 7 feet in September. Anoxic conditions were not encountered during either sampling year.

Dunn's Lake is impaired due to high phosphorus concentrations. TP data are limited to 1989, 1997 and 2002 (Appendix B) from Lake County and the Legacy STORET database. Recent surface TP ranged from 0.08 to 0.12 mg/L, with an average of 0.10 mg/L (Table 5-3, Figure 5-5, Appendix E). All of the samples exceeded the 0.05 mg/L WQS. Surface TP concentrations in 2002 averaged 0.10 mg/L. Average bottom concentration was the same, which is not surprising given the shallow morphometry of Dunn's Lake. An average Secchi Depth Transparency (SDT) of 1.62 feet was recorded for years 1989, 1997, and 2002.

A LCHD Summary Report was not available for Dunn's Lake at the time this Stage 1 report was prepared because the LMU conducted monitoring in 2002 on behalf of Illinois EPA. Resuspension of sediment and stormwater runoff are expected to be potential sources of TP in Dunn's Lake. Fox Lake Tall Oak sanitary wastewater is discharged to an unnamed tributary of Dunn's Lake and may be a substantial source of phosphorus.

6.1.21 Chain O' Lakes

The Chain O' Lakes consists of ten glacially-formed, hydraulically connected lakes in a system. The system of lakes is publicly owned and managed by Fox Waterway Agency. In addition, the Agency collected water quality data in past to help assess, restore, and maintain the biological, chemical, and physical integrity of the waterway to ensure water quality, fish and wildlife populations, and ecosystem health. The data may be considered in Stage 3 TMDL development.

The following sections provide background information, including land use and potential pollution sources, regarding each sub-watershed. Appendix C provides an overall summary of land use within each sub-watershed as well as the total land use for the entire Chain O' Lakes.

6.1.21.1 Lake Catherine and Channel Lake

Lake Catherine and Channel lakes are two of the nine major hydraulically connected lakes in the Chain O' Lakes. These glacially formed lakes were expanded in size when the McHenry dam was erected in 1907. Lake Catherine (164.7 acres) and Channel Lake (337 acres) are connected via a sandy ridge about four to eight feet deep (Cochran & Wilken 2000). These lakes are the farthest upstream of all lakes in the chain and the deepest. Lake Catherine has a maximum depth of 39 feet and a mean depth of 16.7 feet. Channel Lake's

maximum and mean depths are 35 and 14.5 feet respectively. Hydraulic detention time of Lake Catherine and Channel Lake is approximately 6 months.

The Lake Catherine and Channel Lake watershed is 12,384 acres and extends into Wisconsin (Cochran & Wilken 2000). These lakes receive water from Trevor Creek, the major tributary draining from the north, and several smaller tributaries and stormwater drainage outfalls. The watershed was primarily forested until the mid-1850 when the land was clear cut for row crop agriculture. Much of the agricultural area, especially along the shoreline, has been recently converted to industrial and residential use. The Illinois portion of Lake Catherine and Channel Lake's watershed is 32% residential, 17% forested, grasslands, or vegetation, 12% row crop, grain, or grazing and 11% wetland. Approximately 17% of the Illinois portion of the watershed is impervious surface.

Lake Catherine and Channel Lake stratify during the summer months. Surface DO concentrations were generally above 5.0 mg/L with the exception of three days in 1998 for Channel Lake. Anoxia was measured in Channel Lake at depths as shallow as eight feet (1993). Anoxia in Lake Catherine has been measured at a depth of seven feet in 2002. In 2005, anoxia at the deep water station within Channel Lake was encountered at 19 feet. In Lake Catherine during 2005 the anoxic boundary at the deep station was at 17 feet.

Both Lake Catherine and Channel Lake are impaired due to excessive phosphorus. TP data for Lake Catherine and Channel Lake are available from Lake County, Legacy STORET and Illinois EPA for 1979, 1981, 1984, 1987, 1990, 1993, 1996, 1998, 1999, 2002 and 2005. (Appendix B) Since 1998, average surface water TP concentrations in Lake Catherine and Channel Lake were 0.09 and 0.04 mg/L respectively. Between nine and seventeen percent of the averaged samples exceeded the 0.05 mg/L WQS. Average surface concentrations in 2005 for Lake Catherine and Channel Lake were 0.56 and 0.04 mg/L, respectively. The excessive average TP concentration in Lake Catherine during 2005 was due to exceptionally high TP concentrations in October (1.29 and 1.42 mg/L); all other surface values in 2005 were either 0.02 or 0.03 mg/L. Average bottom concentrations in 2005 were 0.64 and 0.53 mg/L for Lake Catherine and Channel Lake respectively (Table 5-3, Figure 5-5, Appendix E).

Both lakes experience intense algal blooms. The Illinois EPA Clean Lakes Program, Phase I Diagnostic Feasibility Study (2000) documented high chlorophyll *a* concentrations from July through October, with October experiencing the highest concentrations overall. Bluegreen algae dominate these lakes during intense blooms. This may explain the excessive TP concentration in October 2005. Lake Catherine may have been experiencing a bloom at the time of sampling.

The Clean Lakes study provided a nutrient budget for Channel Lake and Lake Catherine. Internal loading was found to be the dominant source of phosphorus (40%) and watershed surface water sources were the second highest contributor (31%). Storm drains accounted for 13% of the TP load to Lake Catherine and Channel Lake. There are no active NPDES dischargers located within the Illinois portion of the Lake Catherine and Channel Lake watersheds.

The rooted plant community in Channel Lake and Lake Catherine is dominated by the invasive species Eurasian watermilfoil (63-79% occurrence; Cochran & Wilken 2000). Coontail was the second most abundant species. The invasive species curly leaf pondweed is also found in these lakes.

Many in-lake management techniques have been employed to control both the rooted plant community and algal blooms. An aerator was installed in the late 70's to oxygenate bottom waters to prevent the release of phosphorus from sediments. Although DO levels in hypolimnetic waters following aeration were maintained above 2.0 mg/L, no measurable change was observed in nutrient levels. The system is not large enough to treat the entire anoxic zone and may be the reason for the lack of change in nutrient levels (Cochran & Wilken 2000). In addition, nutrient concentrations entering these lakes from the watershed remained high during the aerator operation and could be masking any impact the aerator may have had. Copper sulfate treatments have been employed to control algal blooms. Control was often achieve with measurable increased water

clarity, but the lakes experience a DO sag due to algal decomposition and relief from blooms is temporary since phosphorus sources are not controlled. Herbicides have also been applied to control invasive rooted plant species. Recent information (i.e., > 2000) regarding the use of the aerator, algaecides or herbicides and their effectiveness was not readily available at the time this Stage 1 report was prepared.

6.1.21.2 Lake Marie

Lake Marie is one of the nine major hydraulically connected lakes in a system collectively known as the "Chain O' Lakes". Lake Marie is a 516 acre lake located south of Channel Lake and Lake Catherine and north of Bluff and Grass Lakes. Mean depth in Lake Marie is approximately 9.2 feet.

Lake Marie receives water from Channel Lake and Lake Catherine as well as the surrounding lands. The Illinois portion of Lake Marie watershed is 1,670 acres. Eighteen percent of this area is residential, 13% wetland and 10% forest, grasslands, and vegetation. Twelve percent is estimated to be IC.

Although it is not the predominant flow direction, Lake Marie receives water from Grass Lake depending on Fox River flow and wind direction and velocity. Typically, Lake Marie discharges to Bluff and Grass Lakes in a southern direction. Hydraulic detention time of Lake Marie at full capacity, as calculated in Fox Chain O' Lakes Investigation and Water Quality Management Plan (Kothandaraman et. al, 1977), is approximately 26 days.

Water quality data for Lake Marie are available from Lake County, Legacy STORET and from Illinois EPA from 1973, 1983, 1987, 1993, 1996, 1999, 2002 and 2005 (Appendix B). Surface water DO concentrations were above 5.0 mg/L. Bottom concentrations, however, were anoxic in water depth as shallow as 7' (August 2002) at the deep sample station. Anoxia was more common 13-15' below water surface during summer months.

The majority of recent surface water quality samples (77%) were above the WQS for TP. Averaged surface TP concentrations ranged from 0.03 to 0.12 mg/L with an average of 0.07 mg/L (Table 5-3, Figure 5-5, Appendix E). Surface TP from 2005 ranged from 0.05 to 0.12 mg/L and averaged 0.08 mg/L (two stations evaluated independently). Bottom TP concentrations in 2005 were higher and ranged from 0.09 to 1.28 mg/L, with an average of 0.79 mg/L (only one station sampled at the bottom).

Given the lack of oxygen and high TP concentrations in bottom waters, internal loading is a likely source of phosphorus in Lake Marie. Other potential sources include stormwater runoff and point sources. There are no active NPDES dischargers located in the immediate Lake Marie watershed. However, Lake Marie receives water from Sequiot Creek which eventually receives effluent from the Antioch WWTF, non-contact cooling water from the Antioch Packing House and quarry water from Dahl Enterprises. These sources will be confirmed in Stage 3.

There was no LMU Summary Report available for Lake Marie at the time of writing this Stage 1 summary because LMU conducted monitoring in 2002 on behalf of Illinois EPA. Therefore this segment's description is limited to water quality data associated with phosphorus impairment and information provided in the 1977 Fox Chain O' Lakes Investigation and Water Quality Management Plan. Specific information regarding potential sources, shoreline condition, and rooted plant community are not available.

6.1.21.3 Bluff Lake

Bluff Lake is one of the nine major hydraulically connected lakes in a system collectively known as the "Chain O' Lakes". Bluff Lake is an 86 acre lake and is located between Spring Lake to the south and Lake Marie to the north. Bluff Lake has a mean depth of 10.5 feet. Hydraulic detention time of Bluff Lake at full capacity, as calculated in Fox Chain O' Lakes Investigation and Water Quality Management Plan (Kothandaraman et. al, 1977), is approximately 4.9 days.

Bluff Lake receives water from Lake Marie, its watershed and drainage from surrounding lands. The Illinois portion of the watershed is approximately 943 acres and is primarily residential (30%), row crop, grain, or

grazing (17%) and forested, grasslands, or vegetation (15%). This portion of the watershed is 18% impervious.

Water quality data for Bluff Lake are available from Lake County, Legacy STORET and from Illinois EPA from 1987, 1988, 1993, 1996, 1999, 2002 and 2005 (Appendix B). . Surface water dissolved oxygen concentrations were above 5.0 mg/L. Bottom concentrations, however, were generally below 1.0 mg/L during the late summer in water depth at or greater than 13'. Anoxia was observed in waters as shallow as 9' in August 1993, however.

The majority of recent surface water quality samples (77%) were above the WQS for TP. Surface TP concentrations ranged from 0.03 to 0.19 mg/L and averaged 0.07 mg/L (Table 5-3, Figure 5-5, Appendix E). Surface TP in 2005 ranged from 0.05 to 0.19 mg/L and averaged 0.10 mg/L (only one stations sampled). Bottom TP concentrations in 2005 were much higher and ranged from 0.20 to 1.17 mg/L, with an average of 0.68 mg/L (only one station sampled).

Given the lack of oxygen and high TP concentrations in bottom waters, internal loading is a likely source of phosphorus in Bluff Lake. Other potential sources include stormwater runoff and point sources. There are no active NPDES dischargers located in the immediate Bluff Lake watershed. However, Bluff Lake receives water from Lake Marie and its watershed. Point sources impacting Lake Marie have the potential to impact Bluff Lake as well.

There was no LMU Summary Report available for Bluff Lake at the time of writing this Stage 1 summary because LMU conducted monitoring in 2002 on behalf of Illinois EPA. Therefore this segment's description is limited to water quality data associated with phosphorus impairment and information provided in the 1977 Fox Chain O' Lakes Investigation and Water Quality Management Plan, Illinois Integrated Water Quality Report and Section 303(D) List - 2008 Specific information regarding potential sources, shoreline condition, and rooted plant community are not available.

6.1.21.4 Spring Lake

Spring Lake is part of the "Chain O' Lakes" waterway. However, given its small size (43 acres), it is not considered one of the nine major hydraulically connected lakes. Spring Lake is located between Bluff Lake to the north and Petite Lake to the south. Spring Lake discharges to the south to Petite Lake. Spring Lake is shallow with maximum depth less than 6 feet (based on Lake County water quality sample depths). Hydraulic detention time of Spring Lake is unknown as it was not specifically included in the Fox Chain O' Lakes Investigation and Water Quality Management Plan (Kothandaraman et. al, 1977).

Spring Lake receives water from Bluff Lake, its own watershed and drainage from surrounding land. The Illinois portion of the watershed is 298 acres. This watershed has a higher percentage of agriculture land use (row crop, grain, or grazing 22%) and less residential (19%) and forested, grasslands, or vegetation (8%) than the upstream watershed (Bluff Lake). As such the percent IC is lower, 13% versus 18%.

Water quality data for Spring Lake are available from Lake County, Legacy STORET and from Illinois EPA from 1972-1976 and 2002 (Appendix B) DO concentrations were below 5.0 mg/L at water depths at or less than 3.0' during July and August 2002.

The majority of recent surface TP concentrations were above the WQS (80%). TP ranged from 0.01 to 0.10 mg/L with an average of 0.07 mg/L (Table 5-3, Figure 5-5, Appendix E). Due to Spring Lake's shallow morphometry, bottom samples were not collected during these sampling programs.

Potential sources of phosphorus are likely to include stormwater runoff and resuspension of lake sediment. There are no active NPDES dischargers located in the immediate Spring Lake watershed. However, Spring

Lake receives water from Bluff Lake and its watershed. Point sources impacting Bluff Lake have the potential to impact Spring Lake as well.

There was no LMU Summary Report available for Spring Lake at the time of writing this Stage 1 summary because LMU conducted monitoring in 2002 on behalf of Illinois EPA. Therefore this segment's description is limited to water quality data associated with phosphorus impairment and information provided in the Illinois Integrated Water Quality Report and Section 303(D) List - 2008. Specific information regarding potential sources, shoreline condition, and rooted plant community are not available.

6.1.21.5 Petite Lake

Petite Lake is one of the nine major hydraulically connected lakes in a system collectively known as the "Chain O' Lakes". Petite Lake is one of the smaller lakes in the chain, 165 acres, and is located north of Fox Lake. Mean depth in Petite Lake is approximately 7.7 feet. Petite Lake drains to the south into Fox Lake. Hydraulic detention time of Petite Lake at full capacity, as calculated in Fox Chain O' Lakes Investigation and Water Quality Management Plan (Kothandaraman et. al, 1977), is approximately 6.4 days.

Petite Lake receives water from Spring Lake and its watershed as well as the surrounding lands. The Illinois portion of the watershed is 1,790 acres. This watershed is predominately residential (24%) and forest, grasslands, or vegetation (23%). IC is estimated at 15%.

Water quality data for Petite Lake are available from Lake County, Legacy STORET and from Illinois EPA from 1987, 1989, 1990, 1993, 1996, 1998, 1999, 2002 and 2005 (Appendix B). Surface water DO concentrations were above 5.0 mg/L during the most recent sampling program (2005). Bottom concentrations, however, were below 5.0 mg/L in water depth at or greater than 13' during June, August and October 2005. DO concentrations below 1.0 mg/L were not observed, however.

Since 1998, the majority of the surface water quality samples (71%) were above the WQS for TP. Surface TP concentrations ranged from 0.02 to 0.13 mg/L and averaged 0.07 mg/L (Table 5-3, Figure 5-5, Appendix E). Surface TP from 2005 ranged from 0.04 to 0.13 mg/L and averaged 0.09 mg/L (only one station sampled). Bottom TP concentrations in 2005 were higher and ranged from 0.07 to 0.23, with an average of 0.13 mg/L, suggesting the potential for internal loading.

Although anoxic conditions were not observed in Petite Lake in 2005, older data 1987, 1993, 1996 and 2002 suggest that these conditions do exist on occasion. This is likely dependant on flow and circulation. Periodic lack of oxygen can cause the release of phosphorus from sediments.

Given the potential for anoxia and high TP concentrations in bottom waters, internal loading is a probable source of phosphorus in Petite Lake. Other potential sources include stormwater runoff and point sources. There are no active NPDES dischargers located in the immediate Petite Lake watershed. However, Petite Lake receives water from Spring Lake and its watershed. Point sources impacting Spring Lake have the potential to impact Petite Lake as well.

There was no LMU Summary Report available for Petite Lake because LMU conducted monitoring in 2002 on behalf of Illinois EPA. Therefore, this segment's description is limited to water quality data associated with phosphorus impairment and information provided in the 1977 Fox Chain O' Lakes Investigation and Water Quality Management Plan, Illinois Integrated Water Quality Report and Section 303(D) List - 2008. Specific information regarding potential sources, shoreline condition, and rooted plant community are not available.

6.1.21.6 Fox Lake

Fox Lake is one of the nine major hydraulically connected lakes in a system collectively known as the "Chain O' Lakes". Fox Lake is the largest lake within in the chain at 1881 surface acres. It is located east of Nippersink Lake. Like most of the lakes in the chain, it is shallow with a mean depth of 5.6 feet.

Fox Lake under normal flow conditions flows in a slight northwesterly direction to Nippersink then to Piskatee before reforming the Fox River. Fox Lake receives water from Petite Lake, immediately upstream of Fox Lake, and Duck and Long Lakes as well as many other upstream waterbodies via the Squaw River. Fox Lake is also the receiving water for the surrounding land. Flow may also enter Fox Lake from Nippersink and Grass Lake depending on water flow and wind direction and velocity. Hydraulic detention time of Fox Lake at full capacity, as calculated in Fox Chain O' Lakes Investigation and Water Quality Management Plan (Kothandaraman et. al, 1977), is approximately 48.5 days. A hydrodynamic model can be used to verify the residence time. The detention time is likely lower than predicted. As previously mentioned, water from Nippersink and Grass Lakes may flow into Fox Lake depending on wind velocity and direction, making accurate detention time calculations difficult.

The Fox Lake watershed is large with 22,950 acres in the Illinois portion alone. Twenty-two percent of this area is open space, 19% residential, 26% lakes, reservoirs, or lagoons and 9% forest, grasslands, or vegetation. The Illinois portion of the watershed is 13% impervious.

Water quality data for Fox Lake are available from Lake County, Legacy STORET and from Illinois EPA from 1973, 1979, 1983, 1999, 2002 and 2005 (Appendix B). Surface water DO concentrations were above 5.0 mg/L during the most recent samplings (2002 and 2005). DO concentrations near bottom also contained desirable concentrations (above 5.0 mg/L at 11 and 13').

Recent surface TP concentrations were undesirable and a majority of the averaged samples were above the WQS (67%). TP ranged from 0.03 to 0.16 mg/L, with an average of 0.08 mg/L (Table 5-3, Figure 5-5, Appendix E). 2005 surface TP concentrations ranged from 0.04 to 0.17 mg/L, with an average of 0.10 mg/L (two stations evaluated independently). Bottom concentrations were higher. The range was 0.09-0.23 mg/L and averaged 0.15 mg/L.

Potential sources of phosphorus likely include stormwater runoff and point sources. There are no active NPDES dischargers located in the immediate Fox Lake watershed. However, Fox Lake receives water from Petite Lake and its watershed. Point sources impacting Petite Lake have the potential to impact Fox Lake as well. Fox Lake also receives water from Squaw Creek and therefore may be impacted by discharges within the Squaw Creek watershed (see Long Lake and Fischer Lake description). In addition, Fox Lake periodically receives water from Nippersink and Grass Lakes. Dischargers located in these sub-watersheds have the potential to impact Fox Lake.

There was no LMU Summary Report available for Fox Lake at the time of writing this Stage 1 summary because LMU conducted monitoring in 2002 on behalf of Illinois EPA. Therefore this segment's description is limited to water quality data associated with phosphorus impairment and information provided in the 1977 Fox Chain O' Lakes Investigation and Water Quality Management Plan, Illinois Integrated Water Quality Report and Section 303(D) List - 2008. Specific information regarding potential sources, shoreline condition, and rooted plant community are not available.

6.1.21.7 Grass Lake

Grass Lake is one of the nine major hydraulically connected lakes in a system collectively known as the "Chain O' Lakes". Grass Lake is a 1,623 acre lake and is located just north of Nippersink and Fox Lake. Like most of the lakes in the chain, it is shallow with a mean depth of 2.7 feet. Grass Lake receives water from the Fox River and Lake Marie, their watersheds and drainage from the surrounding area. Interestingly, it is not uncommon for water within Grass Lake to move in an upstream direction to Lake Marie. In other instances, water in Grass Lake moves south into Nippersink Lake. The pattern depends on Fox River flows and wind velocity and direction. Hydraulic detention time of Grass Lake at full capacity, as calculated in Fox Chain O' Lakes Investigation and Water Quality Management Plan (Kothandaraman et. al, 1977), is approximately 4.3 days.

The Grass Lake watershed is also very large. The Illinois portion is 13,844 acres. Much of this area is classified as open space (28%). The two most prominent land uses after open space are residential (16%) and lakes, reservoirs, or lagoons (22%). The Grass Lake Illinois watershed IC is 12%.

Water quality data for Grass Lake are available from Lake County, Legacy STORET and from Illinois EPA from 1973, 1983, 1987, 1990, 1993, 1996, 1999, 2002 and 2005 (Appendix B). Surface water DO concentrations were above 5.0 mg/L. Bottom concentrations were also well oxygenated due to the lakes shallow morphometry.

Since 1999, the majority of the surface water quality samples (80%) were above the WQS for TP. Surface TP concentrations ranged from 0.04 to 0.25 mg/L and averaged 0.11 mg/L (Table 5-3, Figure 5-5, Appendix E). Surface TP in 2005 ranged from 0.04 to 0.27 mg/L and averaged 0.15 mg/L (all stations evaluated independently). Bottom samples were not collected in Grass Lake because it is so shallow.

Potential sources of phosphorus likely include stormwater runoff, resuspension of lake sediment and point sources. There are no active NPDES dischargers located within the immediate Grass Lake watershed. However, Grass Lake receives water from the Fox River, Lake Marie and periodically from Fox and Nippersink Lakes. Dischargers located in these sub-watersheds have the potential to impact Grass Lake.

There was no LMU Summary Report available for Grass Lake at the time of writing this Stage 1 summary because LMU conducted monitoring in 2002 on behalf of Illinois EPA. Therefore this segment's description is limited to water quality data associated with phosphorus impairment and information provided in the 1977 Fox Chain O' Lakes Investigation and Water Quality Management Plan, Illinois Integrated Water Quality Report and Section 303(D) List - 2008. Specific information regarding potential sources, shoreline condition, and rooted plant community are not available.

6.1.21.8 Nippersink Lake

Nippersink Lake is one of the nine major hydraulically connected lakes in a system collectively known as the "Chain O' Lakes". Nippersink is a 718 acre lake located immediately upstream of Piskatee Lake, which is the farthest downstream of all lakes in the chain before reforming the Fox River. Like most of the lakes in the chain, it is shallow with a mean depth of 3.0 feet. Hydraulic detention time of Nippersink Lake at full capacity, as calculated in Fox Chain O' Lakes Investigation and Water Quality Management Plan (Kothandaraman et. al, 1977), is approximately 1.5 days. Water within Nippersink Lake generally flows in a southwesterly direction, but under low flow conditions backflow can occur. Water from Piskatee Lake can flow into Nippersink Lake depending on wind velocity and direction, making accurate detention time calculations difficult.

Nippersink Lake receives water from two connected lakes, Fox and Grass Lake, their watersheds and drainage from surrounding land. The Illinois portion of the watershed is 23,405 acres and is 22% open space, 25% lakes, reservoirs, or lagoons, and 19% residential. Thirteen percent of the Illinois portion of the watershed is impervious.

Water quality data for Nippersink Lake are available from Lake County, Legacy STORET and from Illinois EPA from 1996, 1999, 2002 and 2005 (Appendix B). Surface water DO concentrations were above 5.0 mg/L during the most recent samplings (2002 and 2005). DO concentrations near bottom also contained desirable concentrations (9.3 and 10.8 mg/L at 4' in 2005).

Since 1999, most surface TP concentrations were above the WQS. TP ranged from 0.08 to 0.27 mg/L, with an average of 0.16 mg/L for the period of record (Table 5-3, Figure 5-5, Appendix E). Due to Nippersink's shallow morphometry, bottom samples were generally not collected during these sampling programs. Potential sources of phosphorus likely include stormwater runoff, resuspension of lake sediment and point sources. The Spring Grove Sewer Treatment Plant and the Fox Lake School District 114 are located within

the Nippersink Lake watershed and have the potential to impact Nippersink Lake. Dischargers located within the Fox Lake, Grass Lake, Dunn's Lake and Pistakee Lake watersheds also have the potential to impact water quality within Nippersink Lake.

There was no LMU Summary Report available for Nippersink Lake at the time of writing this Stage 1 summary because LMU conducted monitoring in 2002 on behalf of Illinois EPA. Therefore this segment's description is limited to water quality data associated with phosphorus impairment and information provided in the 1977 Fox Chain O' Lakes Investigation and Water Quality Management Plan, Illinois Integrated Water Quality Report and Section 303(D) List - 2006. Specific information regarding potential sources, shoreline condition, and rooted plant community are not available.

6.1.21.9 Pistakee Lake

Pistakee Lake is one of the nine major hydraulically connected lakes in a system collectively known as the "Chain O' Lakes". Pistakee Lake is a 1,700 acre lake and is the farthest downstream of all lakes in the chain before reforming the Fox River. Like most of the lakes in the chain, it is shallow with a mean depth of 5.2 feet. Hydraulic detention time of Piskatee Lake at full capacity, as calculated in Fox Chain O' Lakes Investigation and Water Quality Management Plan (Kothandaraman et. al, 1977), is approximately 10.6 days.

Piskatee Lake receives water from Nippersink and Redhead Lakes, their watersheds, the Nippersink Creek watershed as well as the surrounding lands. As such it has the largest watershed of all lakes in the chain. The Illinois portion of the watershed is 170,857 acres and includes the Nippersink Creek watershed (Illinois portion). The majority of this land is row crop, grain, or grazing (37%), 16% residential and 11% open space. The IC is only 11% but the watershed-to-lake area ratio is huge (100:1)

Water quality data for Pistakee Lake are available from Lake County, Legacy STORET and from Illinois EPA from 1973, 1983, 1987, 1999, 2002 and 2005 (Appendix B). Surface water DO concentrations were above 5.0 mg/L during the most recent sampling program (2005). Bottom concentrations, however, were below 1.0 mg/L in water depth at or greater than 15' in 2005.

Pistakee Lake is listed as impaired due to excessive phosphorus concentrations. The majority of the surface water quality samples since 1999 were above the WQS for TP (63%). Surface TP concentrations ranged from 0.02 to 0.35 mg/L and averaged 0.13 mg/L (Table 5-3, Figure 5-5, Appendix E). Surface TP from 2005 ranged from 0.08 to 0.47 mg/L and averaged 0.23 mg/L (all stations evaluated independently), all of which above the WQS. Bottom TP concentrations in 2005 were much higher and ranged from 0.18 to 3.04, with an average of 1.07 mg/L (only one station sampled at the bottom).

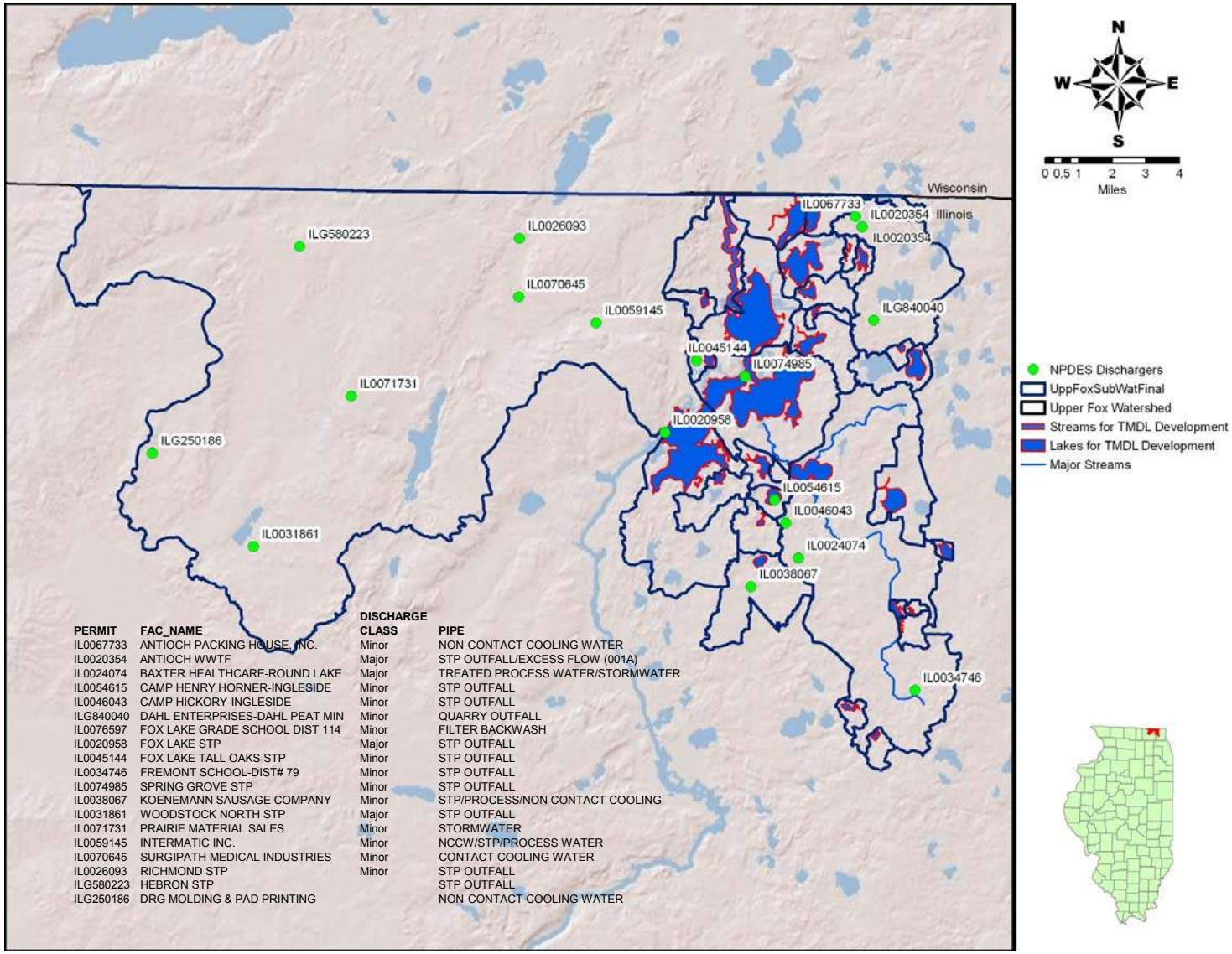
Pistakee Lake will be de-listed as part of the 2008 Integrated Report. Based on the most recent data for ammonia available (2008), Pistakee Lake surface water data no longer show impairment due to excessive ammonia nitrogen concentrations. Ammonia was sampled at two locations within Pistakee Lake in 2008 (RTU-1 and RTU-3) at surface and bottom locations. Usable surface water (1.0 ft water depth) ammonia nitrogen concentrations ranged from 0.03 to 0.18 mg/L. None of these values exceeded the 15 mg/L instantaneous standard. In addition, none of the individual surface water concentrations exceed either the Acute or Chronic WQS (Table 5-1).

There was no LMU Summary Report currently available for Piskatee Lake because LMU conducted monitoring in 2002 on behalf of Illinois EPA. Therefore, this segment's description is limited to water quality data associated with phosphorus impairment and information provided in the 1977 Fox Chain O' Lakes Investigation and Water Quality Management Plan, Illinois Integrated Water Quality Report and Section 303(D) List - 2008. Specific information regarding potential sources, shoreline condition, and rooted plant community are not available.

6.2 Potential Point Sources

Active NPDES point sources in the Fox River/Upper Chain O' Lakes watershed are listed and mapped on Figure 6-2 (dischargers for each individual waterbody can be found in Appendix A). These data were derived from both the publically available Better Assessment Science Integrating Point & Nonpoint Sources (BASINS) program and the inventory of active NPDES dischargers provided by IL EPA. If a point source is located within an impaired segments watershed, this point source is listed as a potential source within the segment description. Specific information regarding each discharger is provided in Appendix D. In addition to NPDES point sources, Stage 3 of the TMDL will also address municipal separate storm sewer systems (MS4s) and industrial and construction stormwater permits as they are also considered point source contributors. Because no GIS data layer currently exists that accurately displays the locations of relevant MS4s, the identification of these permittees will occur in the Stage 3 report.

Figure 6-2: Upper Fox River/Chain O'Lakes Active NPDES Dischargers



PERMIT	FAC_NAME	DISCHARGE CLASS	PIPE
IL0067733	ANTIOCH PACKING HOUSE, INC.	Minor	NON-CONTACT COOLING WATER
IL0020354	ANTIOCH WWTF	Major	STP OUTFALL/EXCESS FLOW (001A)
IL0024074	BAXTER HEALTHCARE-ROUND LAKE	Major	TREATED PROCESS WATER/STORMWATER
IL0054615	CAMP HENRY HORNER-INGLESIDE	Minor	STP OUTFALL
IL0046043	CAMP HICKORY-INGLESIDE	Minor	STP OUTFALL
ILG840040	DAHL ENTERPRISES-DAHL PEAT MIN	Minor	QUARRY OUTFALL
IL0076597	FOX LAKE GRADE SCHOOL DIST 114	Minor	FILTER BACKWASH
IL0020958	FOX LAKE STP	Major	STP OUTFALL
IL0045144	FOX LAKE TALL OAKS STP	Minor	STP OUTFALL
IL0034746	FREMONT SCHOOL-DIST# 79	Minor	STP OUTFALL
IL0074985	SPRING GROVE STP	Minor	STP OUTFALL
IL0038067	KOENEMANN SAUSAGE COMPANY	Minor	STP/PROCESS/NON CONTACT COOLING
IL0031861	WOODSTOCK NORTH STP	Major	STP OUTFALL
IL0071731	PRAIRIE MATERIAL SALES	Minor	STORMWATER
IL0059145	INTERMATIC INC.	Minor	NCCW/STP/PROCESS WATER
IL0070645	SURGIPATH MEDICAL INDUSTRIES	Minor	CONTACT COOLING WATER
IL0026093	RICHMOND STP	Minor	STP OUTFALL
ILG580223	HEBRON STP		STP OUTFALL
ILG250186	DRG MOLDING & PAD PRINTING		NON-CONTACT COOLING WATER

See Appendix D for details on NPDES permits.

7.0 TMDL Approach and Next Stages

This chapter discusses the methodology that may be used for the development of TMDLs for the Upper Fox River/Chain O' Lakes watershed. In addition to calculating pollutant loads, a site specific implementation plan will be developed for each TMDL. The implementation plan will provide geographically specific recommendations that will reduce pollutant loads to impaired waters. While a detailed watershed modeling approach can be advantageous, a simpler approach is often able to efficiently meet the requirements of a TMDL and yet still support a TMDL-guided and site-specific implementation plan. IL EPA has used simplified approaches such as Load Duration Curve, BATHTUB, etc., for most TMDLs developed in the State of Illinois. The similar approaches were proposed in the procurement process for these watersheds. The final selection of a methodology will be determined with consultation with the IL EPA based on the following factors:

- Fundamental requirements of a defensible and approvable TMDL
- Data availability
- Fund availability
- Public acceptance
- Complexity of water body

A simpler approach shall be used as long as it adequately supports the development of a defensible TMDL. If it is deemed that this approach will not suffice, a more sophisticated modeling approach will be recommended for analysis to help better establish a scientific link between the potential pollutant sources and the water quality indicators for the attainment of designated uses. Methodology for estimating daily loads will depend on available data as well as the selected analysis.

7.1 Recommended Modeling Approach for Dissolved Oxygen and pH

Hidden Lake is the only segment within the Upper Fox River/Chain O' Lakes watershed targeted for DO and pH TMDL development. Based on preliminary evaluation of water quality data for Hidden Lake, DO and pH impairment are likely associated with excessive nutrient concentrations. Excessive nutrients often result in algal bloom and extensive rooted plant growths which can deplete oxygen and increase pH. The two main ways oxygen depletion occurs related to plant growth, both planktonic and rooted, include decomposition and respiration. Decomposition is the process of breaking down matter. During this process, aerobic bacteria utilize oxygen to convert organic matter into energy and release carbon dioxide. If the rate of decomposition is great enough, this process can result in deleterious oxygen depletion. Oxygen is also used during plant respiration for the conversion of stored sugars into energy. Excessive plant respiration can result in oxygen depletion. DO concentrations in lakes and ponds are typically at their lowest levels just before dawn after an evening of respiration without oxygen generation by photosynthesis.

Excessive plant densities can also impact pH. During the day plants utilize carbon dioxide for photosynthesis. The production of the hydroxyl ion and the consumption of hydrogen ions during photosynthesis results in an increase in water pH when excessive. pH is generally at its peak in the late afternoon.

These two processes are the likely cause of low DO and high pH in Hidden Lake. Hidden Lake contains excessive phosphorus levels, a nutrient required for algal growth and is typically the nutrient in shortest supply. Chlorophyll *a* concentrations (a measurement of algal biomass) are highly correlated with phosphorus concentrations. Waterbodies with high phosphorus levels generally contain excessive algal or rooted plant biomass. Given that Hidden Lake contain excessive TP concentrations which are likely related to the low DO and high pH, a phosphorus TMDL should be prepared using available data (see discussion on TP approach). Additional sampling is not required in order to proceed with this TMDL. The TMDL process for Hidden Lake will proceed to Stage 3.

7.2 Recommended Modeling Approach for Fecal Coliform

Many states currently use load duration curves for fecal coliform TMDLs for its simplicity and effectiveness. Load duration curves use water quality criteria, ambient concentrations, and observed flows to estimate loading capacities for streams under various flow conditions. The load duration methodology is recommended for the Fox River DT-35 TMDL. An alternative is discussed in the later part of this section. It should be noted that the majority of the bacteriological data available for Deep Lake is *E. coli* and therefore it may be more appropriate to develop an *E. coli* TMDL based on the "Ambient Water Quality Criteria for Bacteria – 1986" freshwater bathing criteria. TMDL development methodology for E. coli would be similar to that of fecal coliform.

The first step in load duration process is to obtain an appropriate stream flow record. This is often difficult for streams not monitored by the USGS. There are methods, however, for developing streamflow statistics on ungaged streams. Regional curve numbers and regression equations are typical used in such instances. Alternatively, a gaged reference watershed can be used to obtain a streamflow record.

Flow duration curves are developed from streamflow records spanning multiple decades. The flow duration curve is based on flow frequency which provides a probability of meeting or exceeding a given flow. The duration curve is broken into hydrologic categories where high flows represent a duration interval of 0-10%, moist conditions represent 10-40%, mid-range flows 40-60%, dry conditions 60-90% and low flows 90-100%.

Once the flow duration curve is established, a load duration curve can be generated by multiplying streamflow with the numerical water quality standard and a conversion factor to obtain the load per day for a given streamflow. Individual measurements can be plotted against the load duration curve to evaluate patterns of impairment. Values that fall above the load duration line indicate an exceedance of the daily load and hence, water quality standard. These data can aid in determining whether impairment occurs more frequently in one of the hydrologic categories (wet, moist, mid-range, dry or low).

The MOS for duration curves can be implicit or explicit. Implicit MOS are derived from the inherent assumptions in establishing the water quality target. Explicit MOS include setting the water quality target lower than the WQS or not allocating a portion of the allowable load. For the Fox River DT-35 and potentially Deep Lake TMDL, WLAs will be based on permit levels or percent reductions required to meet the target load. The MOS will be determined during modeling and will be further explained in the Stage 3 report. Design discharge flow, permit limits and TMDL targets will be used to calculate a daily load and serve as the WLA. WLAs for NPDES-permitted stormwater discharges, including current and future MS4s, "Urbanized" areas, construction and industrial discharges and SSOs that do not have numerical effluent limitations will be expressed as a percent reduction instead of a numerical target. The NPDES Phase II Stormwater Regulations require all areas defined as "Urbanized" by the US Census obtain a permit for the discharge of stormwater. A map of these MS4 dischargers will be provided in the Stage 3 report. Stormwater discharges are required to meet the percentage reduction or the existing instream standard for the pollutant of concern, whichever is less restrictive. The load allocation (LA) for all non-regulated sources, including non-point sources, will also be expressed as a reduction of the actual load. Sanitary Sewer Overflows (SSOs) will not receive an allocation as they are deemed illicit discharges.

The critical condition for fecal coliform load duration TMDLs is established by hydrologic category. It is defined as the greatest reduction needed to meet WQS among all hydrologic categories. Each hydrologic category will get its own stand-alone reduction.

Seasonality of loading will also be evaluated. Flow duration intervals will be plotted by month to determine if there is a strong seasonal component. Although this will not change allocations, this may assist in implementation planning.

Potential sources of bacteria in Deep Lake are waterfowl (mainly Canada geese), runoff, and failing septic systems (LCDH 2004). Historical loading of untreated sewer may also have contributed to water quality problems in Deep Lake. The Simple Method is the proposed for the development of a pathogen indicator (either fecal coliform or *E. coli*) TMDL. The Simple Method estimates loads based on runoff volume and pollutant concentrations on an areal basis. Impacts associated with direct loadings (failing septic systems and waterfowl) will be made in a similar way. Literature derived loadings per bird and/septic system will be used to generate direct loads. The MOS, WLA and LA will be determined in a similar manner as with the load duration curve (described above). The critical condition will be defined as the bathing season (May through October). Selection of this critical period will also address seasonality.

7.3 Recommended Modeling Approach for Total Ammonia Nitrogen

Piskatee Lake is listed as impaired due to elevated ammonia and phosphorus concentrations. Piskatee Lake surface water does not exceed the anytime, acute or chronic ammonia WQS. However, bottom ammonia concentrations do exceed the chronic standard during mid and late summer. This is not uncommon in highly eutrophic waters where anoxic conditions (lack of oxygen) exist due to decay processes (as discussed above in the DO Approach section). In oxygenated conditions ammonia is readily converted to nitrate by bacteria. Under anoxic conditions this process is inhibited and ammonia accumulates which can result in a toxic environment. Anoxic conditions exist in Piskatee Lake bottom waters (below 17') in June, July and August in 2005. Furthermore, elevated levels of TP and chlorophyll *a* have been consistently measured in Piskatee Lake (1983, 1987, 2002 and 2005) suggesting that eutrophication (elevated nutrients and high productivity levels) are the likely cause of the excessive ammonia concentrations.

An ammonia specific TMDL is not recommended at this time since surface levels of ammonia do not exceed the WQS. A phased implementation of a TP TMDL is recommended. See the recommended approach discussed below.

7.4 Recommended Modeling Approach for Total Phosphorus

For the majority of the 28 segments listed for TMDL development due to excessive phosphorus concentrations an export coefficient model linked to empirical in-lake response models will be used to determine existing loading and load reductions required to these segments into compliance with current WQS. In addition to these segments, a TP TMDL is also recommended for Hidden Lake and Pistakee Lake with the objective to bring DO, pH and ammonia variables into compliance with WQS.

A more comprehensive approach will be needed for phosphorus impaired lakes that are part of the "Chain O' Lakes". Fox River's Chain O' Lakes consists of nine major lakes that are hydraulically connected by a series of waterways, namely Fox, Marie, Catherine, Channel, Nippersink, Pistakee, Grass, Bluff and Petite Lakes; although not considered a major lake, Spring Lake is also part of the chain. Besides the direct loading from the banks, these lakes often have multiple tributaries feeding flows and pollutant loads. Unidirectional flow does not always occur within the main body of the chain because of flat topography and back water effect of a downstream dam. The hydrodynamics of the lakes should be taken into account in estimating nutrient loading to each lake. Therefore, it is recommended that a receiving water model is developed for the entire Chain O' Lakes, which includes a hydrodynamic model and a water quality model. The receiving water model is coupled with a watershed loading model. Specifically, the Hydrological Simulation Program--Fortran (HSPF) model is recommended for the watershed hydrology and pollutant loading. A hydrodynamic model, Environmental Fluid Dynamics Code (EFDC), is recommended to simulate water movement in the Chain O' Lakes, which is linked to Water Quality Analysis Simulation Program (WASP). Prior to TMDL Stage 3 work, a technical memo will be prepared to provide conceptual framework and details on how these models will be used to develop phosphorus TMDLs for Chain O' Lakes.

Table 7-1 provides a listing of phosphorus impaired lakes and the proposed modeling approach. For the lakes not associated with the chain, LLRM is proposed. The following section briefly describes the recommended models.

Table 7-1: Phosphorus TMDLs and Proposed Method

LLRM	HSPF/EFDC/WASP
Antioch	Bluff
Davis	Catherine
Duck	Channel
Dunn's	Fox Lake
Fischer	Grass
Fish-Duncan	Marie
Grays	Nippersink
Hidden	Petite
Lake Tranquility	Pistakee
Long	Spring
Mcgreal	
North Churchill	
Redhead	
Round	
South Churchill	
Summerhill Estate	
Sun	
Turner	
Wooster	

7.4.1 LLRM

The suggested model, Lake Loading Response Model (LLRM), was developed by AECOM (formerly ENSR) and has been used for more than 35 lake TMDLs. LLRM uses export coefficients for runoff, groundwater and nutrients to estimate loading as a function of land use. Yields will be assigned to each defined parcel (sub-watershed) in the lake watershed. Loading estimates will be adjusted based on proximity to the lake, soils and major Best Management Practices (BMPs) in place. Model yields will be compared to measured data, where available. Export coefficients and attenuation factors will be adjusted such that model loading accurately reflects actual loading based on sample data and measured in-lake concentrations.

Watershed and sub-watershed boundaries have been delineated and watershed land use has been determined using publically available datalayers as part of this Stage 1 investigation. LLRM will be set-up on a sub-watershed level using available land use and average annual precipitation. The spreadsheet-based export coefficient model allows the user to select watershed yield coefficients and attenuation factors from a range appropriate for the region. The model also includes direct inputs for atmospheric deposition, septic systems, point sources, waterfowl and internal loading from lake sediments.

The generated load to the lake is processed through five empirical models: Kirchner & Dillon 1975, Vollenweider 1975, Larsen & Mercier 1976, Jones & Bachmann 1976 and Reckhow 1977. These empirical models predict in-lake phosphorus concentrations based on loading and lake characteristics such as mean water depth, volume, inflow, flushing and settling rates. Loads can be generated within the lake from direct release from the sediment (dissolved P, ammonium N), resuspension of sediment (particulate P or N) with possible dissociation from particles. Predicted in-lake phosphorus is compared to measured data. An

acceptable agreement between measured and predicted concentrations indicates loading estimates are appropriate for use in the preparation of a TMDL. Adjustments to the loading portion of the model are made when necessary based on best professional judgment to ensure acceptable agreement between measured and predicted concentrations. These empirical models also predict chlorophyll concentrations and water clarity (Secchi disk transparency). LLRM also includes a statistical evaluation of algal bloom probability.

Once the model has been calibrated to existing conditions, adjustments to the model can be made to determine the load reductions necessary to meet WQS. Different scenarios can be modeled to determine the appropriate BMPs during the implementation plan stage. In some instances, waterbodies are naturally eutrophic and may not achieve numerical WQS LLRM is most effective when calibrated with water quality data for the target system, but can be used with limited data. While it is a spreadsheet model with inherent limitations on applied algorithms and resultant reliability of predictions, it provides a rational means to link actual water quality data and empirical models in an approach that addresses the whole watershed and lake. LLRM is an easy and efficient method of estimating current loads to lakes as well as providing predictions on lake response under countless loading scenarios.

LLRM, like most simplified lake models, predicts phosphorus concentrations and estimates loading on an average annual basis. As required by the EPA, the TMDL must be expressed on a daily basis. However, there is some flexibility in how the daily loads may be expressed (US EPA, 2006). Several of these options are presented in “Options for Expressing Daily Loads in TMDLs” (US EPA, 2007). For TMDLs based on watershed load and in-lake response models providing predictions on an annual basis, the EPA offers a method for calculating the maximum daily limit based on long-term average and variability. This statistical approach is preferred since long periods of continuous simulation data and extensive flow and loading data are not available. The following expression assumes that loading data are log-normal distributed and is based on a long term average load calculated by the empirical model and an estimation of the variability in loading.

$$MDL = LTA * e^{[z\sigma - 0.5\sigma^2]}$$

Where:
MDL = maximum daily limit
LTA = long-term average
Z = z-statistic of the probability of occurrence
$\sigma^2 = \ln(CV^2 + 1)$
CV= coefficient of variation

Data from similar lakes will be used in situations where there are not enough data to determine probability of occurrence or coefficient of variation for the impaired waterbody. The water quality data points from the entire watershed will be used in a statistic analysis to determine z-score and CV.

MOS for phosphorus using this method is implicit. There is substantial uncertainty when introducing concentration inputs to the models that results from the timing of sampling and analytical methods. Similarly, the empirical equations used to predict in-lake phosphorus concentrations, mean and maximum chlorophyll, Secchi disk transparency, and bloom probability also introduce variability into the predictions.

WLA will be determined based on NPDES permit effluent limitations and design flows. WLAs for NPDES-permitted stormwater discharges, including current and future MS4s, “Urbanized” areas, construction and industrial discharges that do not have numerical effluent limitations will be expressed as a reduction. Stormwater discharges are required to meet the existing instream standard for the pollutant of concern. LAs will also be expressed as a load reduction.

Critical conditions for lakes typically occur during the summertime, when the potential (both occurrence and frequency) for nuisance algal blooms are greatest. The loading capacity for total phosphorus is set to achieve

desired water quality standards during this critical time period and also provide adequate protection for designated uses throughout the year. The target goal is based on average annual values, which is typically higher than summer time values. Therefore a load allocation based on average concentrations will be sufficiently low to protect designated uses in the critical summer period.

The LLRM derived TMDL takes into account seasonal variations because the allowable annual load is developed to be protective of the most sensitive (i.e., biologically responsive) time of year (summer), when conditions most favor the growth of algae. Maximum annual loads are calculated based on an overall annual average concentration. Summer epilimnetic concentrations are typically lower than the average annual concentration, so it is assumed that loads calculated in this manner will be protective of designated uses in the summer season. It is possible that concentrations of phosphorus will be higher than the annual average during other seasons, most notably in the spring, but higher phosphorus levels at that time does not compromise uses. The proposed TMDL is expected to protect all designated uses of the impaired waterbody.

7.4.2 Models for Chain O' Lakes

HSPF Watershed Loading Model

HSPF model is a US EPA program for simulation of watershed hydrology and water quality for both conventional and toxic organic pollutants. The HSPF model uses information such as the time series of rainfall, temperature and solar radiation; land surface characteristics such as land-use patterns; and land management practices to simulate the processes that occur in a watershed. The result of this simulation is a time series of the quantity and quality of runoff from an urban or agricultural watershed. Flow rate, sediment load, and nutrient and pesticide concentrations are predicted. HSPF includes an internal database management system to process the large amounts of simulation input and output. The HSPF model incorporates the watershed-scale Agricultural Runoff Model (ARM) and Non-Point Source (NPS) models into a basin-scale analysis framework that includes pollutant transport and transformation in stream channels.

The benefit of using HSPF model is that it not only supports TMDL development but also can be used as a watershed management tool to assist with watershed planning and decision-making. The model provides the spatial and temporal resolution for load allocation. In addition, an HSPF model of the Upper Fox River/Chain O' Lakes will complement the existing HSPF model being developed by ISWS for the Lower Fox River watershed.

EFDC

The Environmental Fluid Dynamics Code (EFDC Hydro) is a state-of-the-art hydrodynamic model that can be used to simulate aquatic systems in one, two, and three dimensions. It has evolved over the past two decades to become one of the most widely used and technically defensible hydrodynamic models in the world. EFDC uses stretched or sigma vertical coordinates and Cartesian or curvilinear, orthogonal horizontal coordinates to represent the physical characteristics of a waterbody. It solves three-dimensional, vertically hydrostatic, free surface, turbulent averaged equations of motion for a variable-density fluid. Dynamically-coupled transport equations for turbulent kinetic energy, turbulent length scale, salinity and temperature are also solved. The EFDC model allows for drying and wetting in shallow areas by a mass conservation scheme. The input of EPDC model includes inflows from watershed, boundary conditions, meteorological data, waterbody bathymetry. The outputs include water level profile, depth, and velocity fields, which are further used in WASP model to simulate the fate and transport of pollutant.

WASP

The Water Quality Analysis Simulation Program (WASP) is a water quality model developed for US EPA. This model helps users interpret and predict water quality responses to natural phenomena and manmade pollution for various pollution management decisions. WASP is a dynamic compartment-modeling program for aquatic

systems, including both the water column and the underlying benthos. WASP allows the user to investigate 1, 2, and 3 dimensional systems, and a variety of pollutant types. The state variables for the given modules are given in the table below. The time varying processes of advection, dispersion, point and diffuse mass loading and boundary exchange are represented in the model. WASP also can be linked with hydrodynamic and sediment transport models that can provide flows, depths, velocities, temperature, salinity and sediment fluxes. The model input includes the flow velocity field, depth, and pollutant loads. The output will be pollutant concentrations and mass in water body, which are compared against water quality standards.

7.5 Stages 2 & 3

Effective TMDL development heavily relies on site-specific data. Sufficient flow and water quality data are required for the evaluation of water conditions and for model calibration. In fact, data availability often dictates the modeling approach used for various watersheds. Five types of data are crucial for the Upper Fox River/Chain O' Lakes watershed TMDL development:

- Flow data
- Meteorological data
- Water quality data
- Watershed and water body physical parameters
- Source characteristics data

The Illinois EPA believes there are ample data to progress to Stage 3 for the following segments:

Catherine	Marie
Channel	McGreal
Davis	Nippersink
Deep	North Churchill
Duck	Petite
Fischer	Pistakee
Fish-Duncan	South Churchill
Fox River	Summerhill Estate
Grass	Sun
Hidden	Turner
Lake Tranquility	Wooster
Long	

Therefore the TMDL process for these segments will progress to Stage 3 - model calibration, TMDL scenarios, and implementation plans using the methods described in the previous sub-section.

IL EPA and Lake County sampled in twelve lakes in 2008, including Catherine, Channel, Bluff, Deep, Fox, Grass, Long, Nippersink, Petite, Pistakee, Sun, and Wooster Lakes. Six lakes are scheduled for additional sampling in 2009. These lakes include Anitoch, Dunn's, Grays, Redhead, Round and Spring Lake. These collected data will be assessed to confirm if impairments still exist, and if so, the data will be used for Stage 3 analysis.

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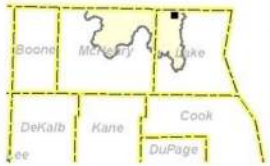
Appendix A

Waterbody Maps

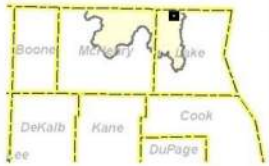
Antioch:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development



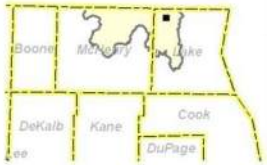
Antioch: Subwatershed Boundary

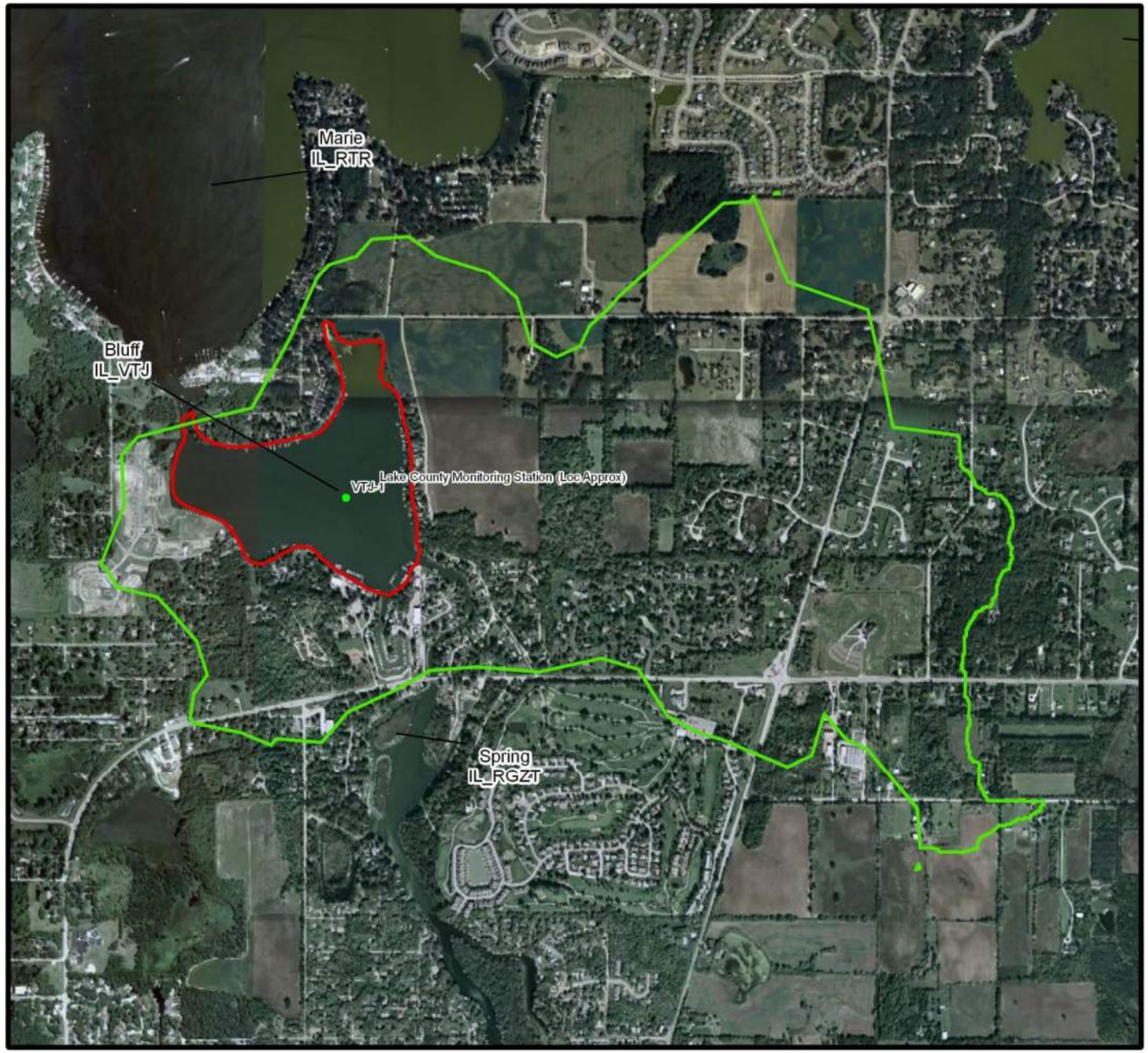
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



Bluff:
NPDES Dischargers and Monitoring Stations

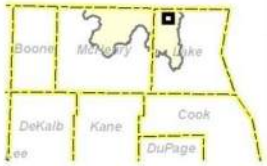
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development





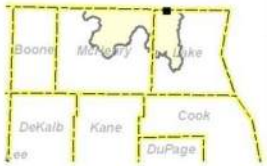
Bluff: Subwatershed Boundary

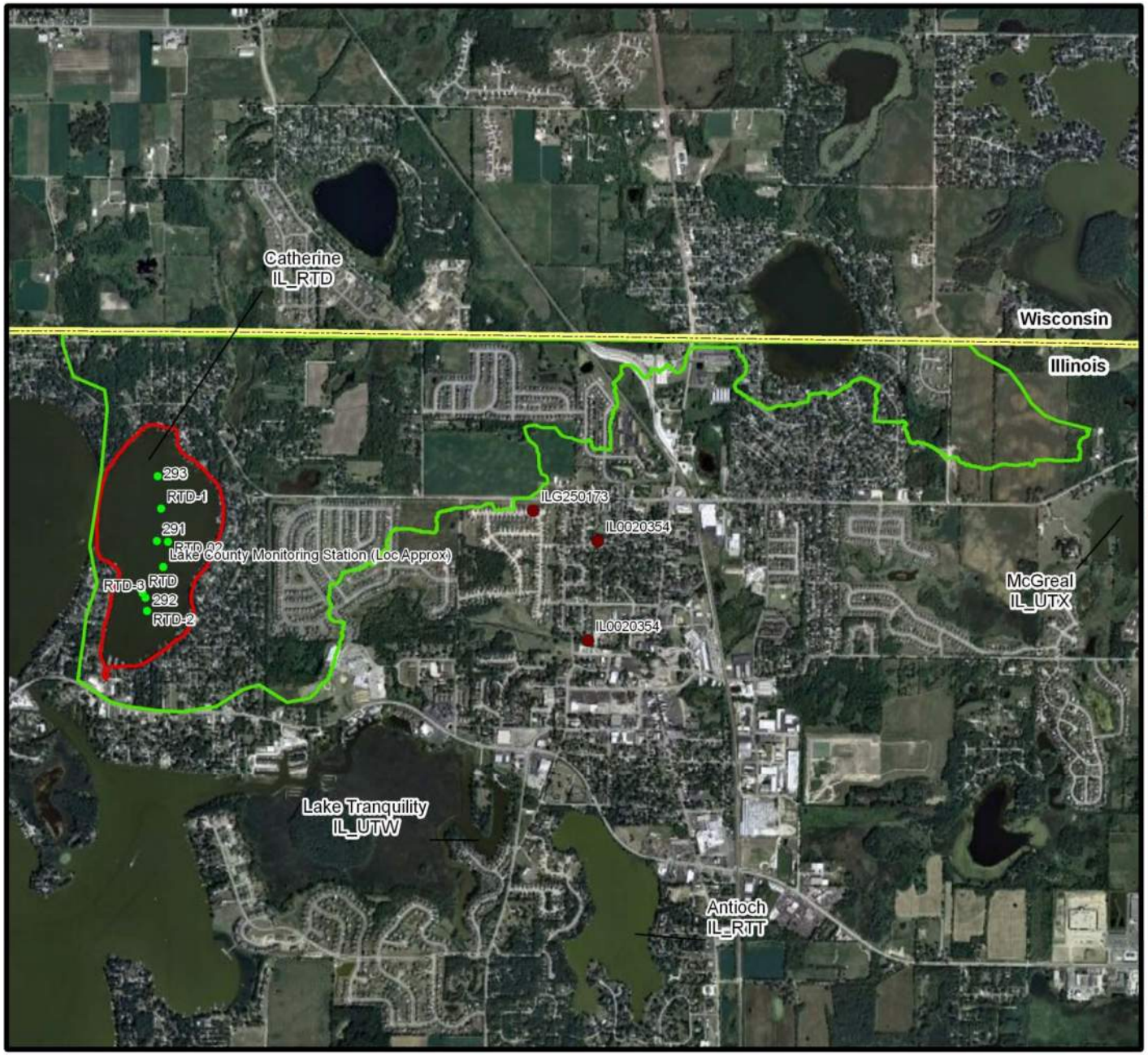
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



Catherine: NPDES Dischargers and Monitoring Stations

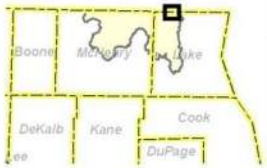
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

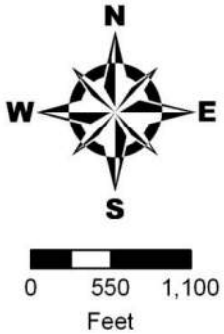




Catherine: Subwatershed Boundary

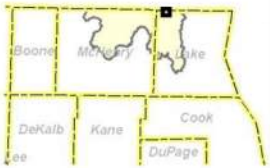
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

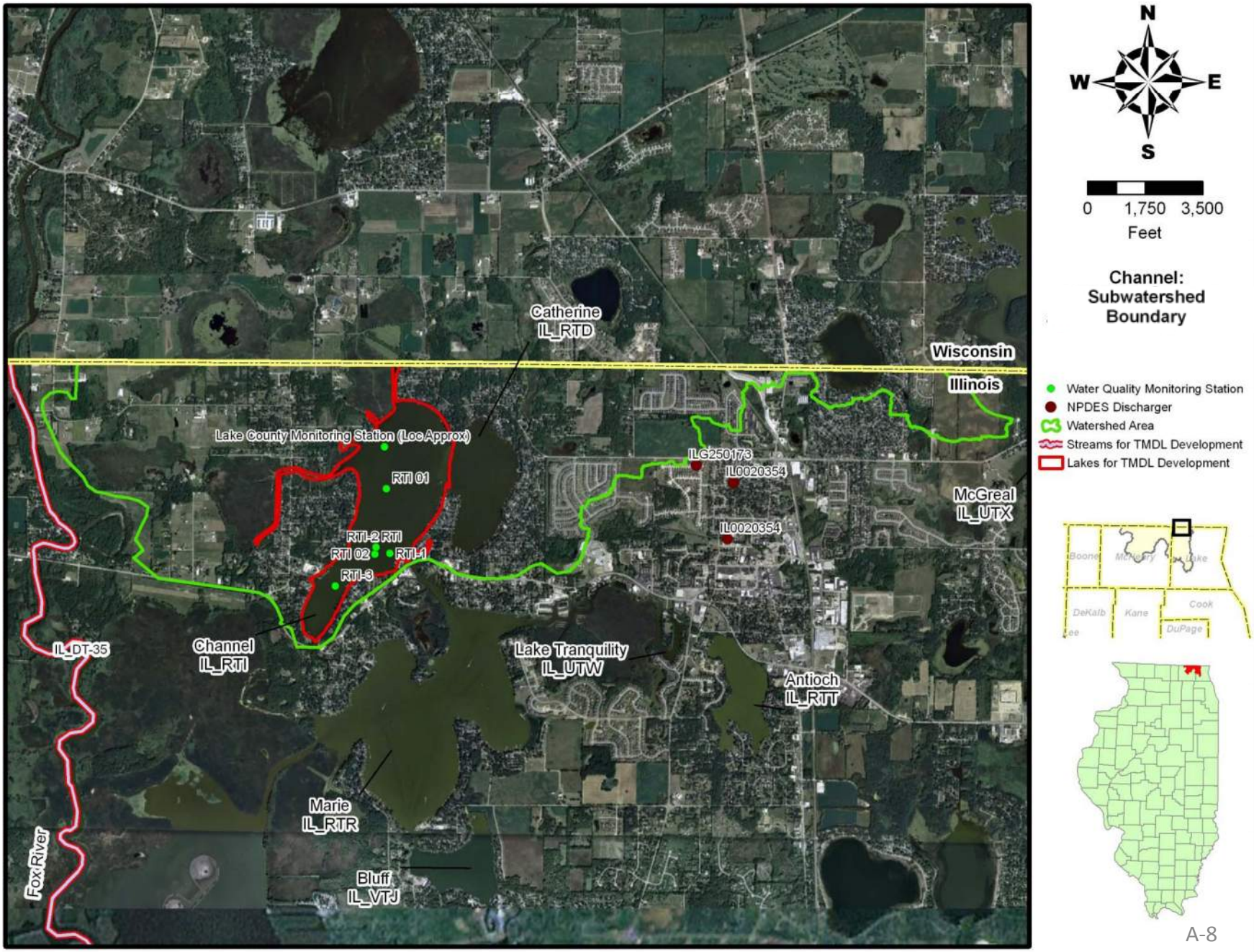




Channel:
NPDES Dischargers and Monitoring Stations

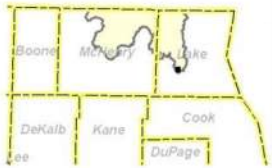
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

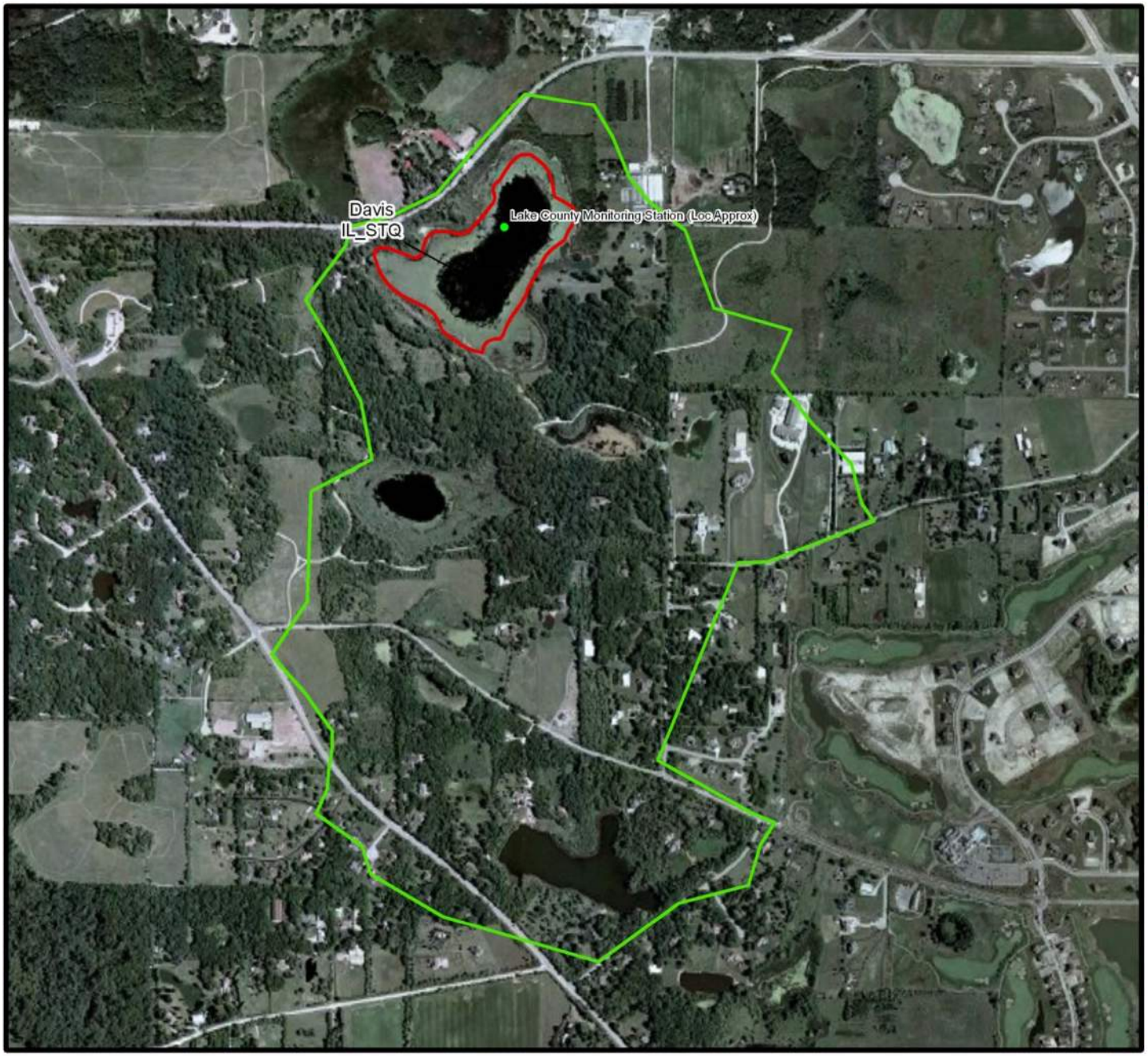


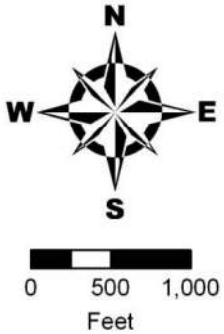

N
W
E
S
0
1,750
3,500
Feet
Channel:
Subwatershed
Boundary
Catherine
IL_RTD
Wisconsin
Illinois
Water Quality Monitoring Station
NPDES Discharger
Watershed Area
Streams for TMDL Development
Lakes for TMDL Development
Lake County Monitoring Station (Loc Approx)
RTI 01
ILG250173
IL0020354
IL0020354
McGreal
IL_UTX
RTI-2 RTI
RTI 02
RTI-1
RTI-3
IL_DT-35
Channel
IL_RTI
Lake Tranquility
IL_UTW
Antioch
IL_RTT
Marie
IL_RTR
Bluff
IL_VTJ
Fox River
Boone
McHenry
Lake
DeKalb
Kane
Cook
DuPage

Davis:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

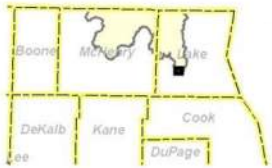






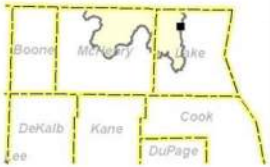
Davis: Subwatershed Boundary

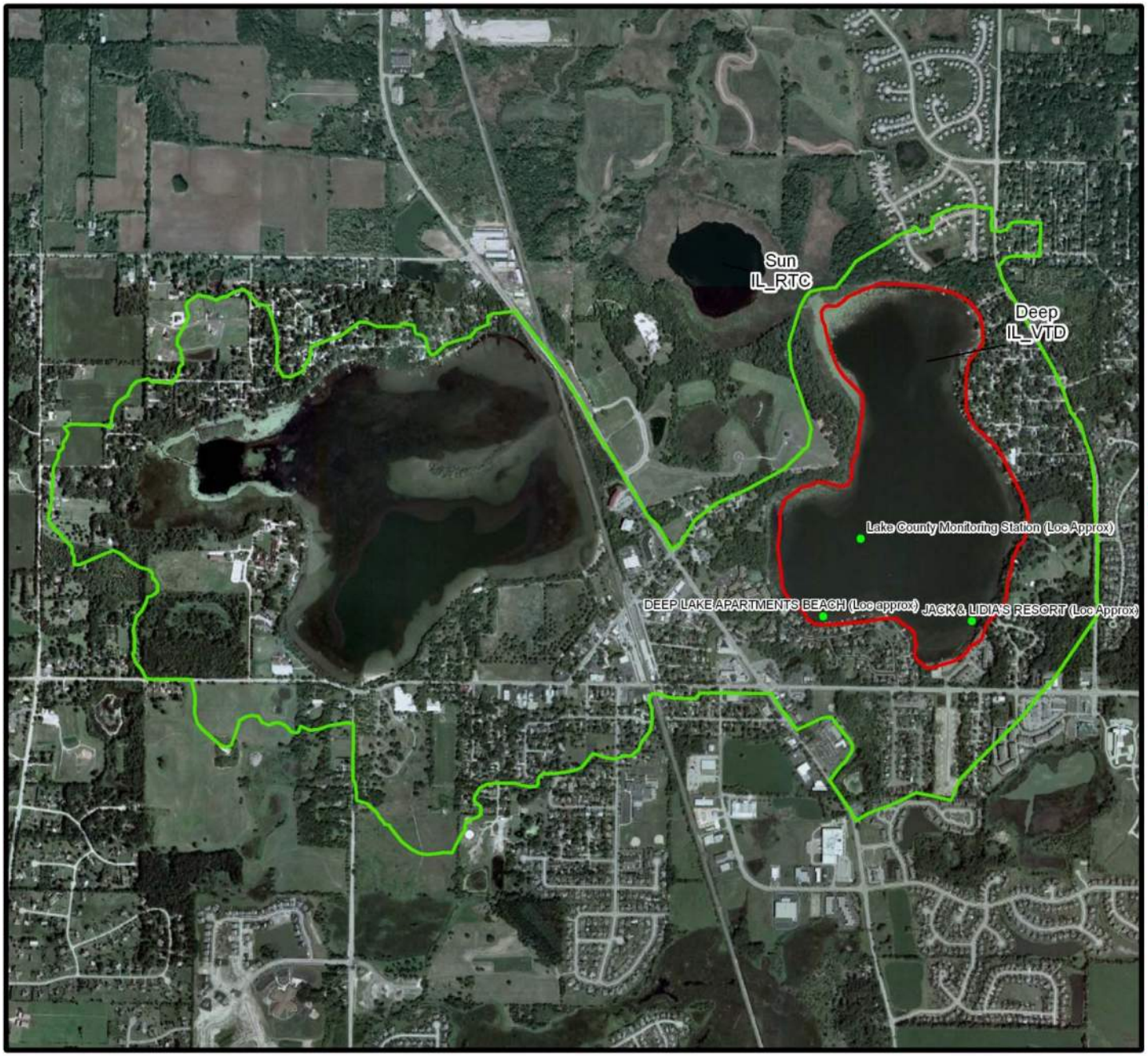
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

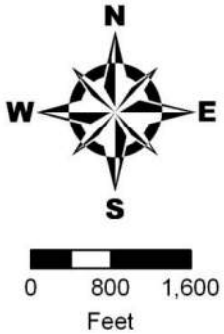


Deep:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

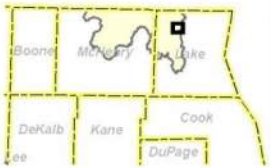






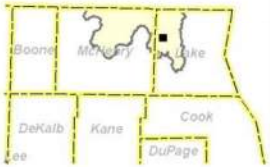
Deep: Subwatershed Boundary

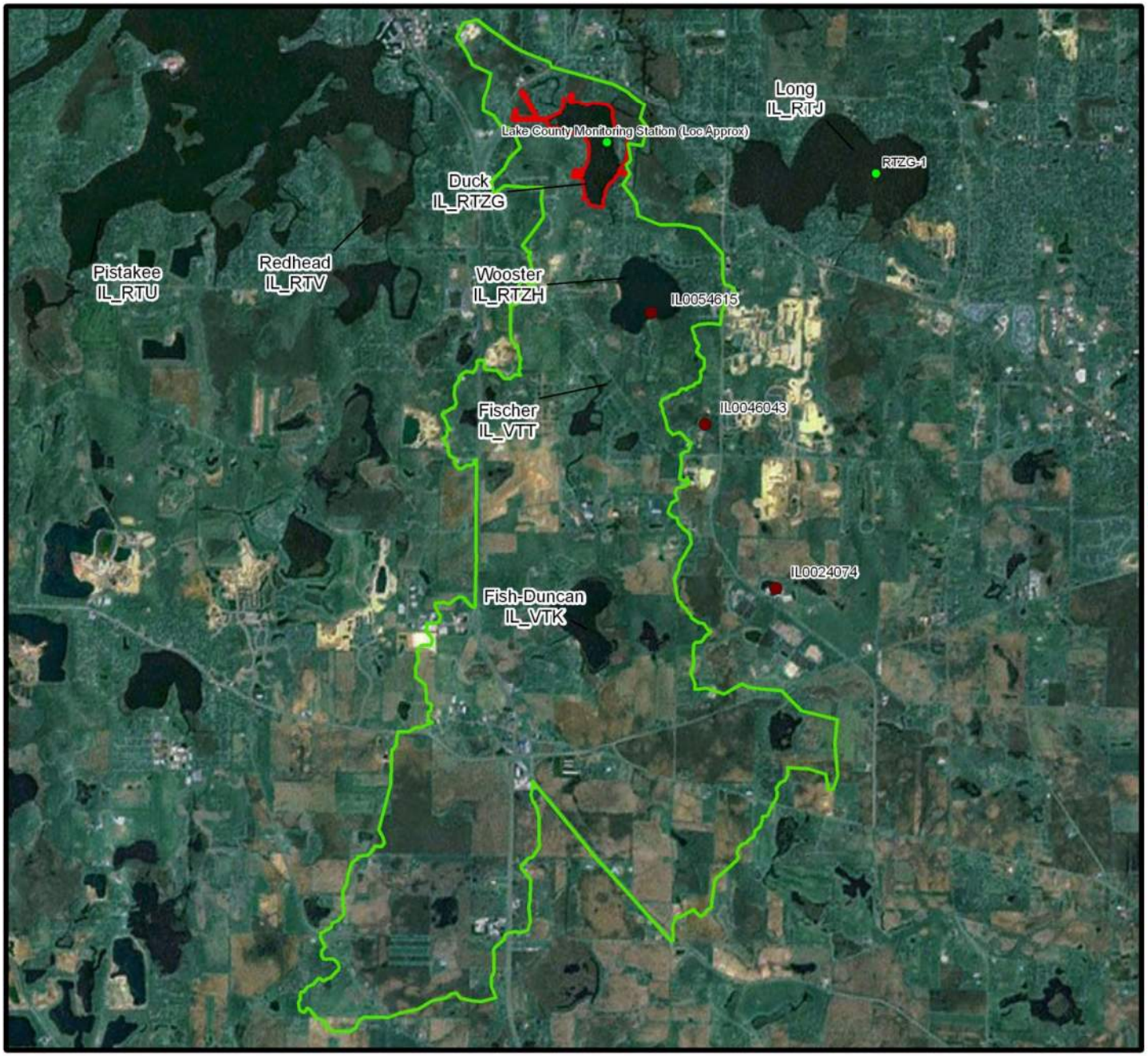
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



Duck:
NPDES Dischargers and Monitoring Stations

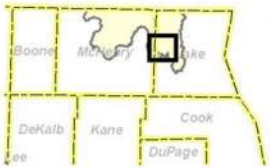
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development





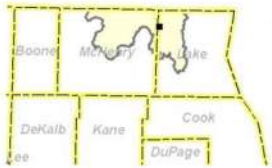
Duck: Subwatershed Boundary

- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



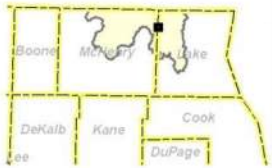
Dunns:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development



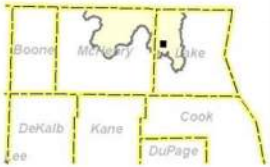
Dunns: Subwatershed Boundary

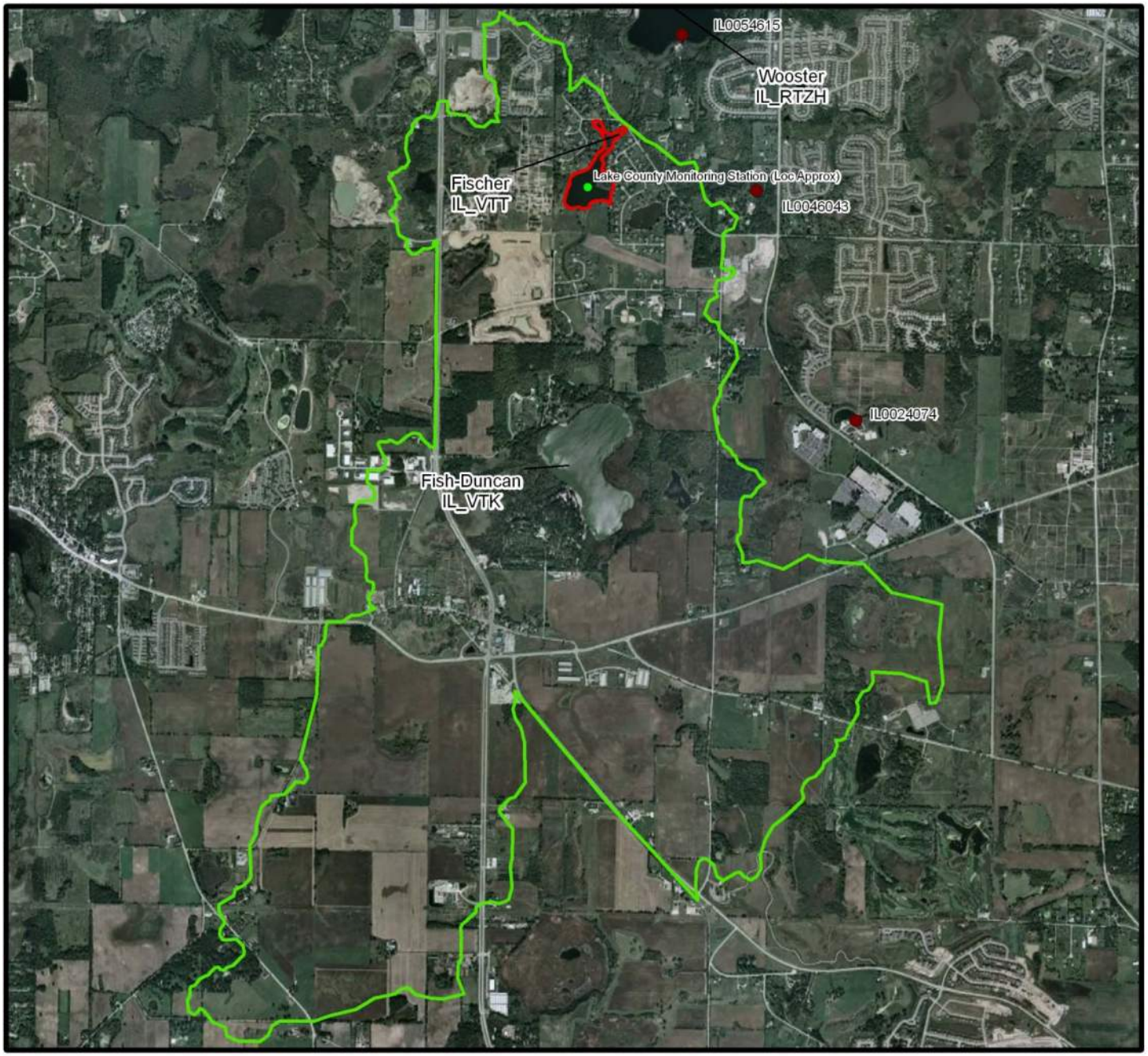
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

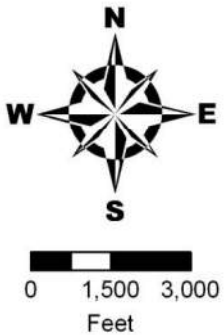


Fischer:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

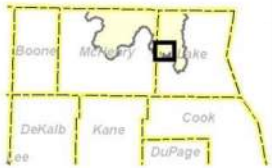






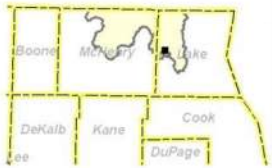
Fischer: Subwatershed Boundary

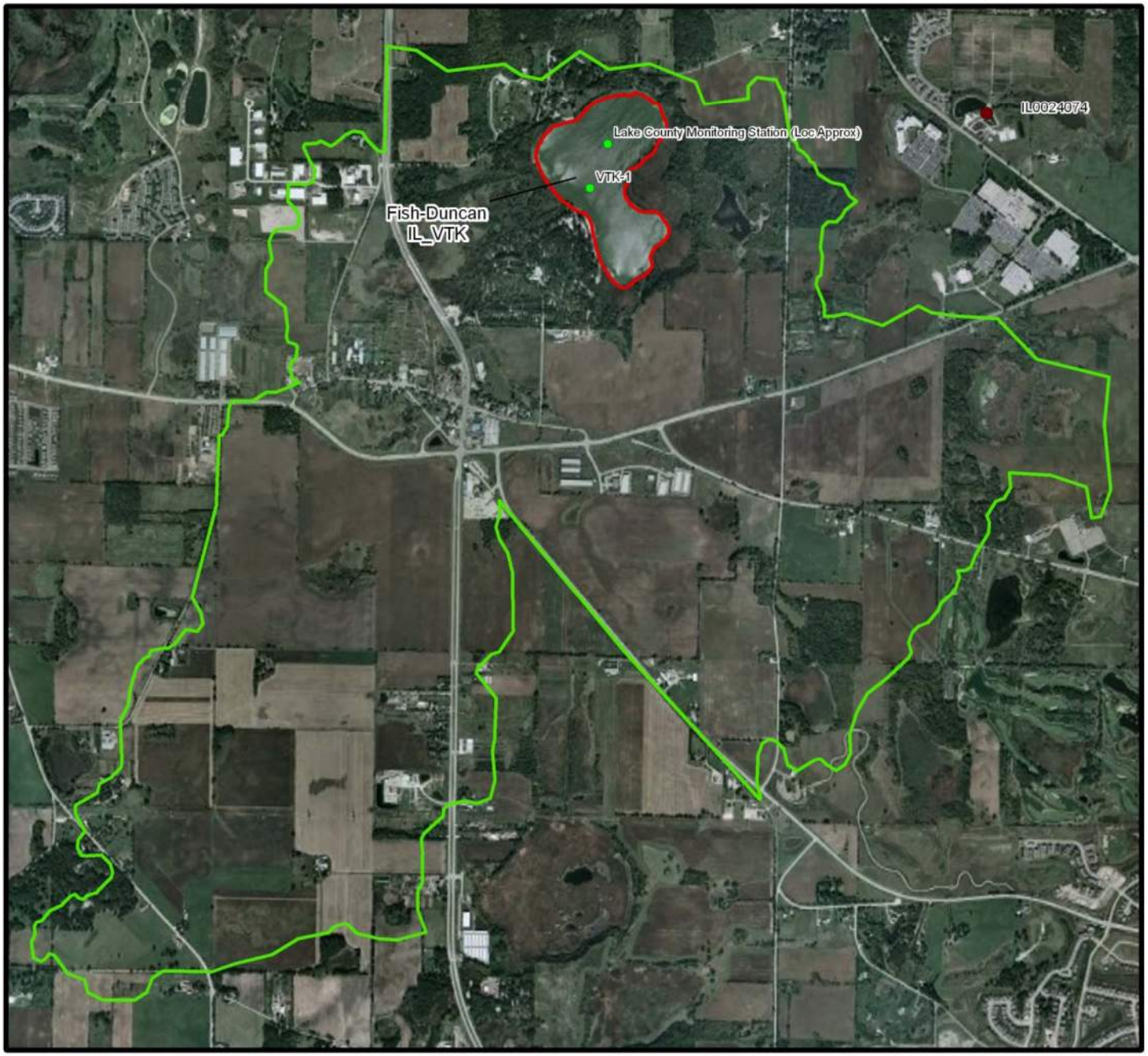
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

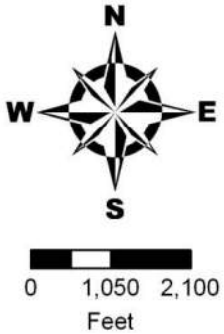


Fish-Duncan: NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

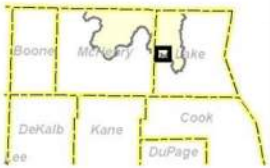






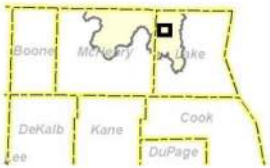
Fish-Duncan: Subwatershed Boundary

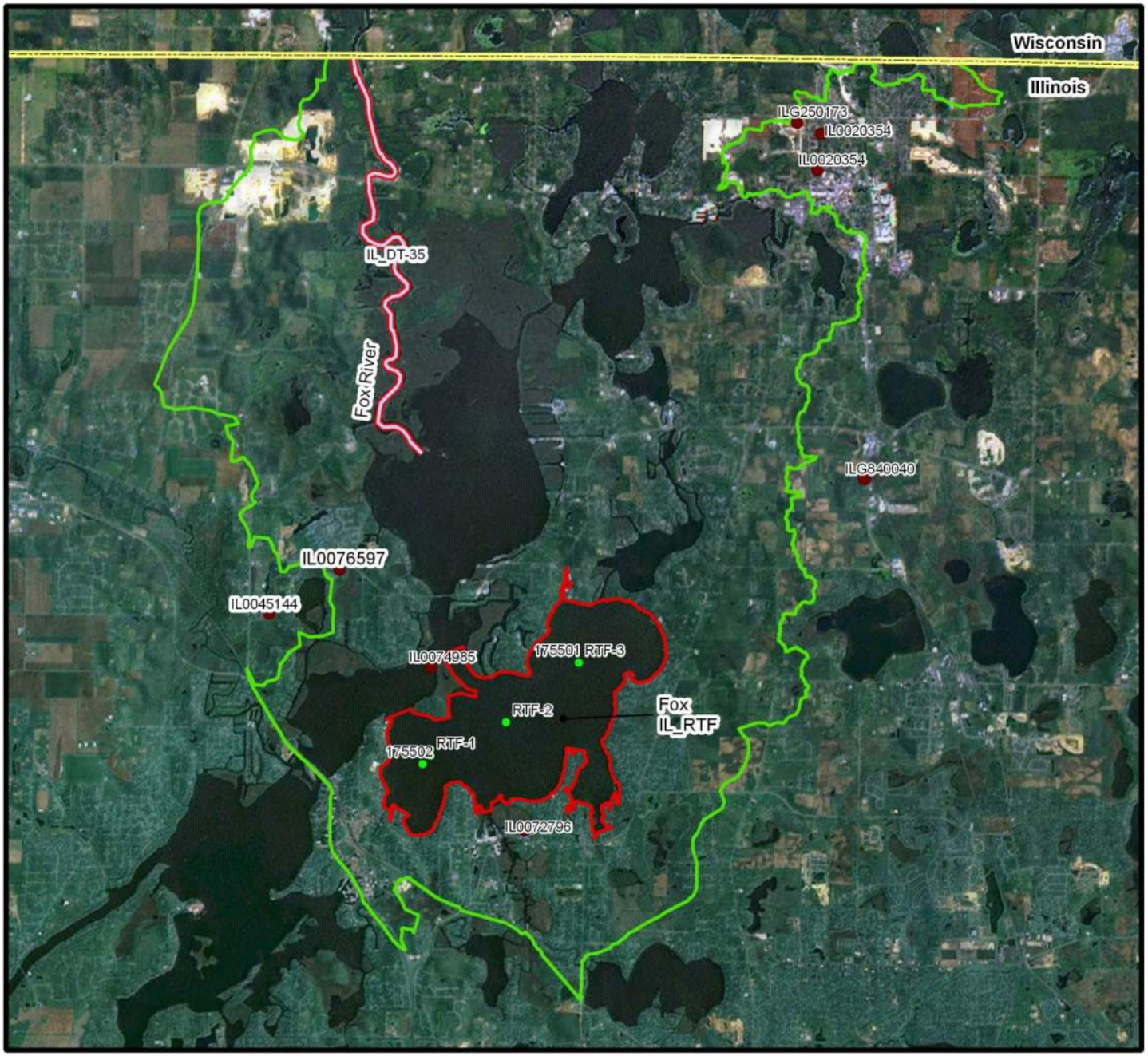
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

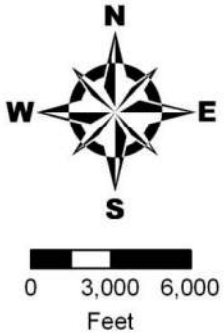


Fox:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

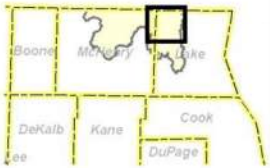


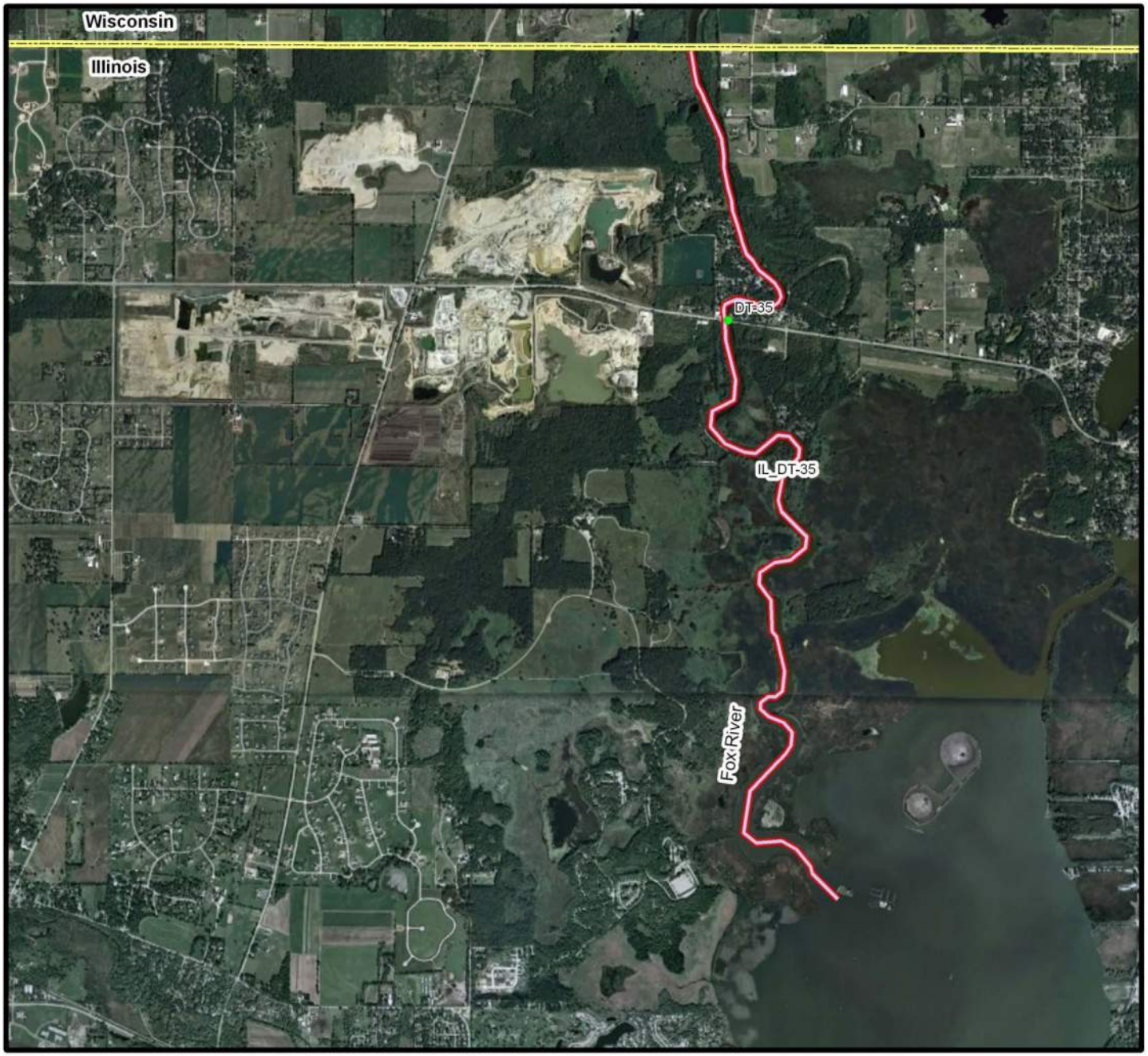


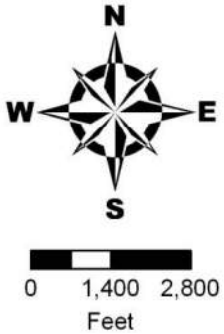


Fox: Subwatershed Boundary

- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

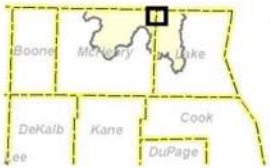


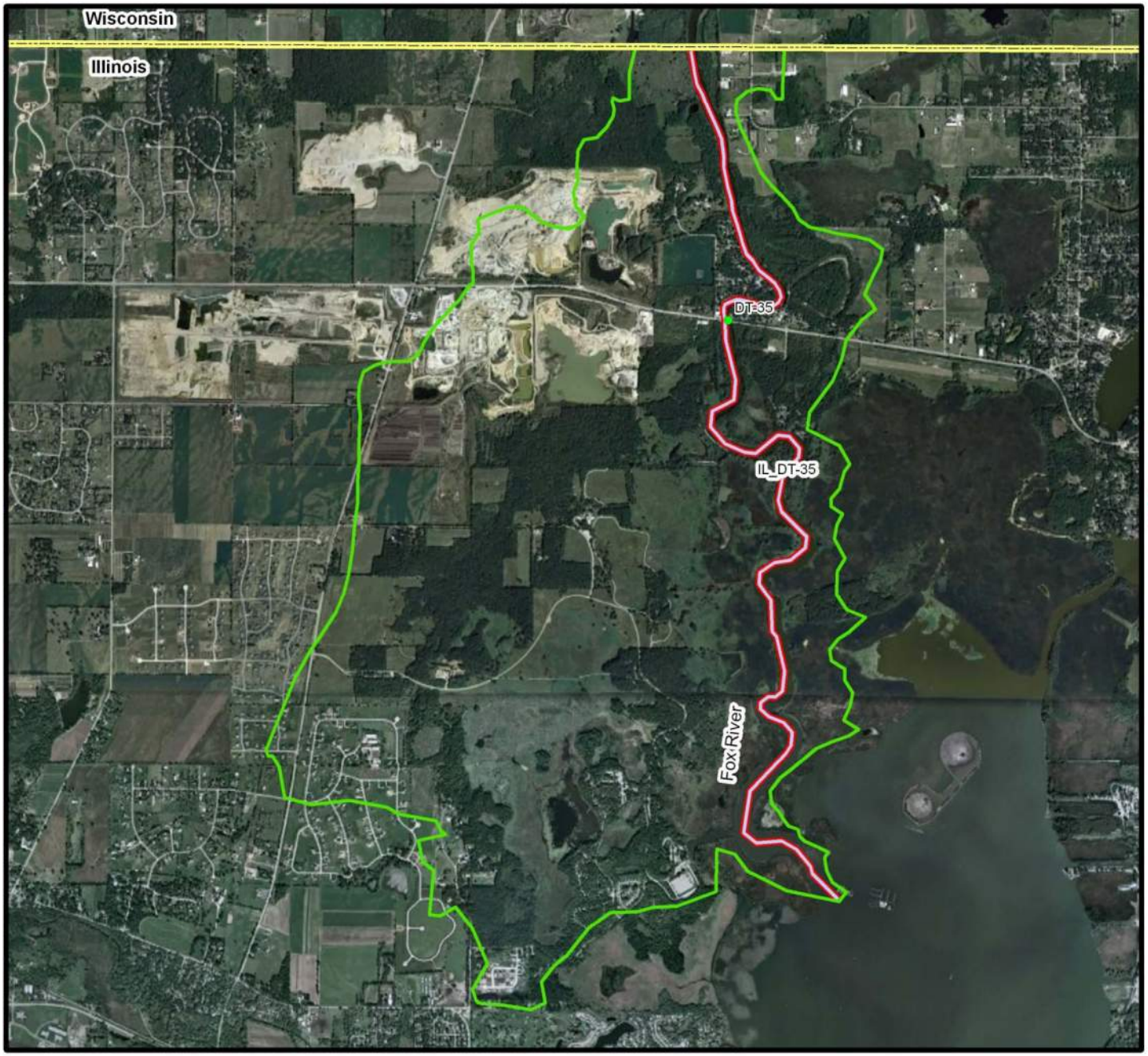


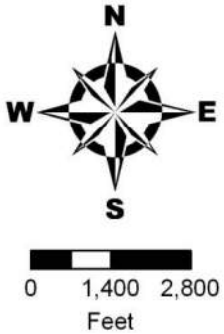


Fox River (IL_DT-35): NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

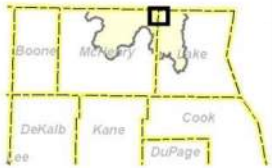


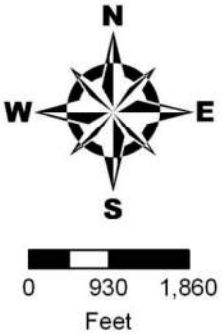




Fox River (IL_DT-35): Subwatershed Boundary

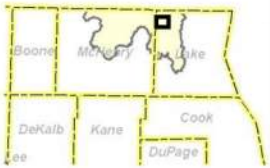
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

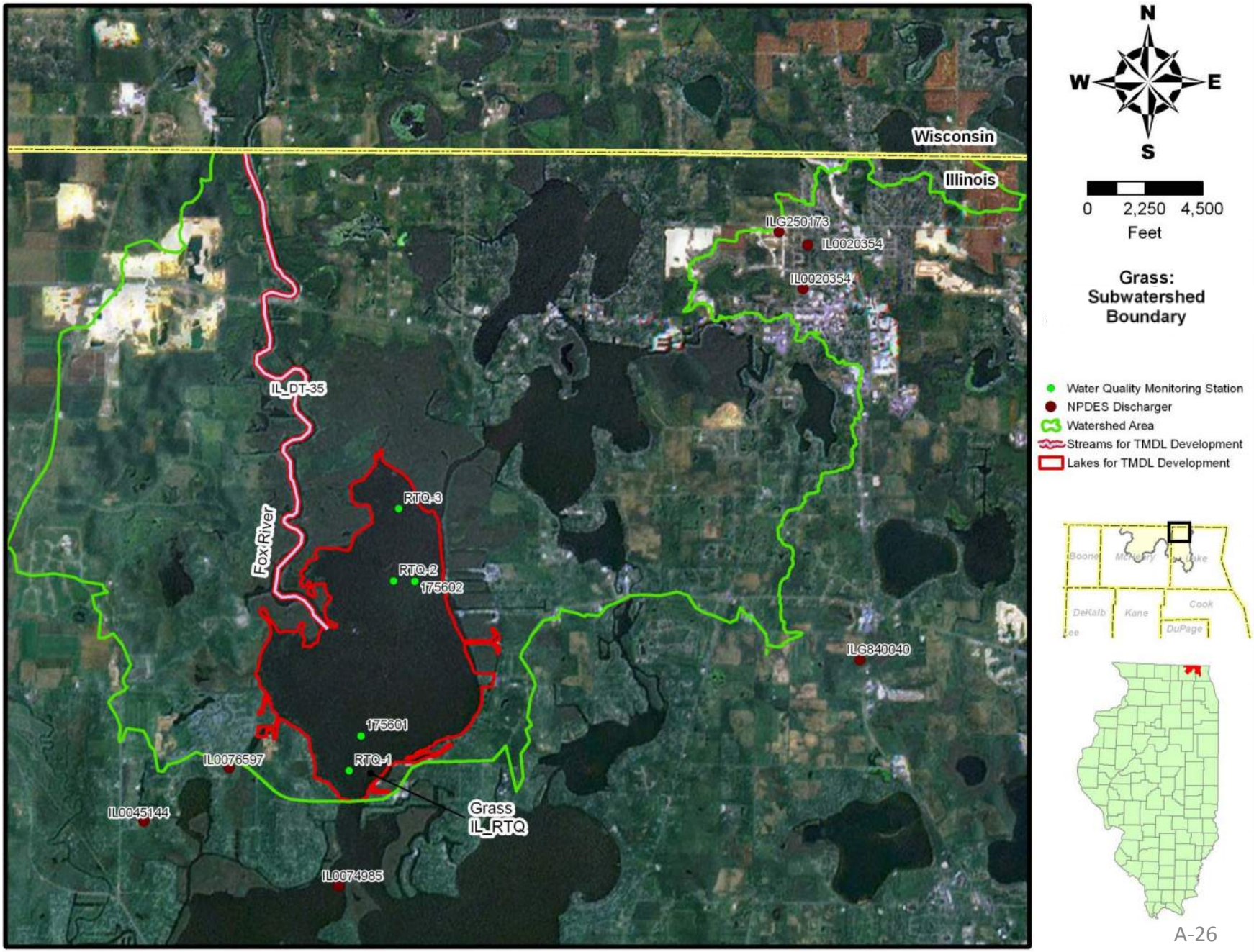




Grass:
NPDES Dischargers and Monitoring Stations

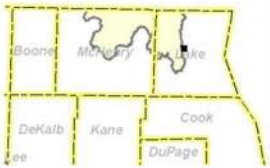
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development




Wisconsin
Illinois
ILG250173
IL0020354
IL0020354
IL_DT-35
Fox River
RTQ-3
RTQ-2
175602
ILG840040
175601
RTQ-1
IL0076597
IL0045144
Grass
IL_RTQ
IL0074985
N
W
E
S
0
2,250
4,500
Feet
Grass:
Subwatershed
Boundary
Water Quality Monitoring Station
NPDES Discharger
Watershed Area
Streams for TMDL Development
Lakes for TMDL Development
Boone
McHenry
Lake
DeKalb
Kane
Cook
DuPage

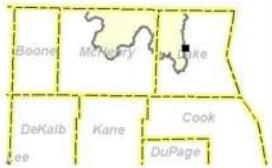
Grays:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development



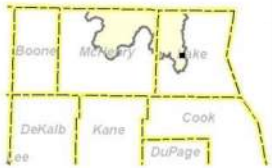
Grays: Subwatershed Boundary

- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



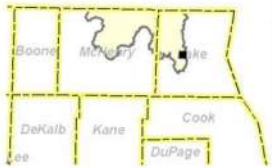
Hidden:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development



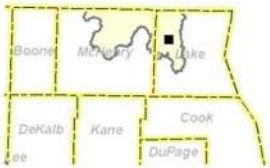
Hidden: Subwatershed Boundary

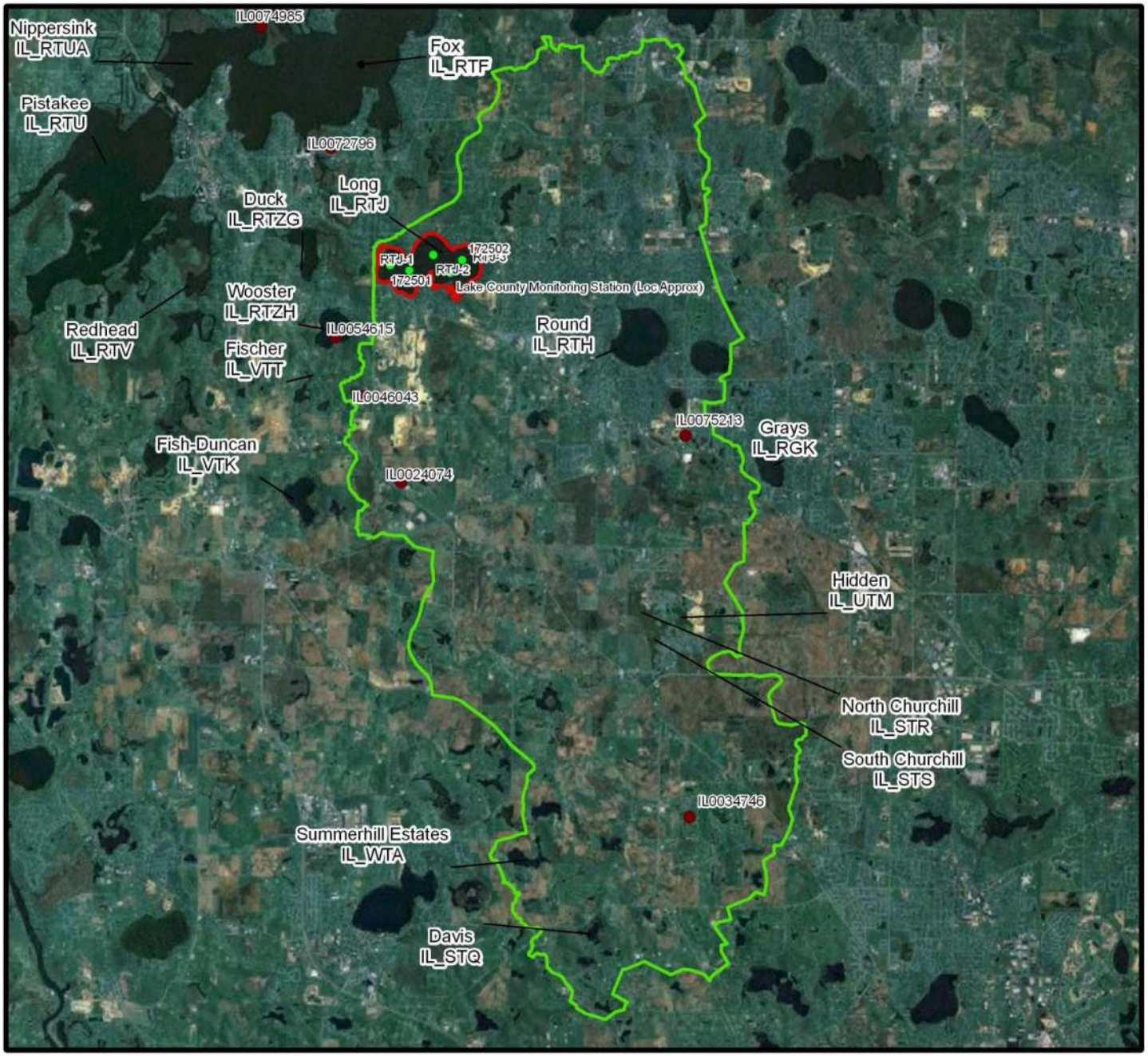
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

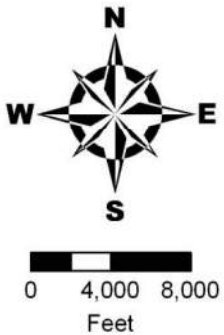


Long:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

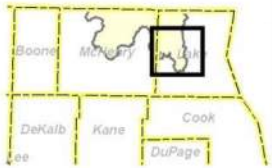


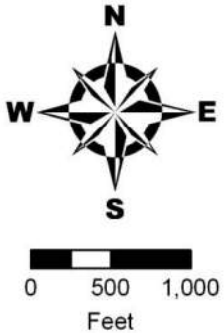




Long: Subwatershed Boundary

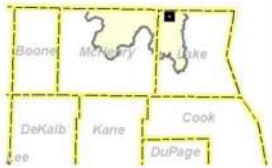
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development





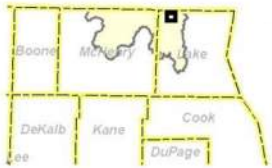
Marie:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development



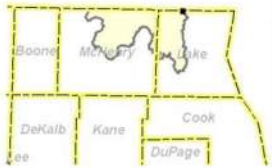
Marie: Subwatershed Boundary

- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



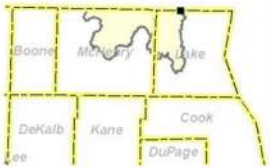
McGreal:
NPDES Dischargers and Monitoring Stations

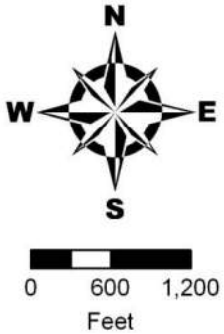
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development



McGreal: Subwatershed Boundary

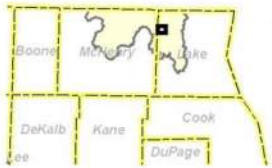
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

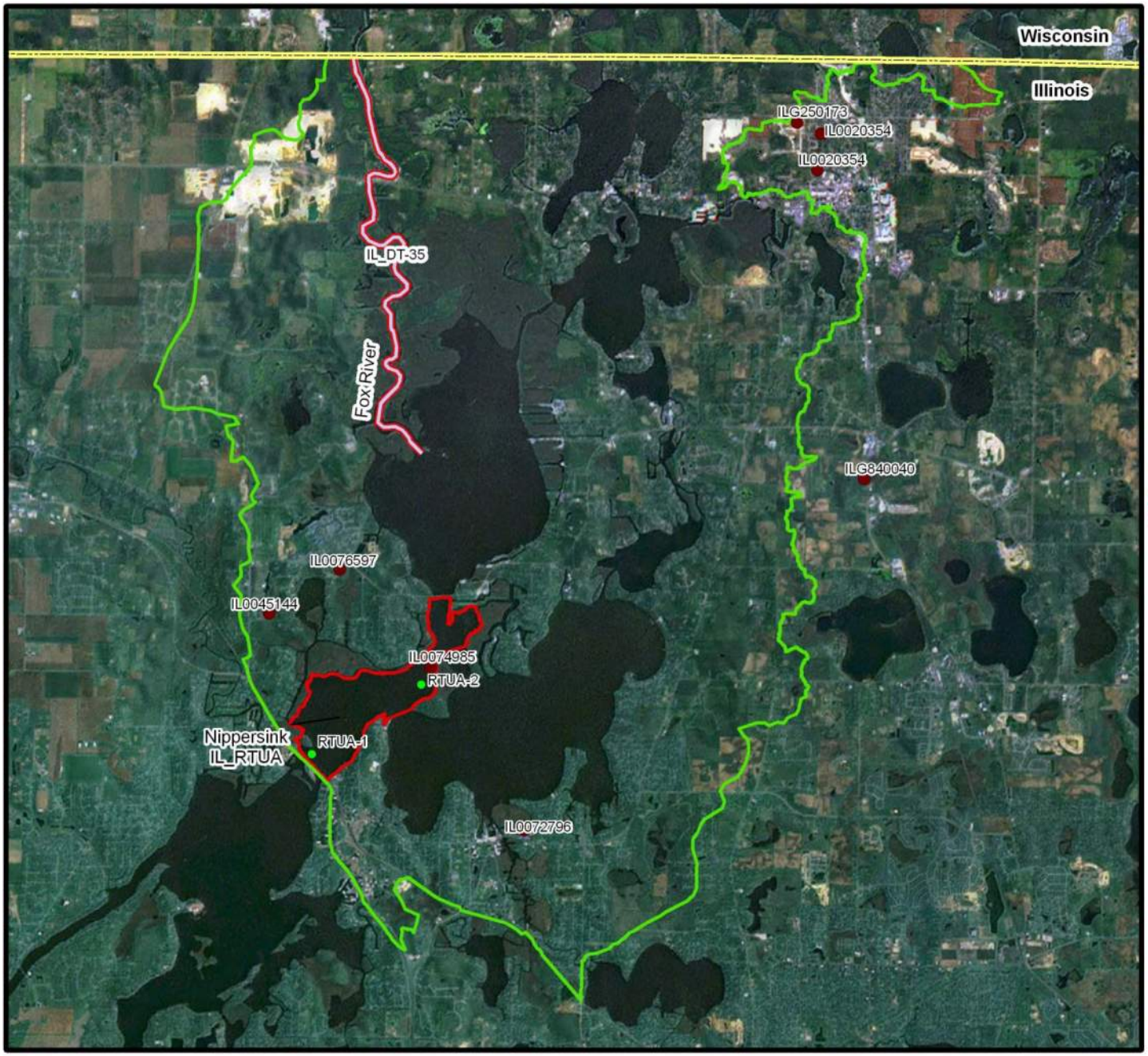


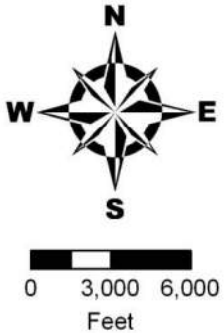


Nippersink: NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

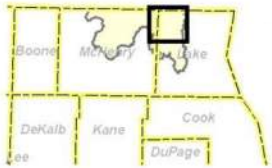






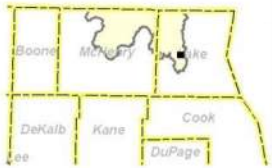
Nippersink: Subwatershed Boundary

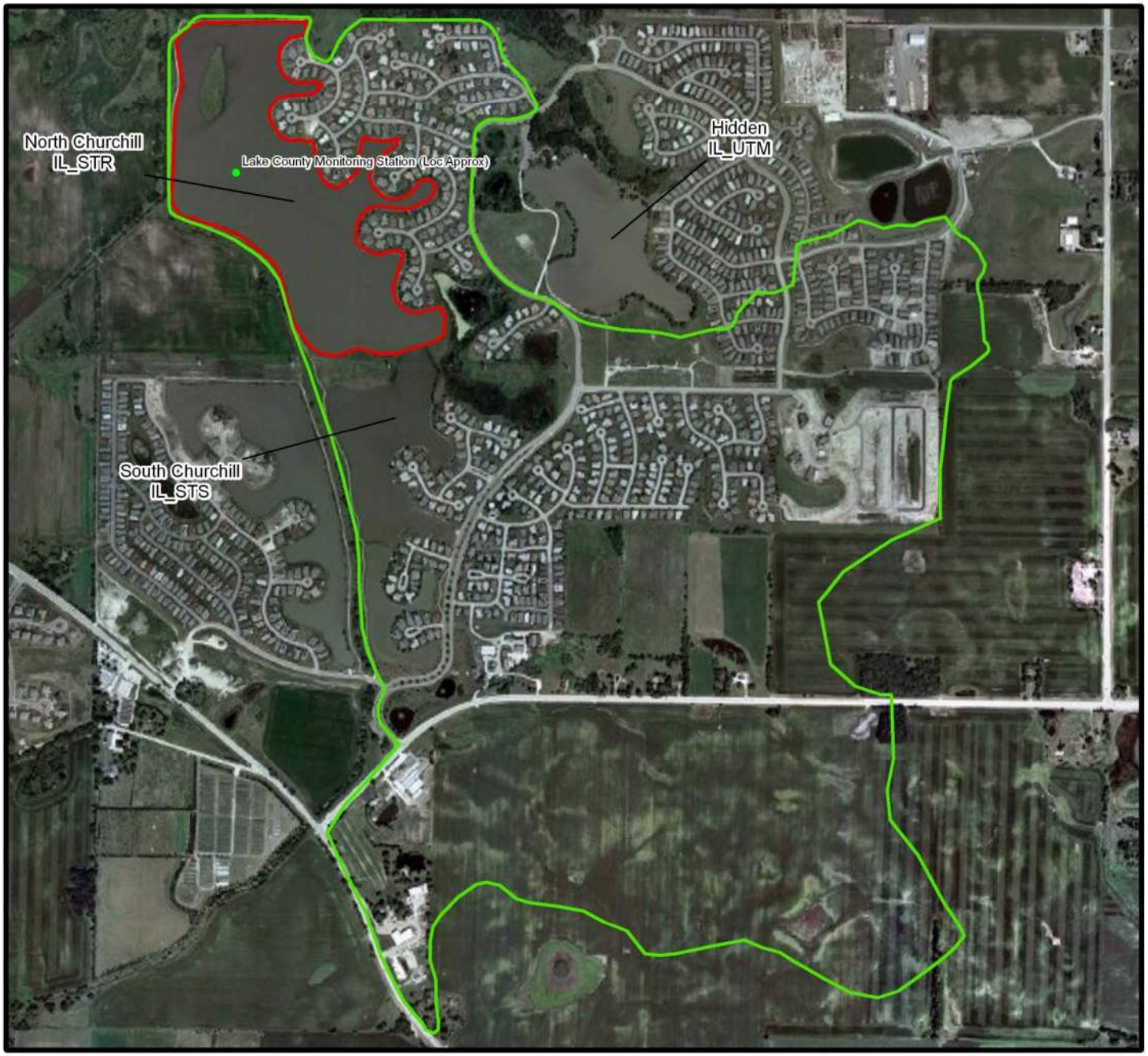
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



North Churchill: NPDES Dischargers and Monitoring Stations

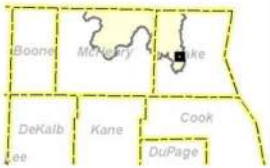
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

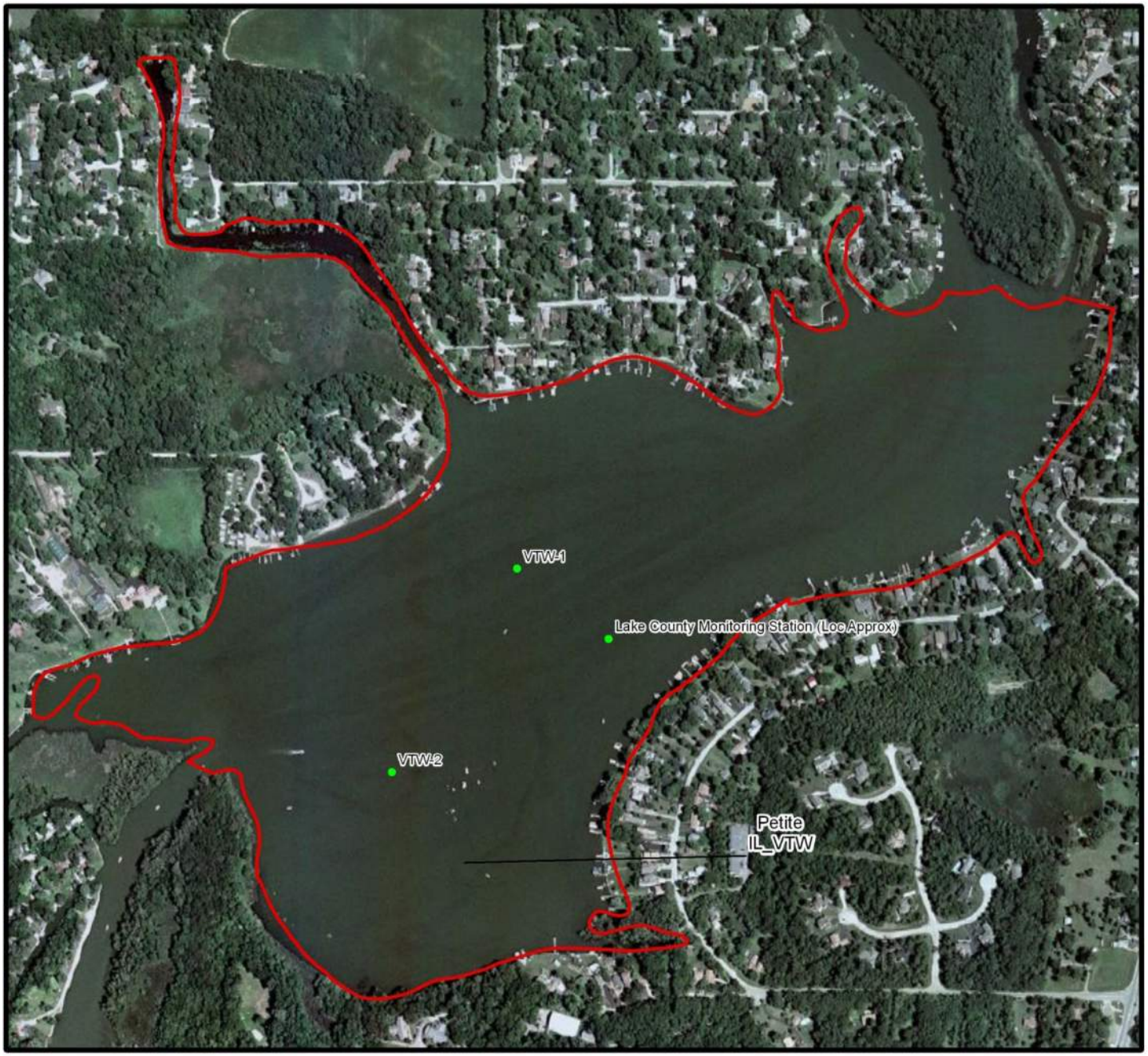




North Churchill: Subwatershed Boundary

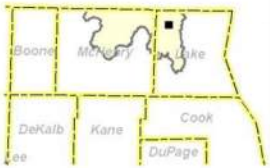
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

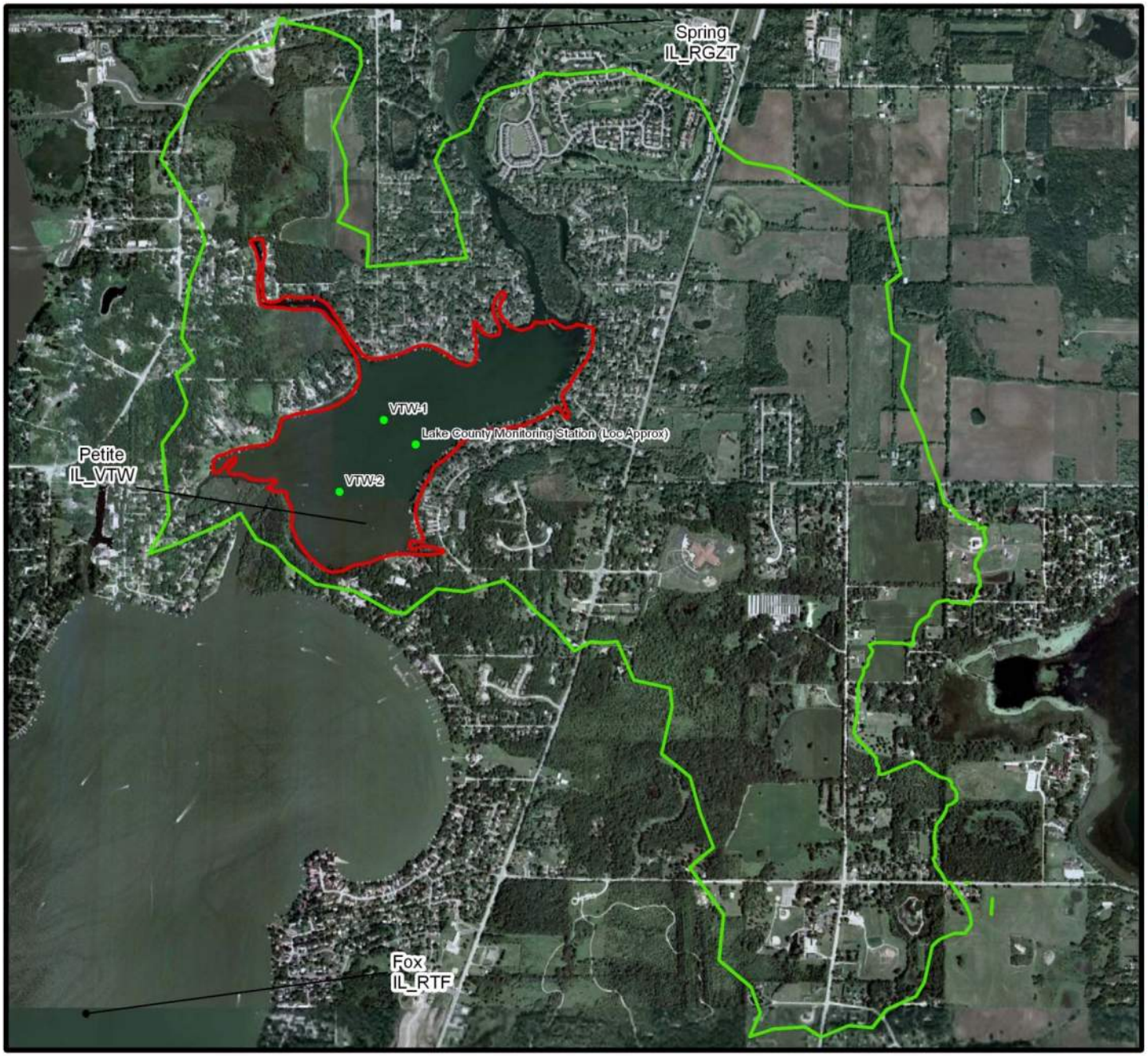




Petite:
NPDES Dischargers and Monitoring Stations

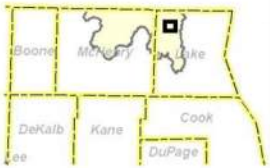
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

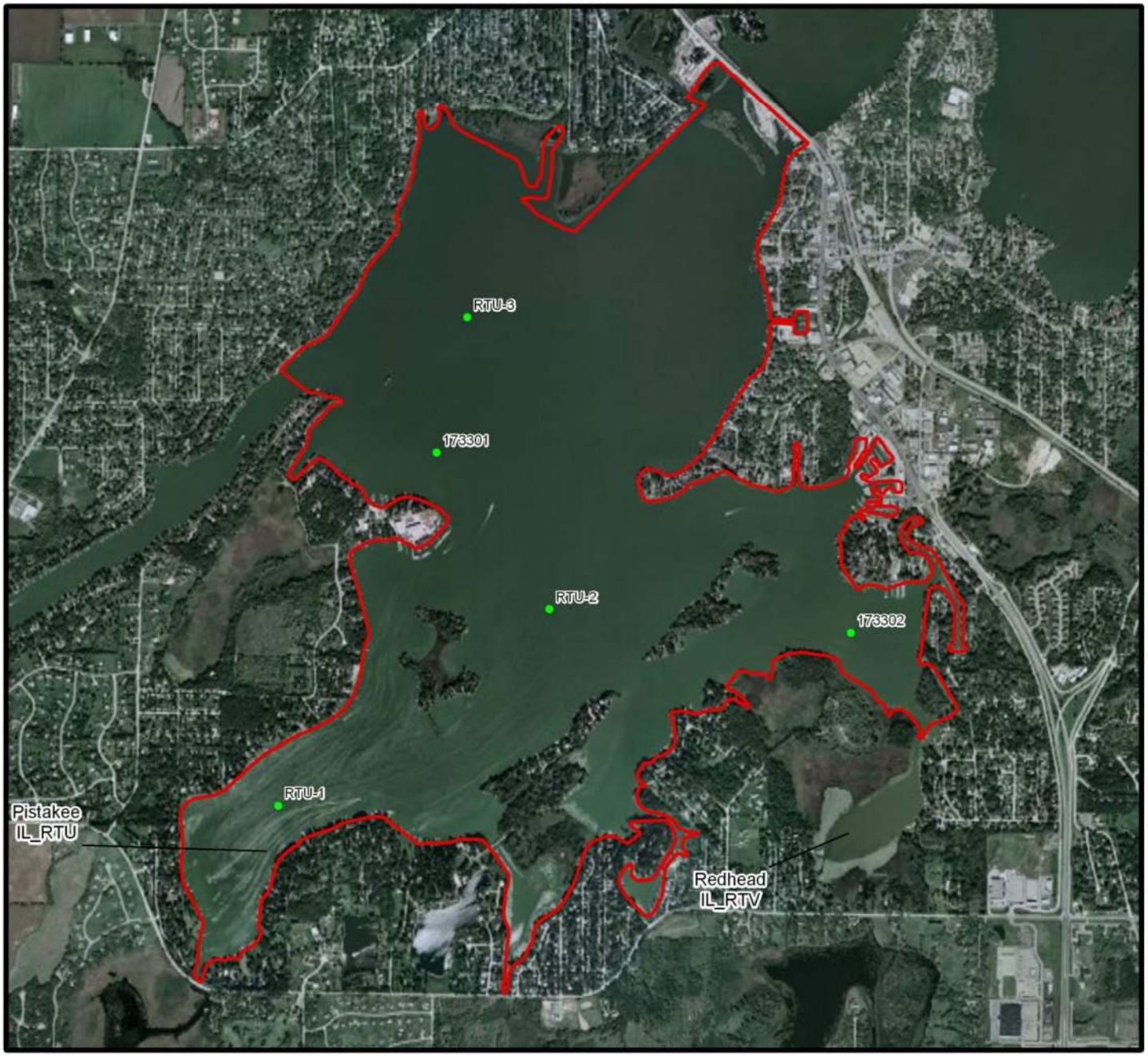


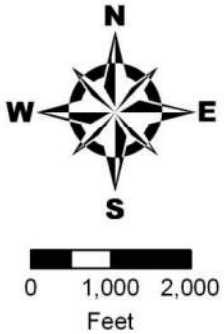


Petite: Subwatershed Boundary

- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

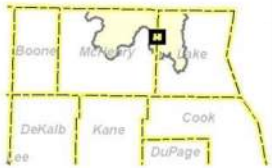


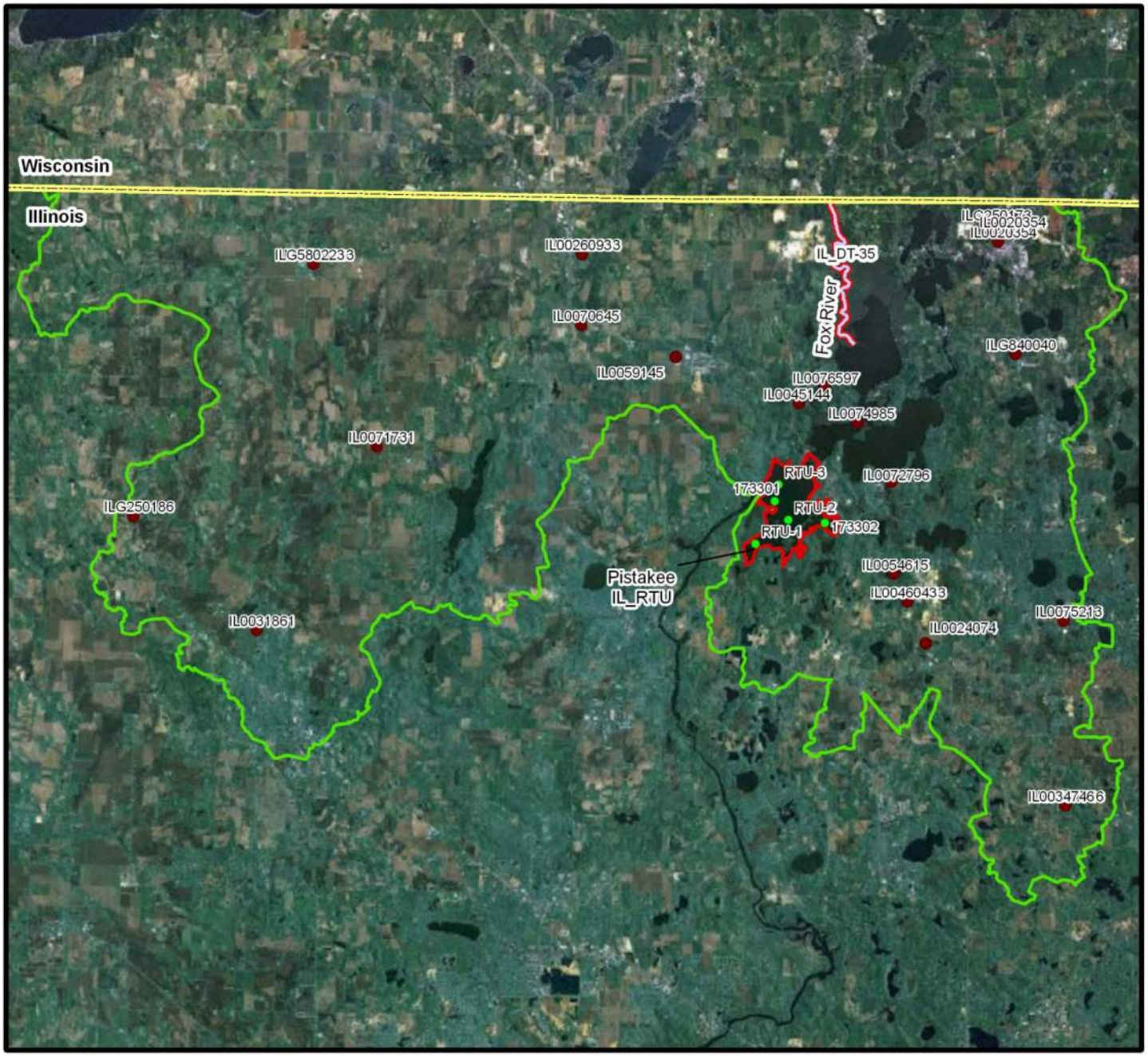




Pistakee: NPDES Dischargers and Monitoring Stations

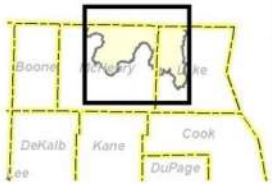
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development





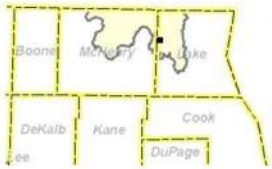
Pistakee: Subwatershed Boundary

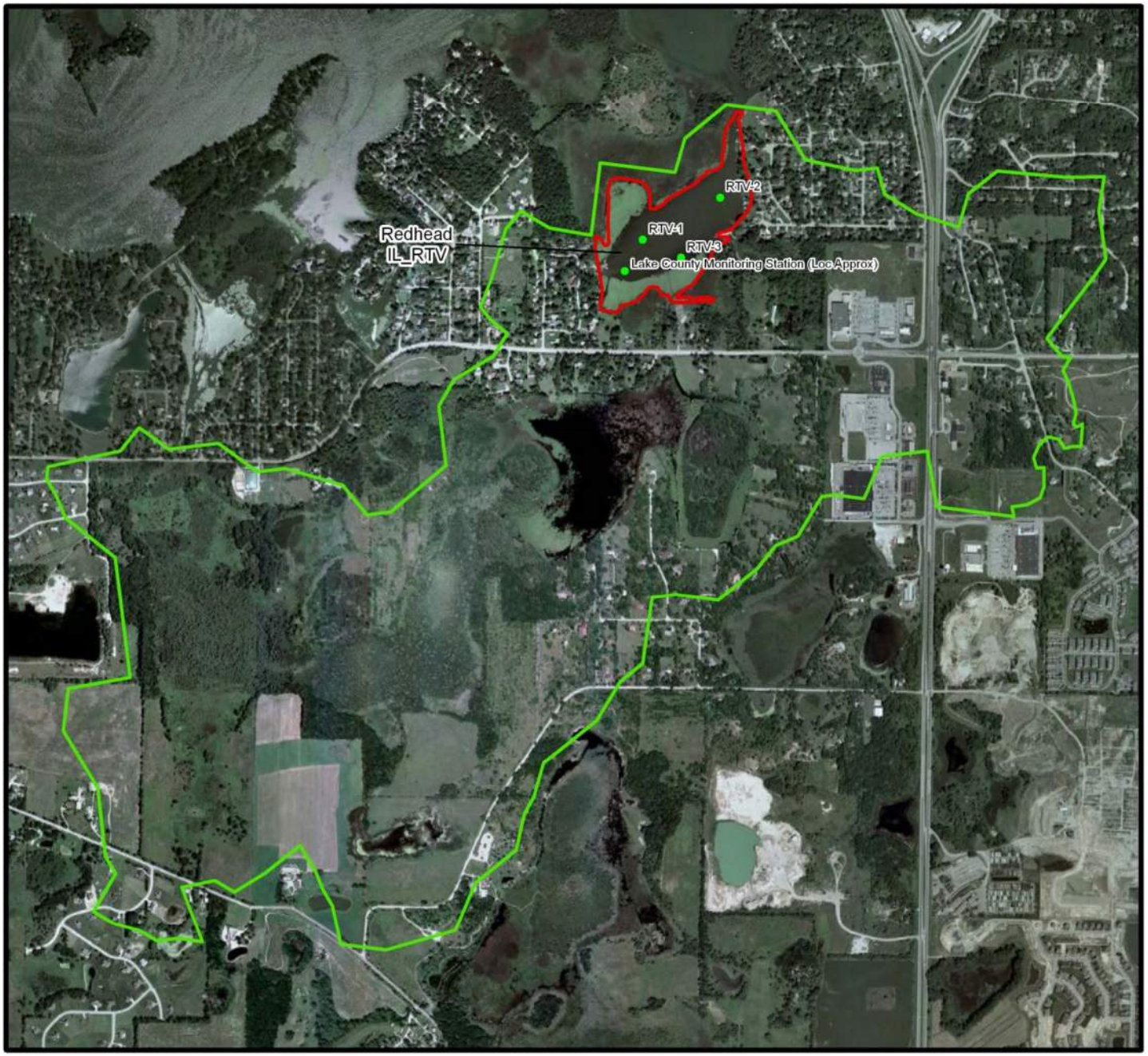
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



Redhead:
NPDES Dischargers and Monitoring Stations

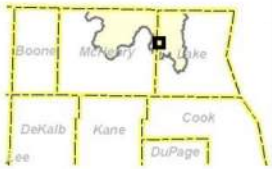
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development





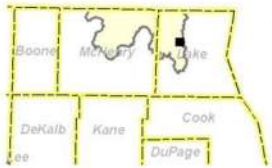
Redhead: Subwatershed Boundary

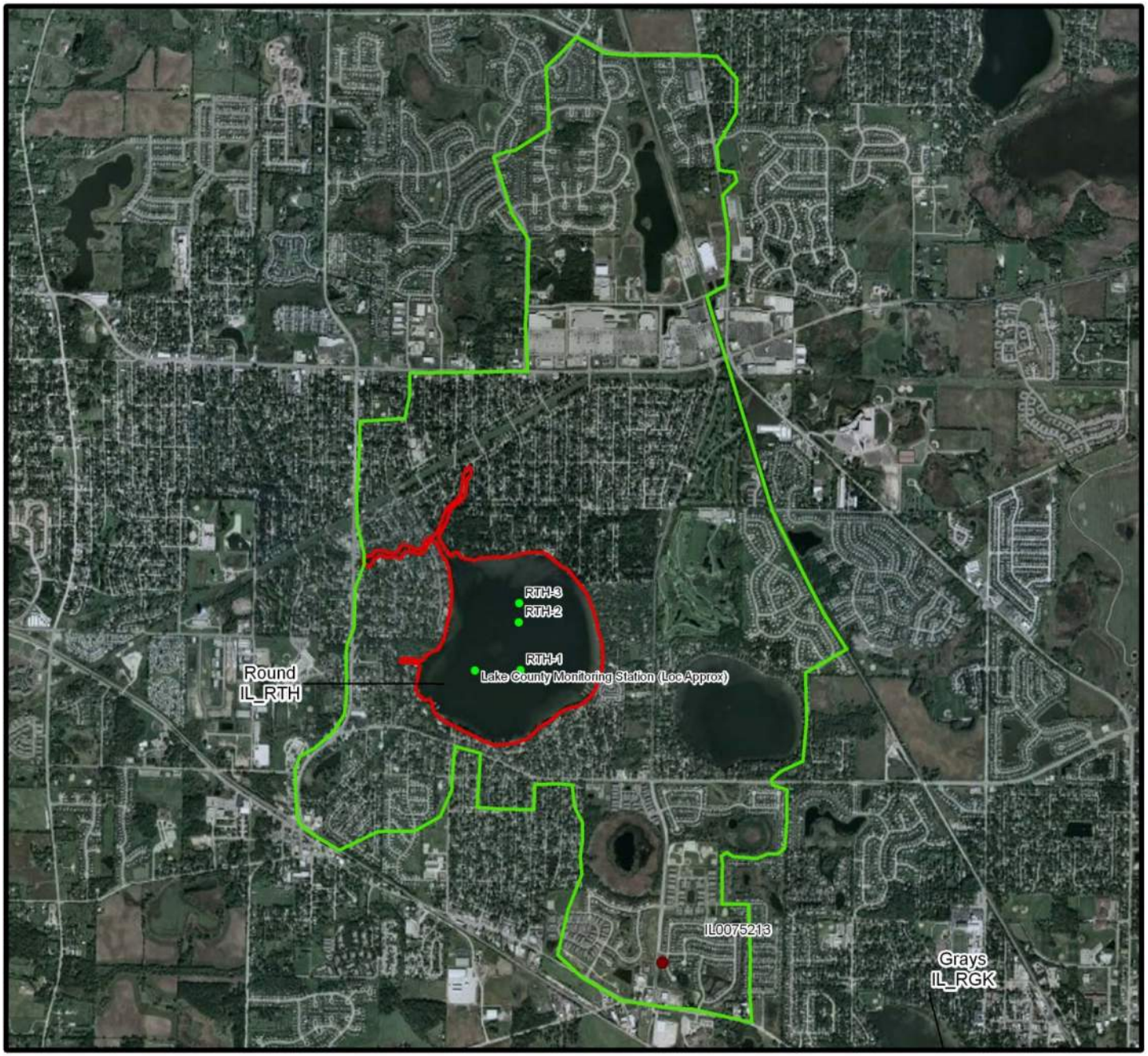
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



Round:
NPDES Dischargers and Monitoring Stations

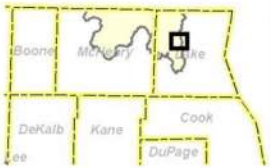
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development





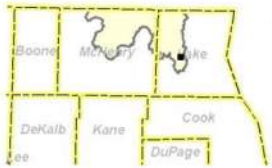
Round: Subwatershed Boundary

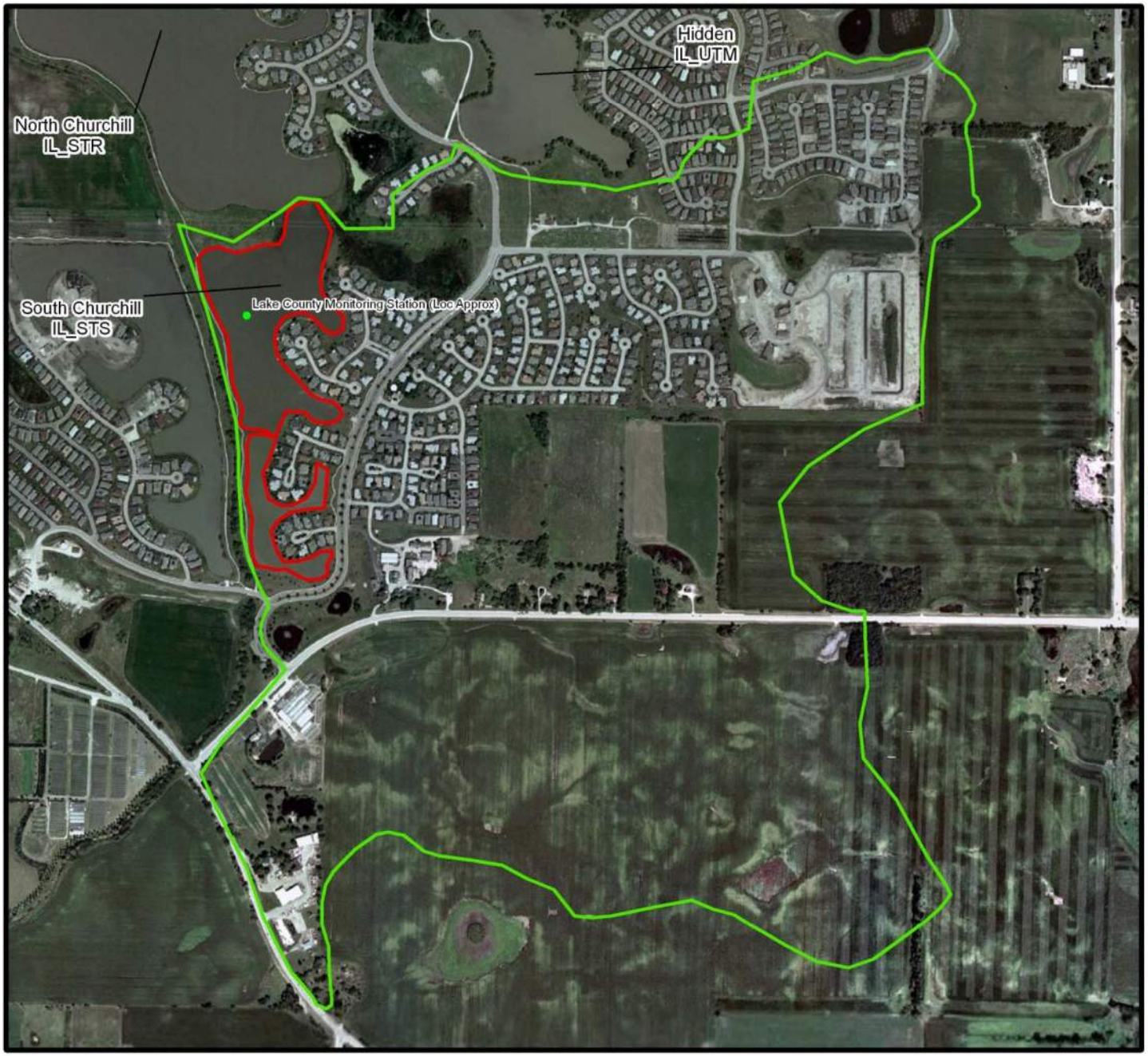
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



South Churchill: NPDES Dischargers and Monitoring Stations

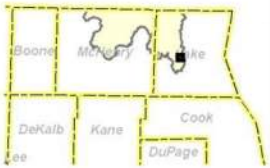
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development





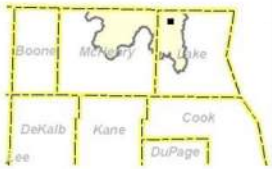
South Churchill: Subwatershed Boundary

- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



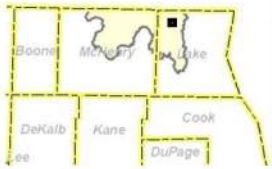
Spring:
NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development



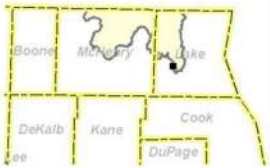
Spring: Subwatershed Boundary

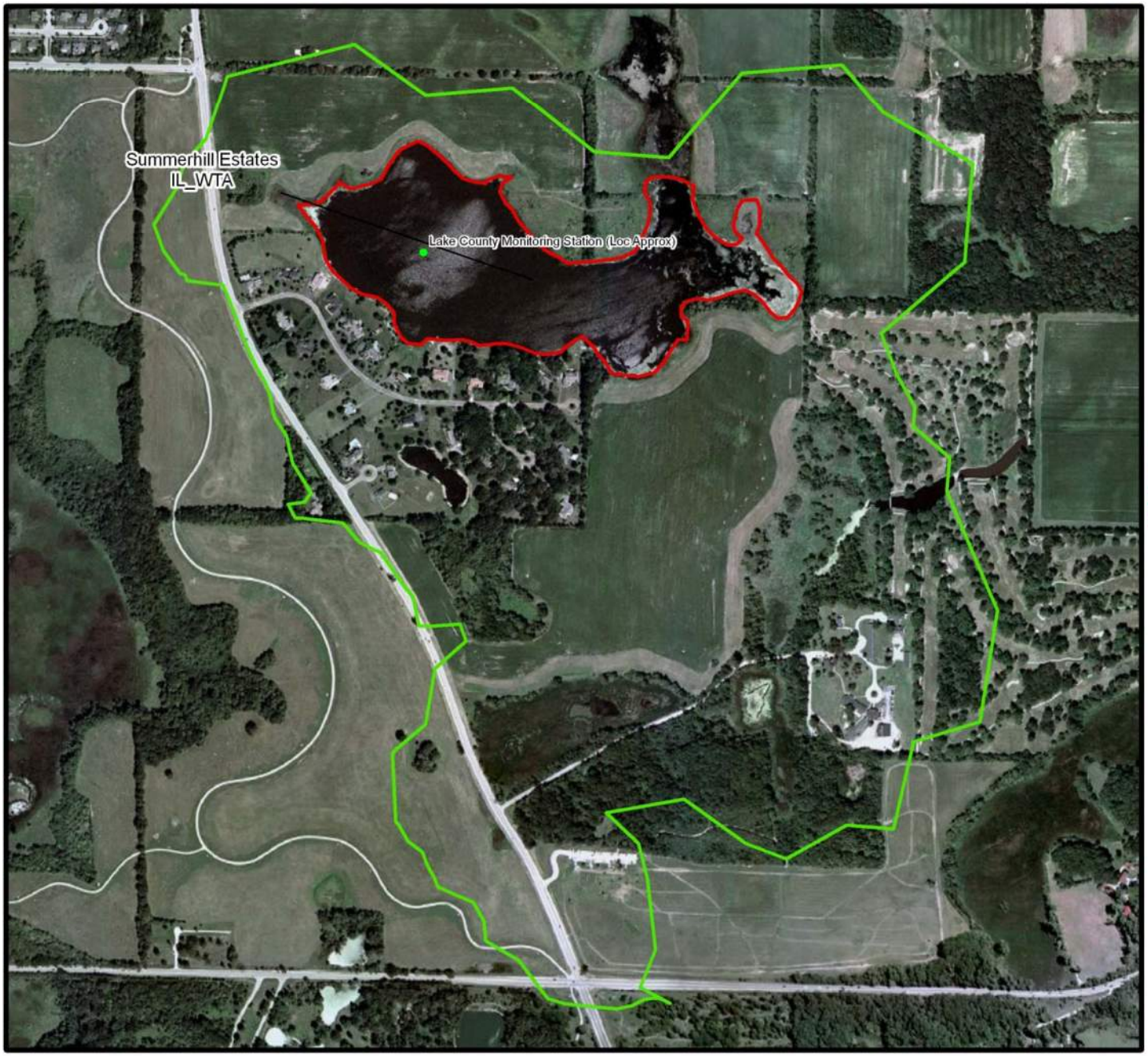
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



Summerhill Estates: NPDES Dischargers and Monitoring Stations

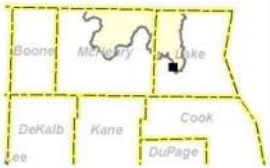
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

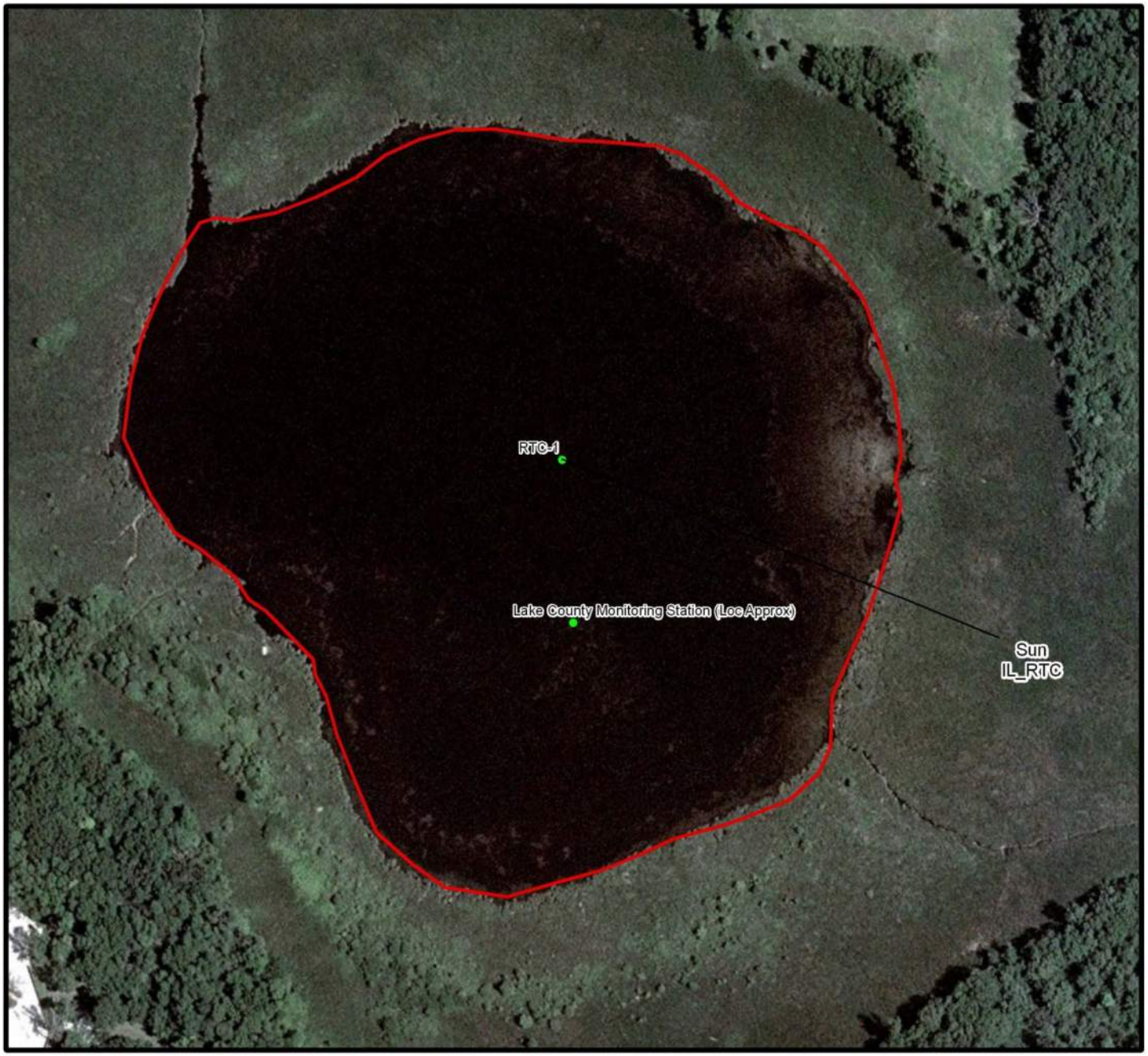




Summerhill Estates: Subwatershed Boundary

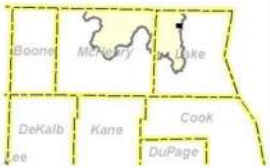
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

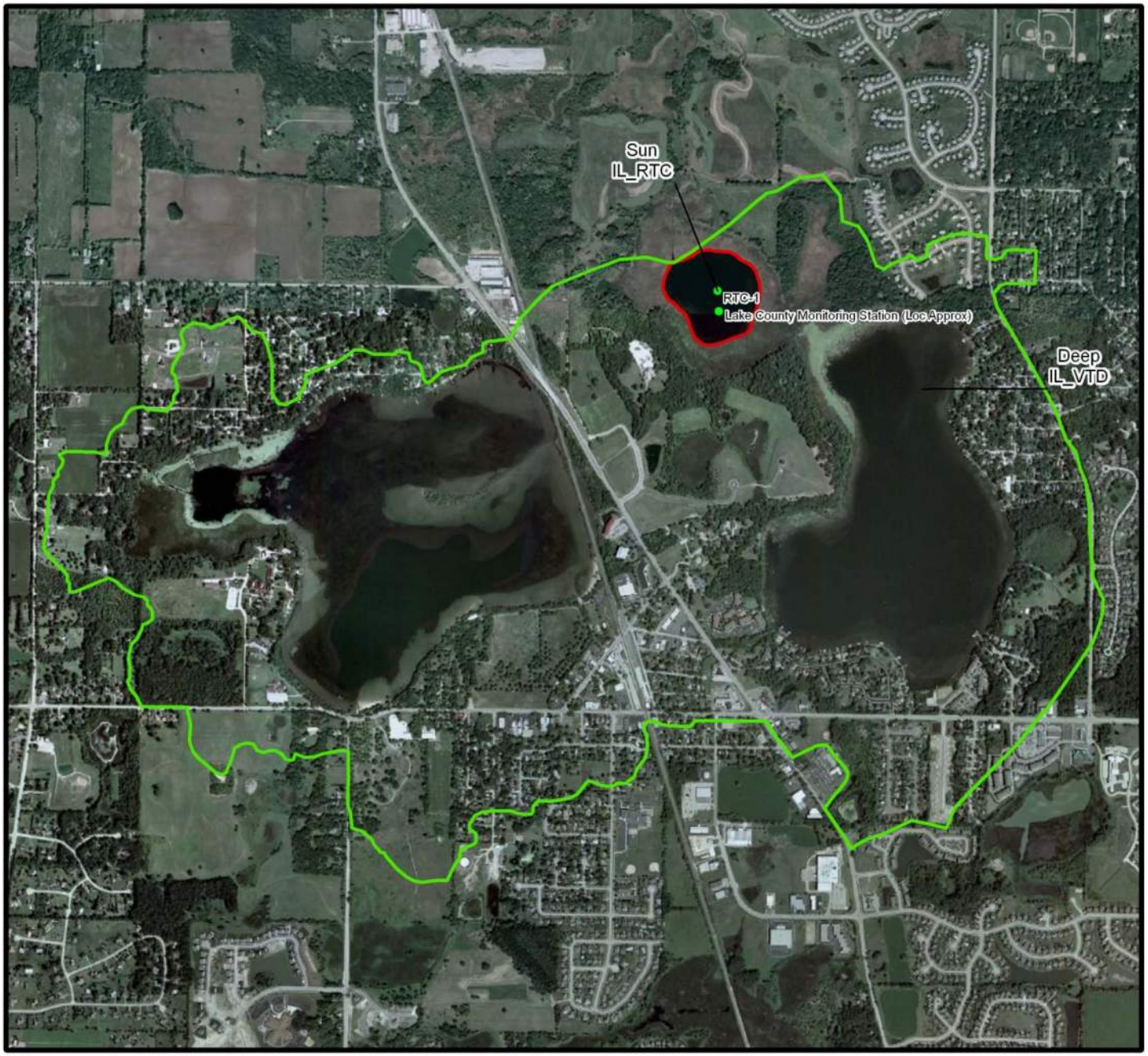




Sun:
NPDES Dischargers and Monitoring Stations

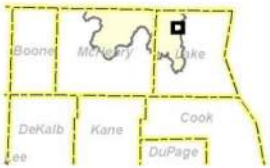
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development

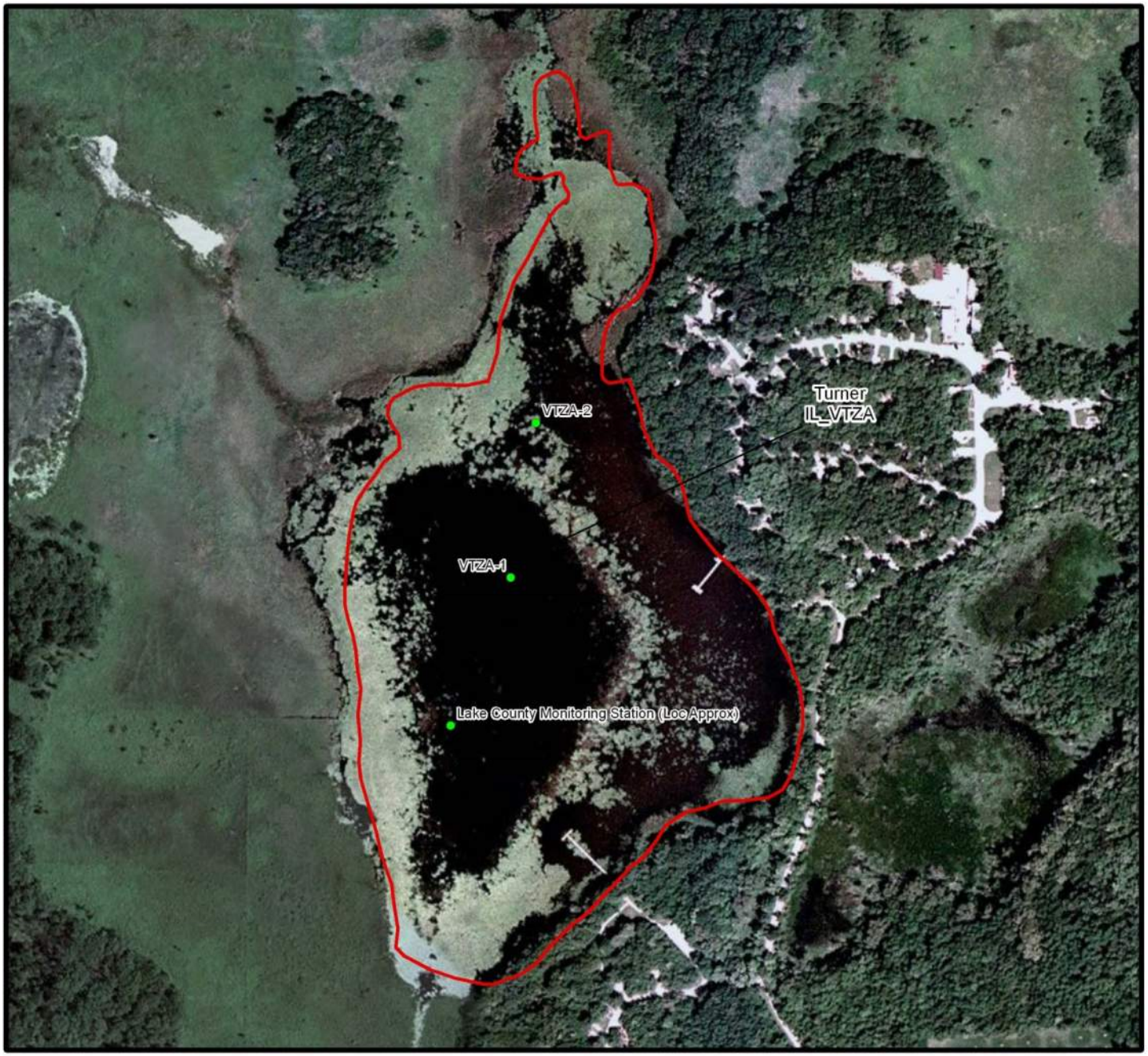




Sun: Subwatershed Boundary

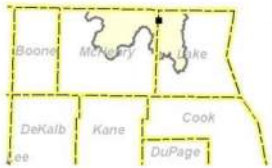
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development

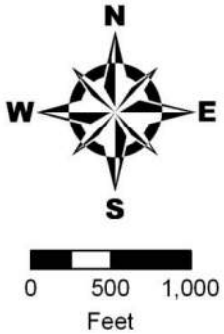




Turner:
NPDES Dischargers and Monitoring Stations

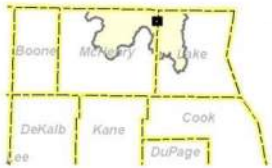
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development





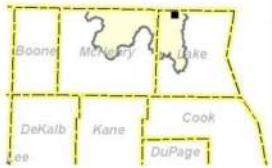
Turner: Subwatershed Boundary

- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



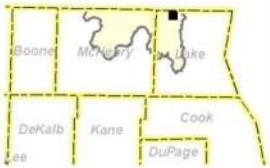
Lake Tranquility: NPDES Dischargers and Monitoring Stations

- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development



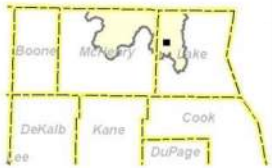
Tranquility: Subwatershed Boundary

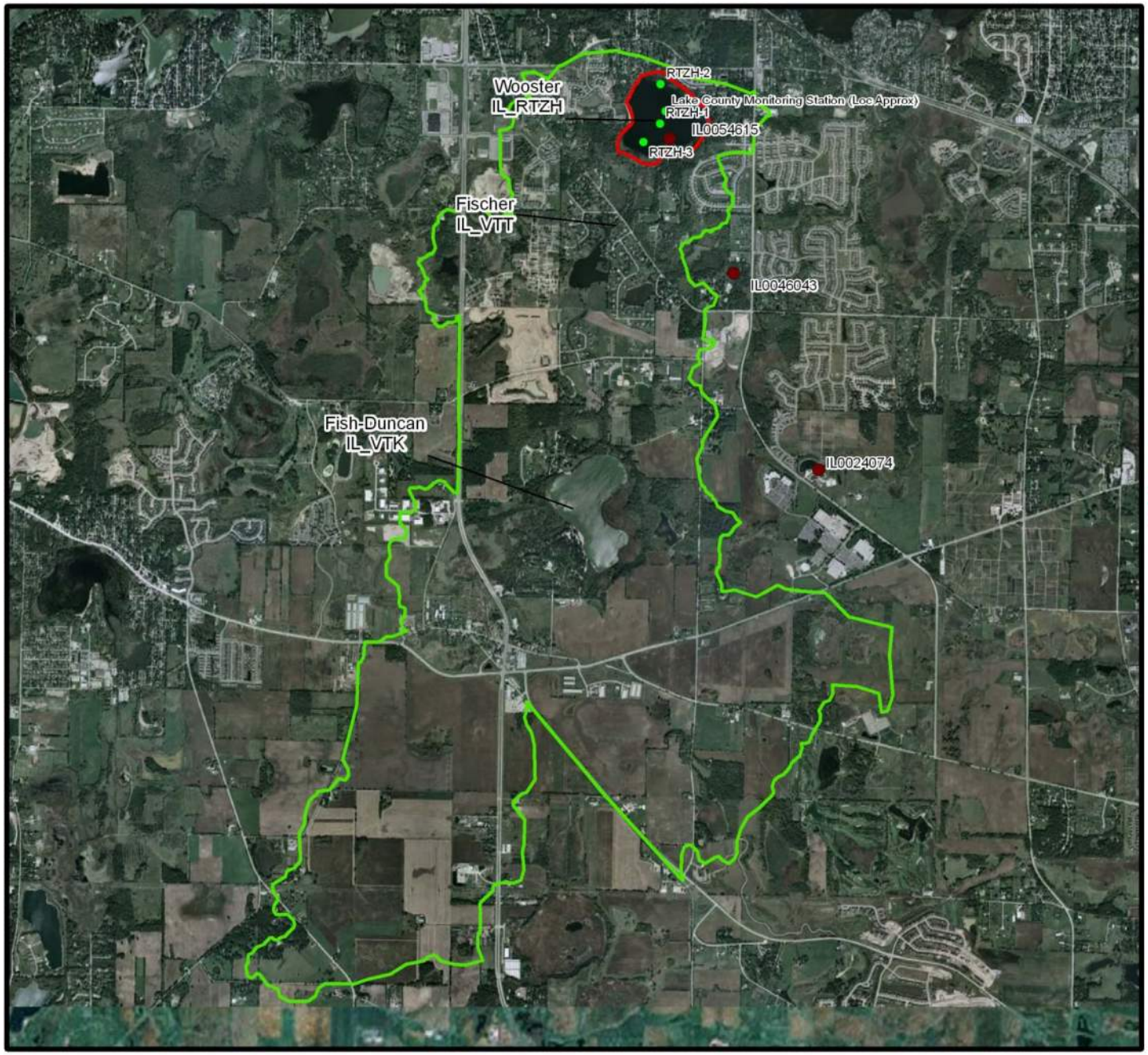
- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



Wooster:
NPDES Dischargers and Monitoring Stations

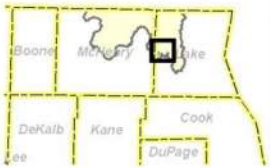
- Water Quality Monitoring Station
- NPDES Discharger
- Streams for TMDL Development
- Lakes for TMDL Development





Wooster: Subwatershed Boundary

- Water Quality Monitoring Station
- NPDES Discharger
- Watershed Area
- Streams for TMDL Development
- Lakes for TMDL Development



Appendix B

Water Quality Data

(Available upon request)

Appendix C

Land Use Tables for All Watersheds and the Chain O' Lakes

Land Use Summary for All Watersheds Within the Fox River Watershed (Acres)

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland	Grand Total
Barrington		4.91	0.07			93.72		56.88			99.02			27.75			***282.35***
Broberg Marsh	0.80		14.27		2.58	28.41	3.82	238.65	2.34		25.49			7.35		8.66	***332.36***
Drummond			0.02			20.94		64.21						2.15			***87.32***
Echo		47.66	86.34	39.03	101.10	276.73	1.49	181.09	5.86		305.27			157.02	9.55	43.09	***1,254.23***
Fairview	0.45		4.69			20.32				0.54	19.64			1.95	1.86		***49.46***
Fox R DT-22	951.26	3,307.68	24,319.03	4,386.05	2,847.29	15,154.78	4,124.49	29,516.98	210.77	554.56	49,932.46	1,888.18	82,428.96	7,577.29	1,910.48	18,728.96	***247,866.18***
Fox R DT-23	696.06	2,699.35	19,831.99	3,294.00	2,342.94	12,985.55	3,546.20	20,876.54	92.93	342.73	37,038.33	1,221.53	76,499.83	5,777.34	1,493.92	14,542.33	***203,308.55***
Grassy	28.88	142.31	578.68	47.68	230.40	581.58	11.36	795.99	5.86	34.80	2,693.00	7.98	223.60	732.45	130.15	439.35	***6,684.06***
Honey	13.03	54.07	116.75		1.81	96.10		69.49		19.33	547.86			113.39	0.90	144.63	***1,177.37***
Island	114.44	37.72	378.63	211.82	28.69	351.78	64.97	931.00	84.94	113.04	903.62	24.23	1,215.19	439.21	148.62	979.24	***6,027.16***
Louise		25.62	56.58		33.42	190.12		386.49			844.41	0.30		59.65	11.28	12.31	***1,620.19***
McHenry	256.71	1,925.86	16,116.67	2,926.33	1,478.42	3,518.21	3,308.87	13,427.00	19.16	0.04	32,802.40	960.32	72,814.17	404.71	651.72	10,963.89	***161,580.30***
Napa Suwe	10.96	0.50	50.46			167.67		294.11	0.12	1.05	313.57	3.06	56.48	89.49	51.93	90.80	***1,130.19***
Slocum	51.90	123.65	438.23	133.83	102.35	635.16	14.28	1,456.93	28.82	66.51	1,393.61	7.21	235.15	502.24	12.84	318.23	***5,520.95***
Timber	27.91	3.34	88.47		0.02	47.57		58.40	3.78	12.65	611.98		164.48	148.26		94.23	***1,261.08***
Tower	28.45	11.17	289.67		2.04	275.25	16.95	232.70	3.97	13.30	1,483.25	1.57	164.66	363.70	14.81	315.73	***3,217.21***
Woodland						8.15		0.21			42.48			8.97			***59.81***
Grand Total	***2,180.85***	***8,383.84***	***62,370.55***	***11,038.74***	***7,171.06***	***34,452.04***	***11,092.43***	***68,586.68***	***458.54***	***1,158.56***	***129,056.38***	***4,114.38***	***233,802.52***	***16,412.94***	***4,438.05***	***46,681.45***	***641,458.76***

Land Use Summary for All Watersheds Within the Fox River Watershed (Percent)

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland
Barrington	<1%	2%	<1%	<1%	<1%	33%	<1%	20%	<1%	<1%	35%	<1%	<1%	10%	<1%	<1%
Drummond	<1%	<1%	<1%	<1%	<1%	24%	<1%	74%	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%
Echo	<1%	4%	7%	3%	8%	22%	<1%	14%	<1%	<1%	24%	<1%	<1%	13%	1%	3%
Fairview	1%	<1%	9%	<1%	<1%	41%	<1%	<1%	<1%	1%	40%	<1%	<1%	4%	4%	<1%
Fox R DT-22	<1%	1%	10%	2%	1%	6%	2%	12%	<1%	<1%	20%	1%	33%	3%	1%	8%
Fox R DT-23	<1%	1%	10%	2%	1%	6%	2%	10%	<1%	<1%	18%	1%	38%	3%	1%	7%
Grassy	<1%	2%	9%	1%	3%	9%	<1%	12%	<1%	1%	40%	<1%	3%	11%	2%	7%
Honey	1%	5%	10%	<1%	<1%	8%	<1%	6%	<1%	2%	47%	<1%	<1%	10%	<1%	12%
Island	2%	1%	6%	4%	<1%	6%	1%	15%	1%	2%	15%	<1%	20%	7%	2%	16%
Louise	<1%	2%	3%	<1%	2%	12%	<1%	24%	<1%	<1%	52%	<1%	<1%	4%	1%	1%
McHenry	<1%	1%	10%	2%	1%	2%	2%	8%	<1%	<1%	20%	1%	45%	<1%	<1%	7%
Napa Suwe	1%	<1%	4%	<1%	<1%	15%	<1%	26%	<1%	<1%	28%	<1%	5%	8%	5%	8%
Slocum	1%	2%	8%	2%	2%	12%	<1%	26%	1%	1%	25%	<1%	4%	9%	<1%	6%
Timber	2%	<1%	7%	<1%	<1%	4%	<1%	5%	<1%	1%	49%	<1%	13%	12%	<1%	7%
Tower	1%	<1%	9%	<1%	<1%	9%	1%	7%	<1%	<1%	46%	<1%	5%	11%	<1%	10%
Woodland	<1%	<1%	<1%	<1%	<1%	14%	<1%	<1%	<1%	<1%	71%	<1%	<1%	15%	<1%	<1%
Grand Total	***<1%***	***1%***	***10%***	***2%***	***1%***	***5%***	***2%***	***11%***	***<1%***	***<1%***	***20%***	***1%***	***37%***	***2%***	***1%***	***7%***

Sub-Watershed and Total Watershed Land Use Areas (Acres) for Hydrologically Connected Waterbodies

Sub-Watershed and Total Watershed Land Use Areas (Acres) For Lake Napa Suwe

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland	Grand Total
Napa Suwe	10.96	0.50	50.46			167.67		294.11	0.12	1.05	313.57	3.06	56.48	89.49	51.93	90.80	***1,130.19***
Contributing Watersheds (Drummond)			0.02			20.94		64.21						2.15			***87.32***
Total	10.96	0.50	50.48	0.00	0.00	188.61	0.00	358.31	0.12	1.05	313.57	3.06	56.48	91.64	51.93	90.80	1,217.51

Sub-Watershed and Total Watershed Land Use Areas (Acres) For Island Lake

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland	Grand Total
Island	114.44	37.72	378.63	211.82	28.69	351.78	64.97	931.00	84.94	113.04	903.62	24.23	1,215.19	439.21	148.62	979.24	***6,027.16***
Contributing Watersheds (Napa Suwe, Woodland, Drummond)	10.96	0.50	50.48	0.00	0.00	196.76	0.00	358.53	0.12	1.05	356.04	3.06	56.48	100.61	51.93	90.80	1,277.32
Total	125.39	38.22	429.12	211.82	28.69	548.54	64.97	1,289.53	85.06	114.10	1,259.66	27.29	1,271.67	539.83	200.55	1,070.04	7,304.48

Sub-Watershed and Total Watershed Land Use Areas (Acres) For Tower Lake

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland	Grand Total
Tower	28.45	11.17	289.67		2.04	275.25	16.95	232.70	3.97	13.30	1,483.25	1.57	164.66	363.70	14.81	315.73	***3,217.21***
Contributing Watersheds (Timber, Fairview)	28.36	3.34	93.15	0.00	0.02	67.89	0.00	58.40	3.78	13.19	631.62	0.00	164.48	150.22	1.86	94.23	1,310.54
Total	56.81	14.51	382.82	0.00	2.06	343.14	16.95	291.10	7.75	26.49	2,114.87	1.57	329.14	513.92	16.67	409.96	4,527.76

Sub-Watershed and Total Watershed Land Use Areas (Acres) For Grassy Lake

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland	Grand Total
Grassy	28.88	142.31	578.68	47.68	230.40	581.58	11.36	795.99	5.86	34.80	2,693.00	7.98	223.60	732.45	130.15	439.35	***6,684.06***
Contributing Watersheds (Echo, Honey)	13.03	101.73	203.09	39.03	102.91	372.83	1.49	250.58	5.86	19.33	853.13	0.00	0.00	270.42	10.45	187.72	2,431.60
Total	41.91	244.04	781.77	86.71	333.32	954.41	12.85	1,046.57	11.71	54.13	3,546.13	7.98	223.60	1,002.87	140.60	627.07	9,115.66

Sub-Watershed and Total Watershed Land Use Areas (Percent) for Hydrologically Connected Waterbodies

Sub-Watershed and Total Watershed Land Use Areas (Percent) For Lake Napa Suwe

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland
Napa Suwe	1%	<1%	4%	<1%	<1%	15%	<1%	26%	<1%	<1%	28%	<1%	5%	8%	5%	8%
Contributing Watersheds (Drummond)	<1%	<1%	<1%	<1%	<1%	24%	<1%	74%	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%
Total	1%	<1%	4%	<1%	<1%	15%	<1%	29%	<1%	<1%	26%	<1%	5%	8%	4%	7%

Sub-Watershed and Total Watershed Land Use Areas (Acres) For Island Lake

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland
Island	2%	1%	6%	4%	<1%	6%	1%	15%	1%	2%	15%	<1%	20%	7%	2%	16%
Contributing Watersheds (Napa Suwe, Woodland)	1%	<1%	4%	<1%	<1%	15%	<1%	25%	<1%	<1%	30%	<1%	5%	8%	4%	8%
Total	2%	1%	6%	3%	<1%	7%	1%	17%	1%	2%	17%	<1%	18%	7%	3%	15%

Sub-Watershed and Total Watershed Land Use Areas (Acres) For Tower Lake

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland
Tower	1%	<1%	9%	<1%	<1%	9%	1%	7%	<1%	<1%	46%	<1%	5%	11%	<1%	10%
Contributing Watersheds (Timber, Fairview)	2%	<1%	7%	<1%	<1%	5%	<1%	4%	<1%	1%	48%	<1%	13%	11%	<1%	7%
Total	1%	<1%	8%	<1%	<1%	8%	<1%	6%	<1%	1%	47%	<1%	7%	11%	<1%	9%

Sub-Watershed and Total Watershed Land Use Areas (Acres) For Grassy Lake

Name	Agriculture, Other	Commercial and Services	Forested, Grasslands, Vegetation	Industrial, Warehousing, Wholesale Trade	Institutional	Lakes, Reservoirs, Lagoons	Nurseries, Greenhouses, Orchards, Tree Farms	Open Space	Other Vacant Land	Pastureland	Residential	Rivers, Streams, Canals	Row Crop, Grain, Grazing	Transportation, Communication, and Utilities	Under Construction	Wetland
Grassy	<1%	2%	9%	1%	3%	9%	<1%	12%	<1%	1%	40%	<1%	3%	11%	2%	7%
Contributing Watersheds (Echo, Honey)	1%	4%	8%	2%	4%	15%	<1%	10%	<1%	1%	35%	<1%	<1%	11%	<1%	8%
Total	<1%	3%	9%	1%	4%	10%	<1%	11%	<1%	1%	39%	<1%	2%	11%	2%	7%

Appendix D

NPDES Information

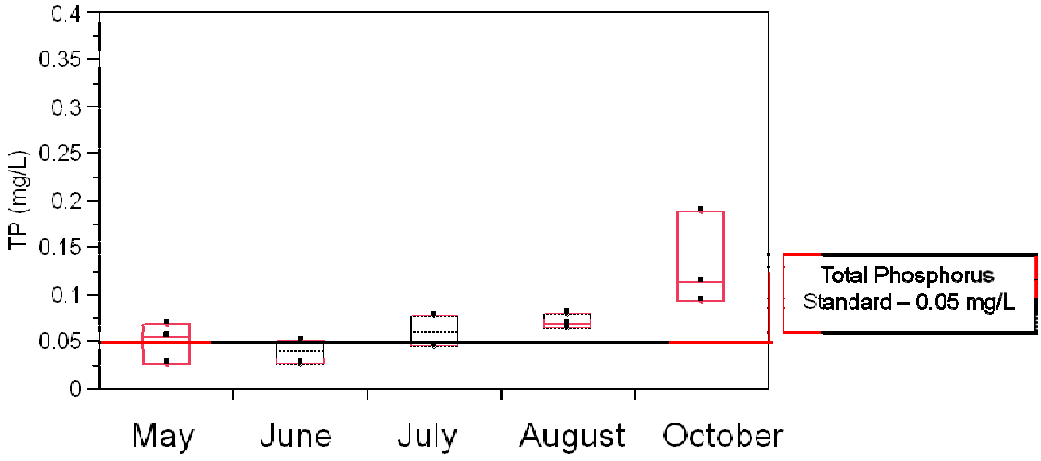
Permit Name	NPDES Number	Name of TMDL	Outfall	Outfall description	DAF (MGD)	DMF (MGD)	Receiving Water	TMDL Segment ID
ANTIOCH PACKING HOUSE INC.	IL0067733	Fox Chain O' Lakes	001	Non-contact cooling water	NA	NA	Sequoit Creek	Lake Tranquility UTW; Marie Lake RTR
VILLAGE OF ANTIOCH	IL0020354	Fox Chain O' Lakes	001	STP	1.6	3.0	Sequoit Creek	Lake Tranquility UTW; Marie Lake RTR
VILLAGE OF ANTIOCH	IL0020354	Fox Chain O' Lakes	A01	Excess Flow Outfall	NA	NA	Sequoit Creek	Lake Tranquility UTW; Marie Lake RTR
BAXTER HEALTHCARE CORPORATION	IL0024074	Fox Chain O' Lakes	001	Treated Industrial Wastewater	0.38	NA	Unnamed Ditch Tributary to Squaw Creek	Long Lake RTJ
BAXTER HEALTHCARE CORPORATION	IL0024074	Fox Chain O' Lakes	002	Stormwater Runoff	NA	NA	Unnamed Ditch Tributary to Squaw Creek	Long Lake RTJ
BAXTER HEALTHCARE CORPORATION	IL0024074	Fox Chain O' Lakes	003	Stormwater Runoff	NA	NA	Unnamed Ditch Tributary to Squaw Creek	Long Lake RTJ
BAXTER HEALTHCARE CORPORATION	IL0024074	Fox Chain O' Lakes	004	Stormwater Runoff	NA	NA	Unnamed Ditch Tributary to Squaw Creek	Long Lake RTJ
BAXTER HEALTHCARE CORPORATION	IL0024074	Fox Chain O' Lakes	005	Stormwater Runoff	NA	NA	Unnamed Ditch Tributary to Squaw Creek	Long Lake RTJ
CAMP HENRY HORNER-INGLESIDE	IL0054615	Fox Chain O' Lakes	001	STP	0.014	0.035	Wooster Lake	Wooster Lake RTZH
CAMP HICKORY-INGLESIDE	IL0046043	Fox Chain O' Lakes	001	STP	0.014	0.035	Sqaw Creek tributary to Fox River	Long Lake RTJ
DAHL ENTERPRISES INC	ILG840040	Fox Chain O' Lakes	001	Stormwater Runoff, groundwater seepage	0.45	NA	unnamed tributary to Loon Lake	Marie Lake RTR
FOX LAKE GRADE SCHOOL DIST 114	IL0076597	Fox Chain O' Lakes	001	Sand Filter Backwash	NA	NA	Wetlands Tributary to Nippersink Lake	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV
FOX LAKE GRADE SCHOOL DIST 114	IL0076597	Fox Chain O' Lakes	002	Carbon Filter Backwash	NA	NA	Wetlands Tributary to Nippersink Lake	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV
VILLAGE OF FOX LAKE-NW REGIONAL WRF	IL0020958	Fox Chain O' Lakes	001	STP	9.0	22.5	Fox River	Fox River DT-23

Permit Name	NPDES Number	Name of TMDL	Outfall	Outfall description	DAF (MGD)	DMF (MGD)	Receiving Water	TMDL Segment ID
VILLAGE OF FOX LAKE-TALL OAKS STP	IL0045144	Fox Chain O' Lakes	001	STP	0.50	1.25	Unnamed tributary to Dunns Lake	Dunns Lake VTH; Nippersink RTUA; Lake Pistakee RTU; Redhead Lake RTV
FREMONT SCHOOL-DISTRICT 79	IL0034746	Fox Chain O' Lakes	001	STP	0.01	0.04	Unnamed tributary to Sqaw Creek	Long Lake RTJ
VILLAGE OF HEBRON	IL0026433	Fox Chain O' Lakes	001	WWTP	0.158	0.288	Unnamed tributary of North Branch of Nippersink Creek	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV
INTERMATIC INC.	IL0059145	Fox Chain O' Lakes	001	Non-contact cooling water and Combined A01 and B01 Wastewater	0.478	NA	Nippersink Creek	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV
INTERMATIC INC.	IL0059145	Fox Chain O' Lakes	A01	Treated Phosphating Wastewater	0.0033	NA	Nippersink Creek	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV
INTERMATIC INC.	IL0059145	Fox Chain O' Lakes	B01	Treated Sanitary Wastewater	0.0076	NA	Nippersink Creek	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV
KOENEMANN SAUSAGE COMPANY	IL0038067	Fox Chain O' Lakes	001	Treated sanitary, process, non-contact cooling water and Stormwater	0.0054	NA	Unnamed tributary to Fish Lake	Unnamed tributary; Fish-Duncan Lake VTK
VILLAGE OF RICHMOND	IL0026093	Fox Chain O' Lakes	001	STP	0.50	1.625	North Branch of Nippersink Creek	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV
VILLAGE OF SPRING GROVE	IL0074985	Fox Chain O' Lakes	001	STP	0.075	0.1875	Nippersink Creek	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV
SURGIPATH MEDICAL INDUSTRIES, INC	IL0070645	Fox Chain O' Lakes	001	Contact Cooling Water	0.06	NA	Wetlands Tributary to North Branch of Nippersink Creek	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV
VILLAGE OF WOODSTOCK	IL0031861	Fox Chain O' Lakes	001	STP	3.5	10.5	Silver Creek	Nippersink Lake RTUA; Lake Pistakee RTU; Redhead Lake RTV

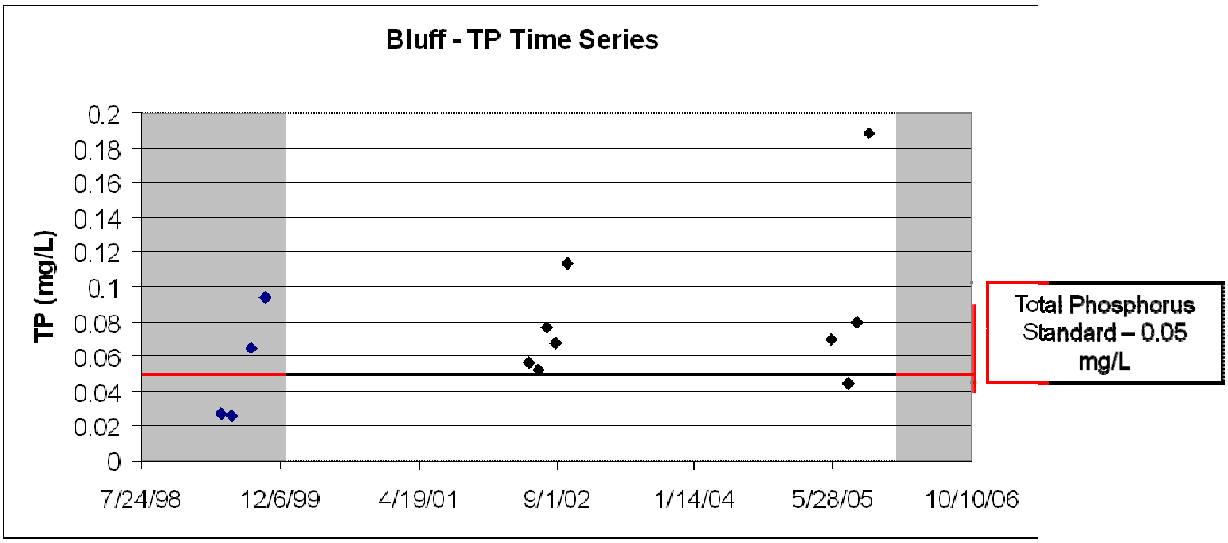
Appendix E

Total Phosphorus Box Plots and Time Series

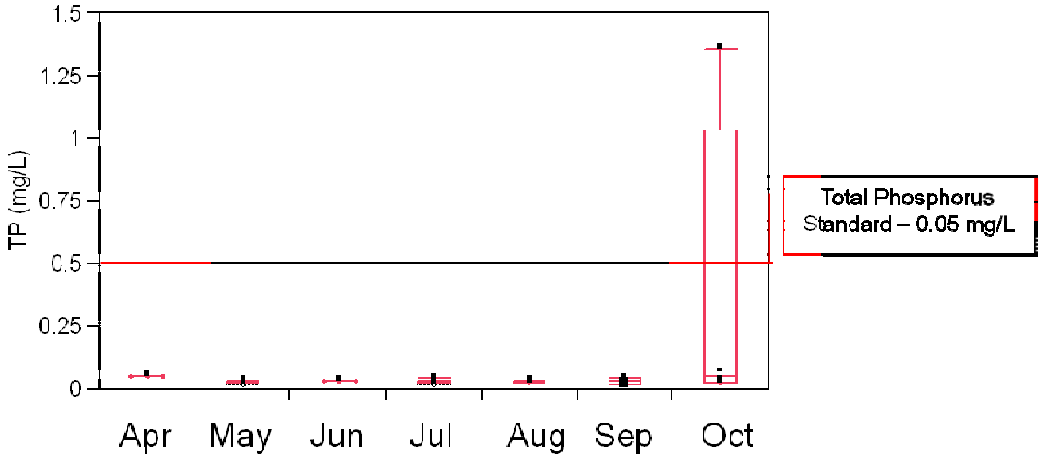
Bluff (All Stations) – Total Phosphorus
1998 - present



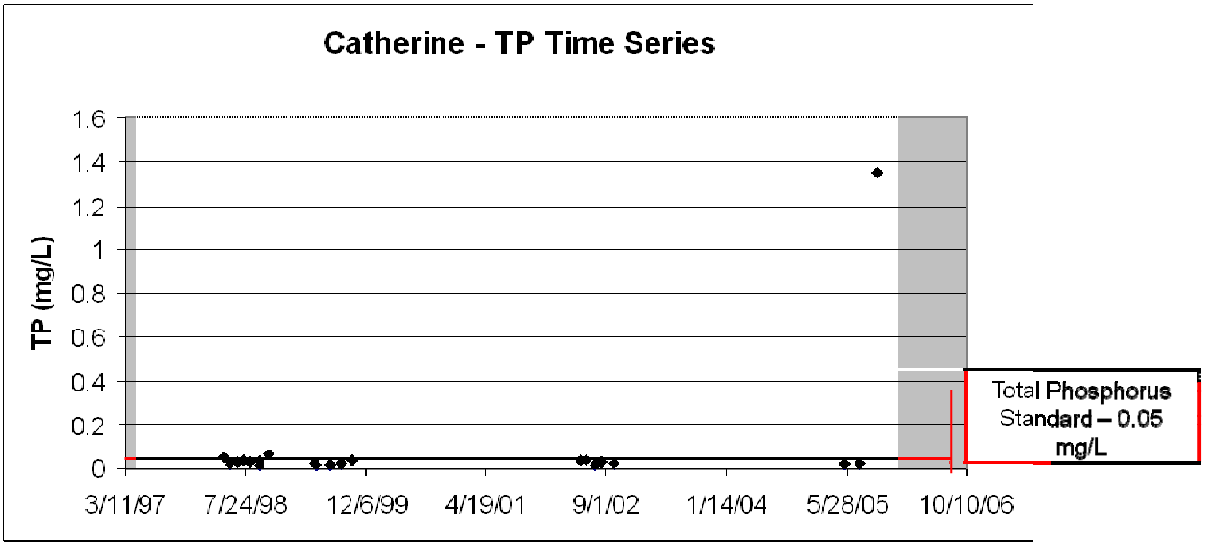
Bluff (All Stations) – Total Phosphorus Time Series
1998 - present



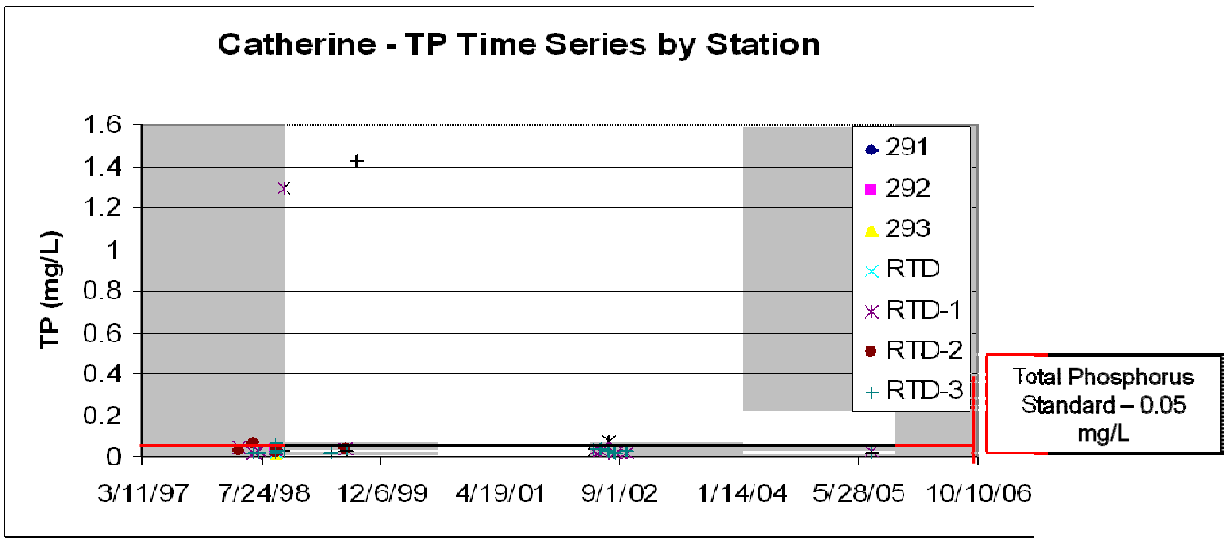
Catherine (All Stations) – Total Phosphorus
1998 - present



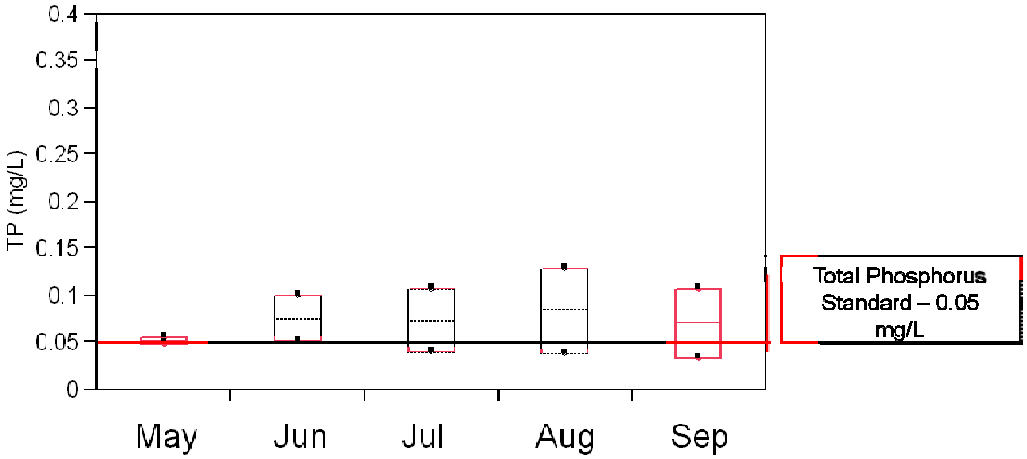
Catherine (All Stations) – Total Phosphorus Time Series
1998 - present



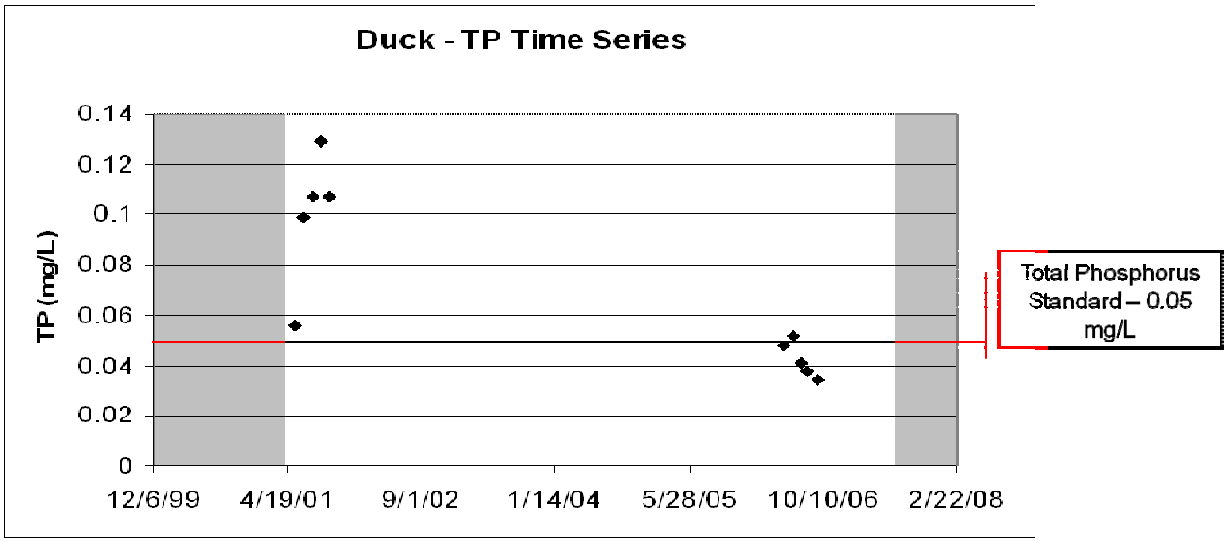
Catherine (By Station) – Total Phosphorus Time Series 1998 - present



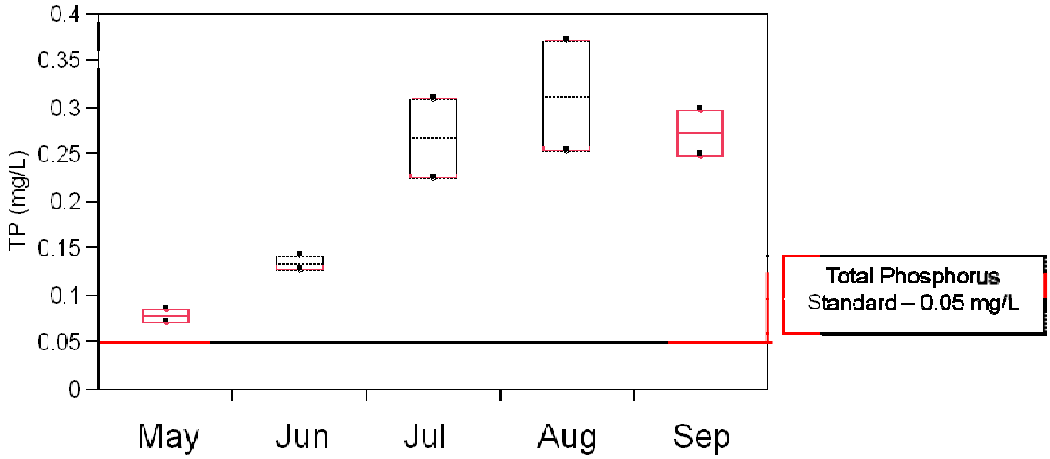
Duck (All Stations) – Total Phosphorus 1998 - present



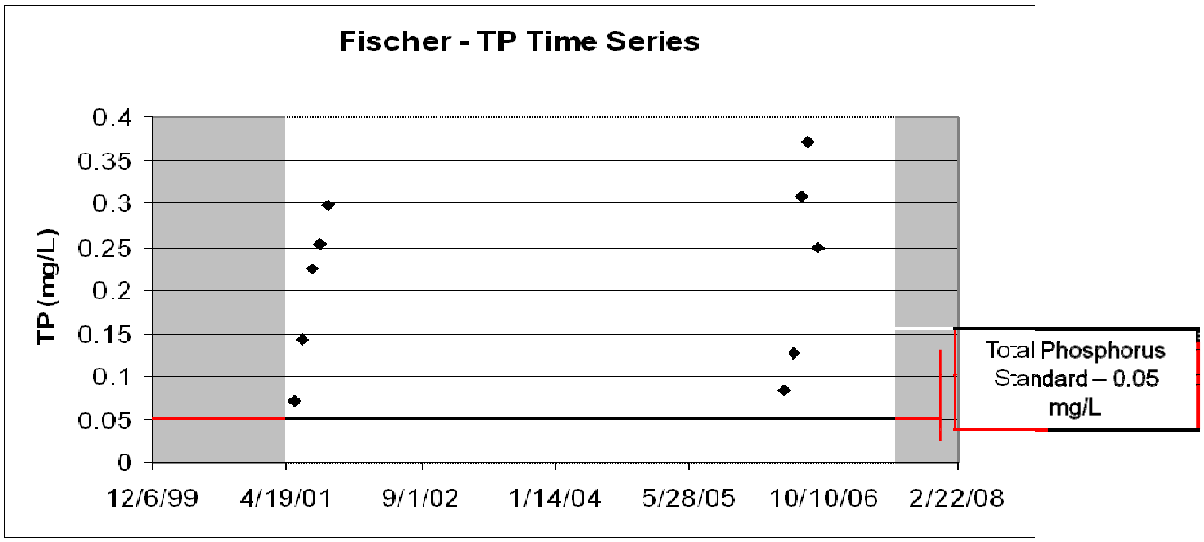
Duck (All Stations) – Total Phosphorus Time Series
1998 - present



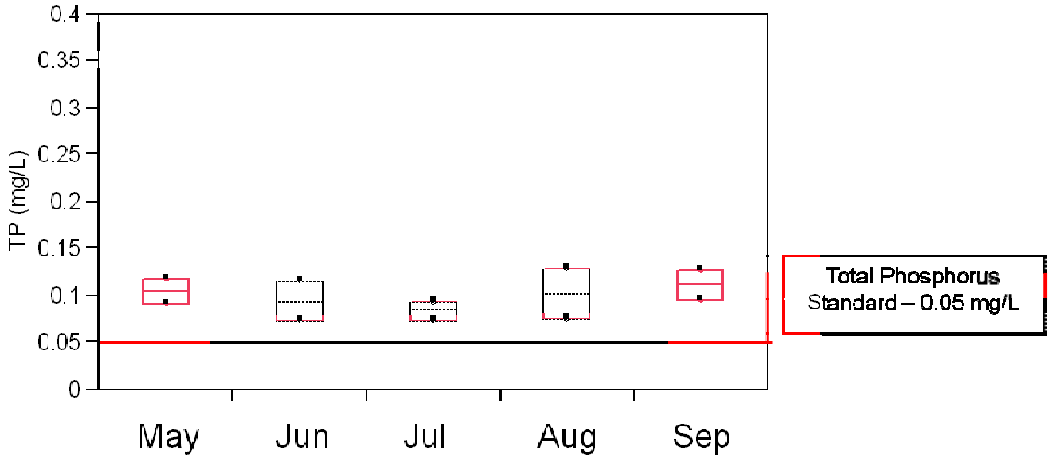
Fischer (All Stations) - Total Phosphorus
1998 - present



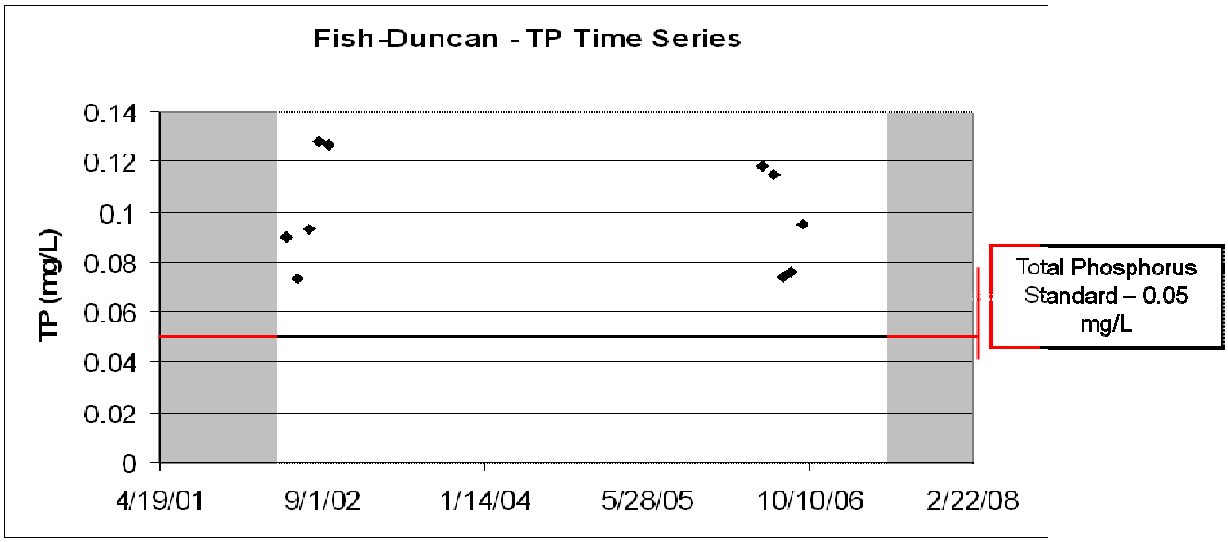
Fischer (All Stations) - Total Phosphorus Time Series
1998 - present



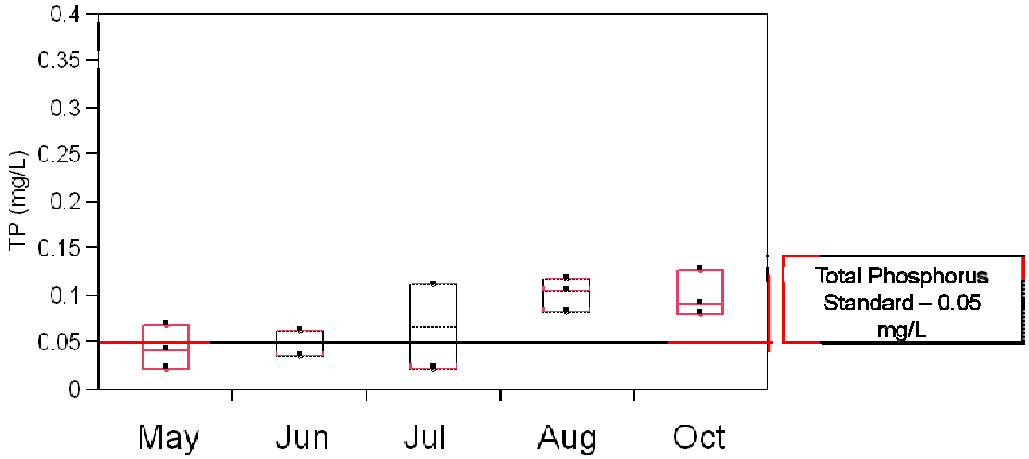
Fish-Duncan (All Stations) – Total Phosphorus
1998 - present



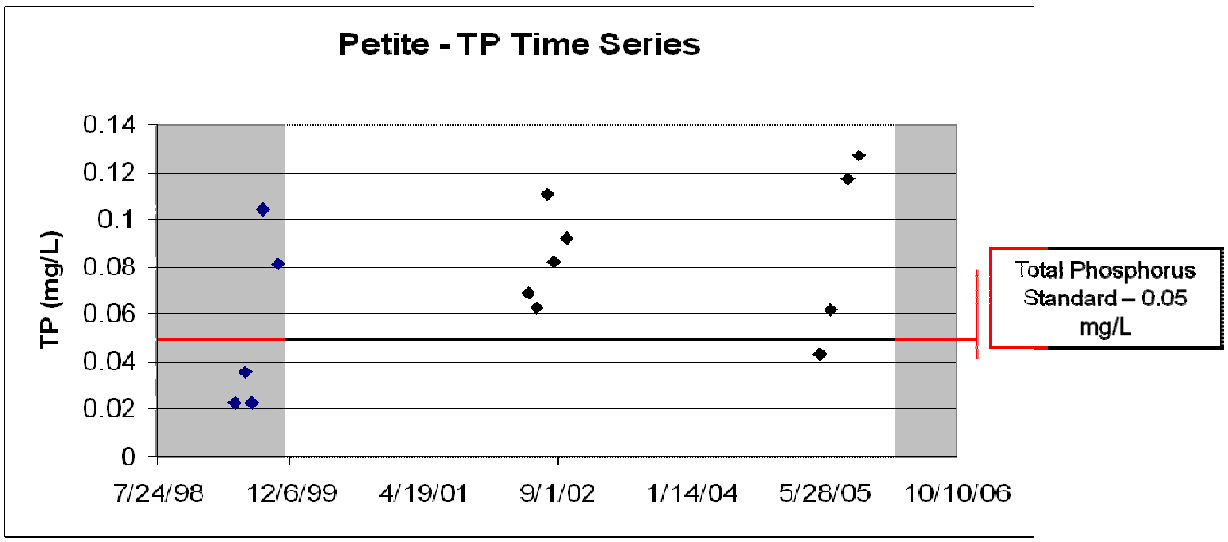
Fish-Duncan (All Stations) – Total Phosphorus Time Series 1998 - present



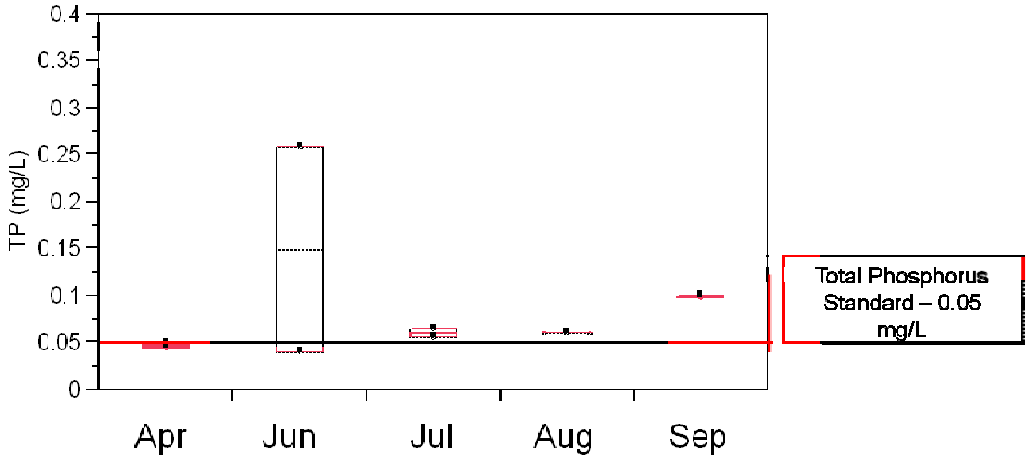
Petite (All Stations) – Total Phosphorus 1998 - present



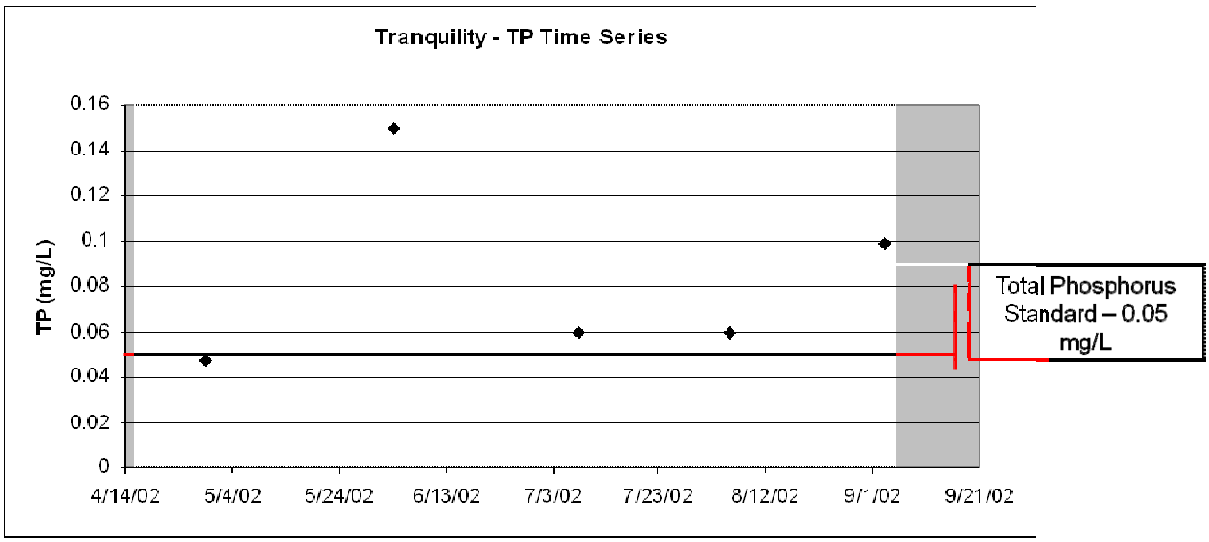
Petite (All Stations) – Total Phosphorus Time Series
1998 - present



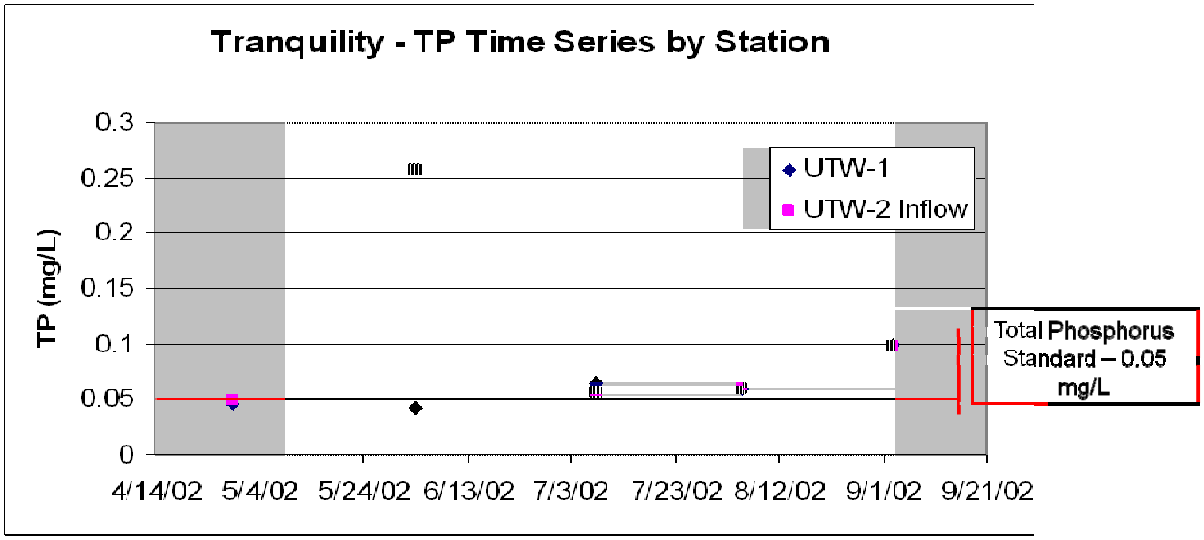
Tranquility (All Stations) – Total Phosphorus
1998 - present



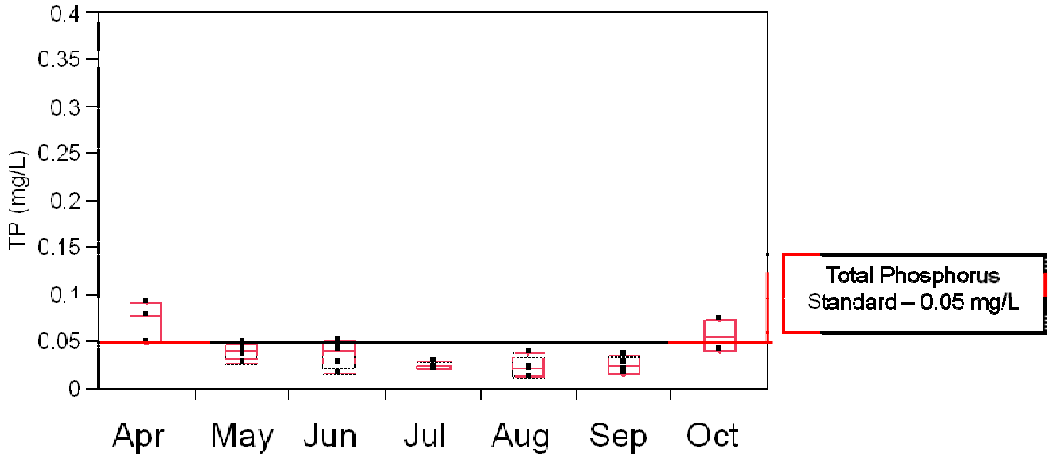
Tranquility (All Stations) – Total Phosphorus Time Series 1998 - present



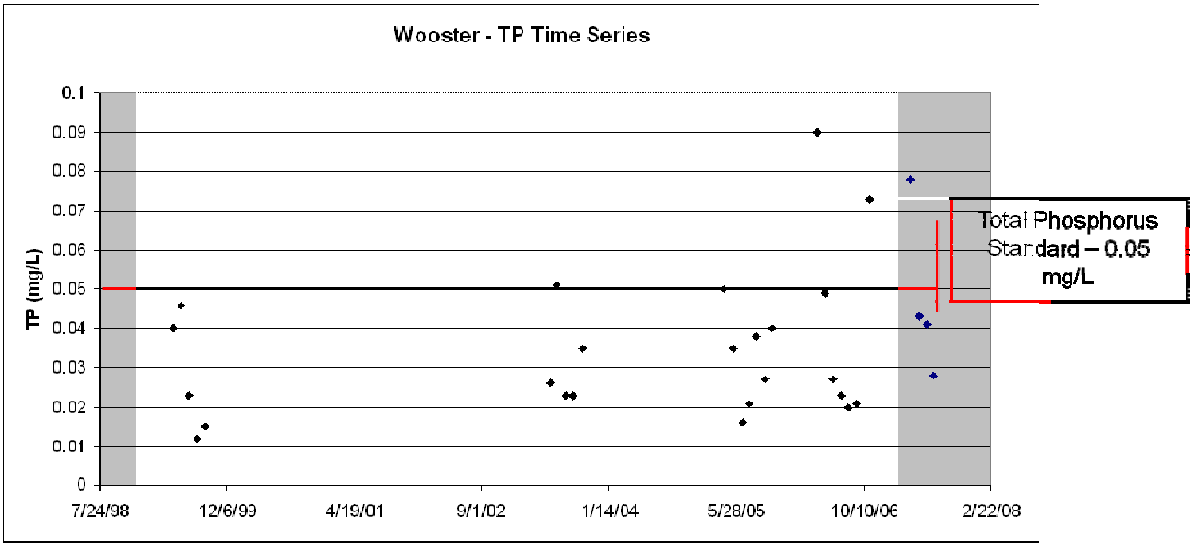
Tranquility (By Station) – Total Phosphorus Time Series 1998 - present



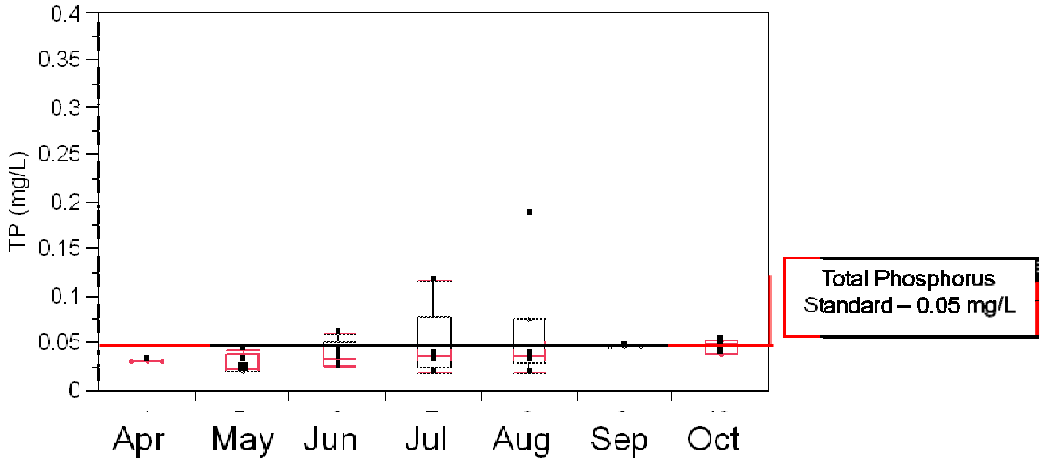
Wooster (All Stations) – Total Phosphorus
1998 - present



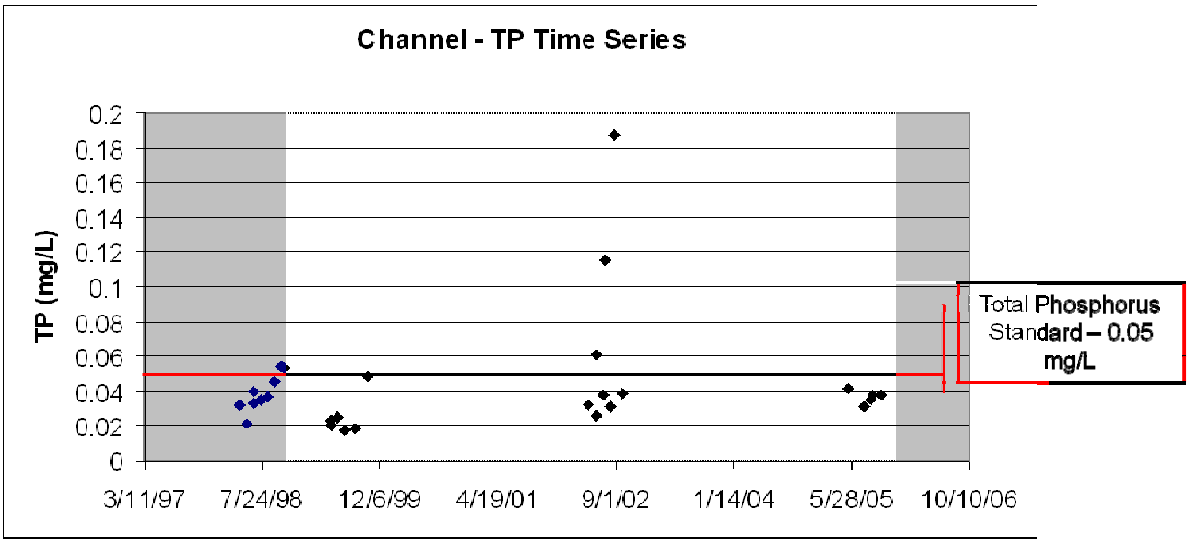
Wooster (All Stations) – Total Phosphorus Time Series
1998 - present



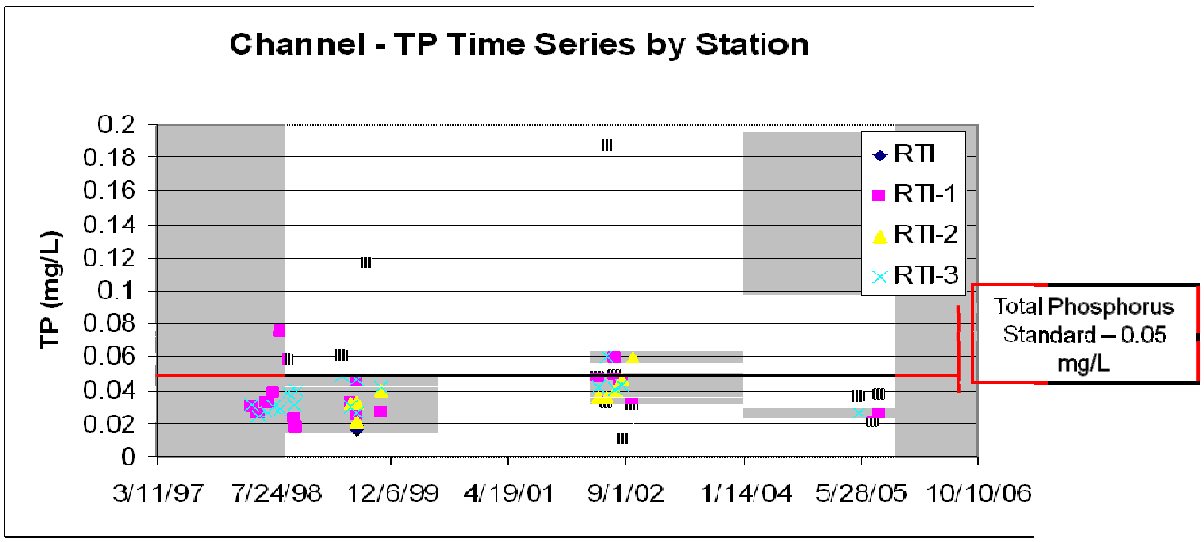
Channel (All Stations) – Total Phosphorus
1998 - present



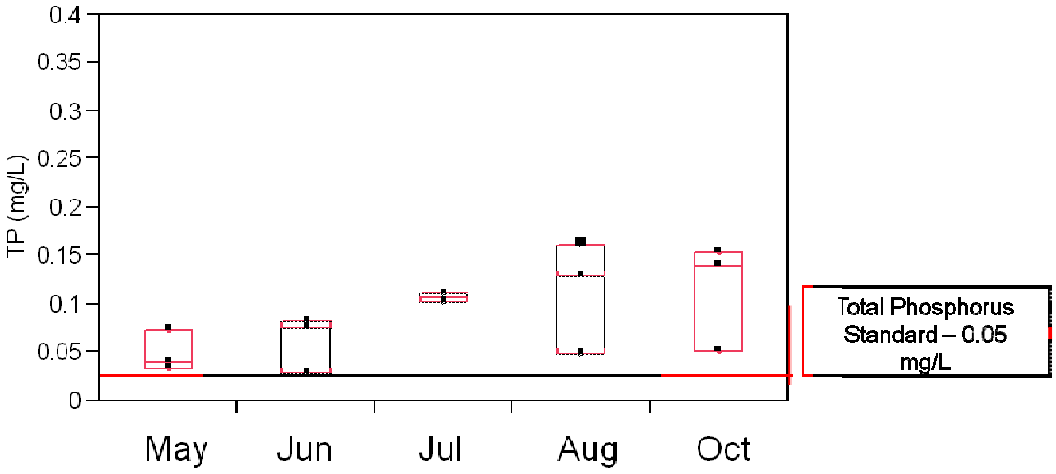
Channel (All Stations) – Total Phosphorus Time Series
1998 - present



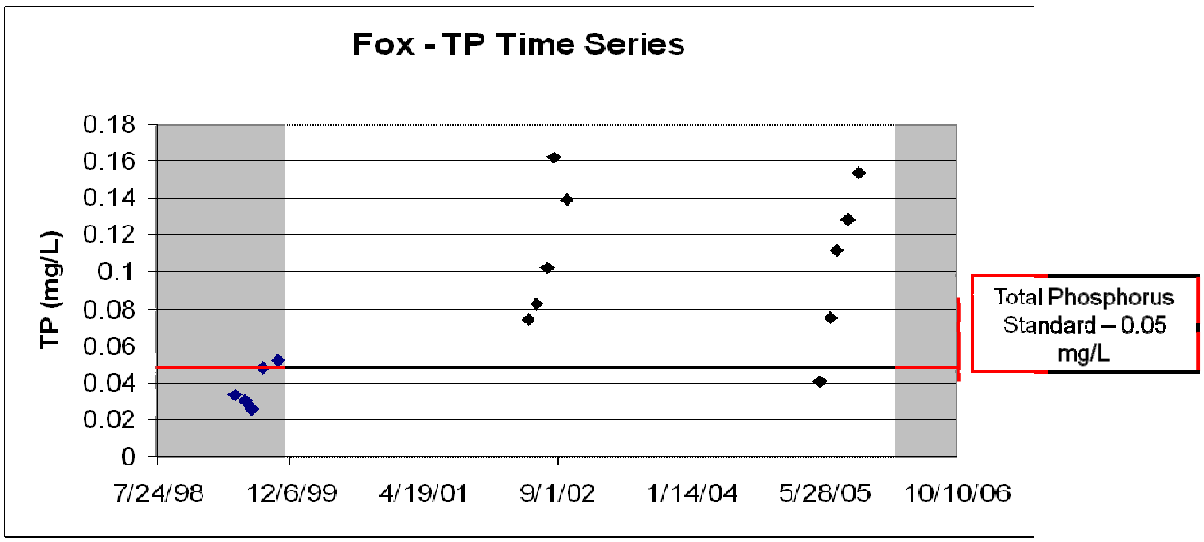
Channel (By Station) – Total Phosphorus Time Series 1998 - present



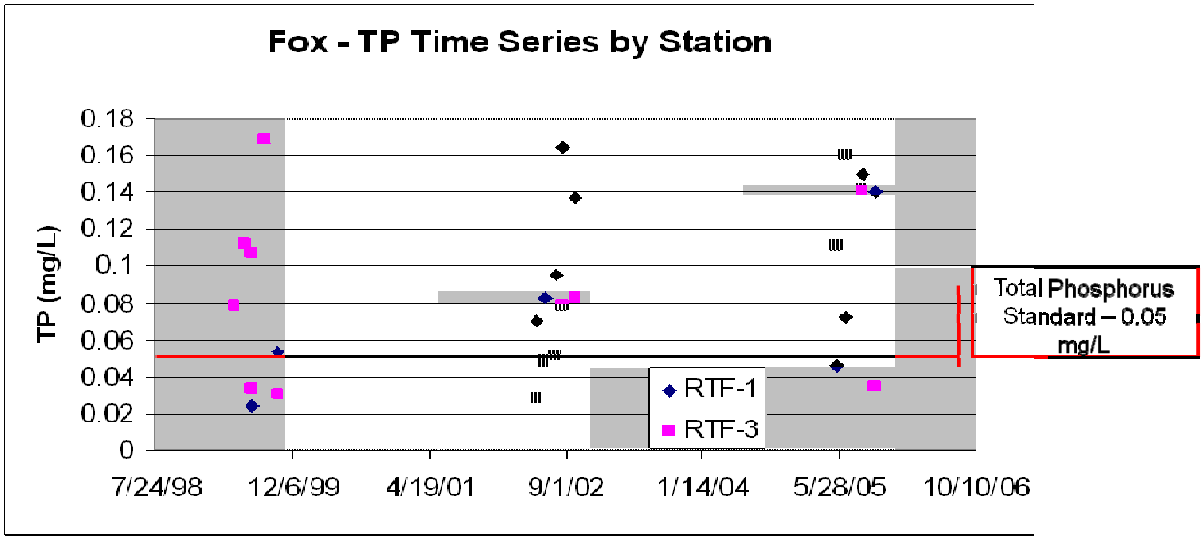
Fox (All Stations) – Total Phosphorus 1998 - present



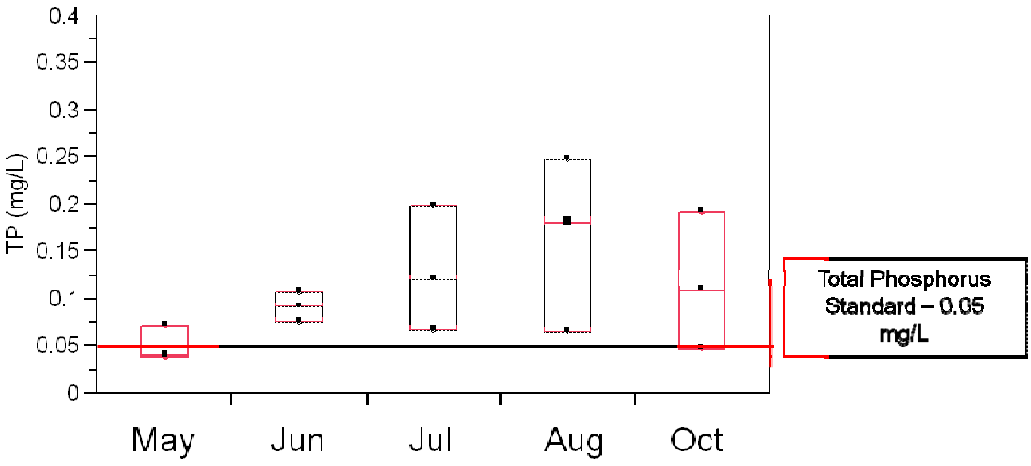
Fox (All Stations) – Total Phosphorus Time Series 1998 - present



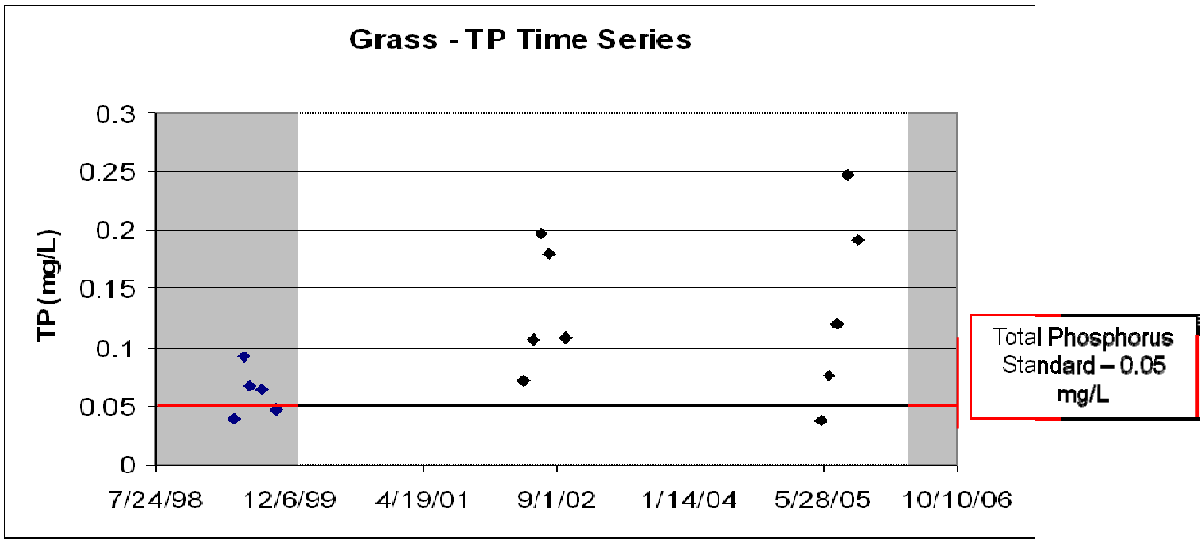
Fox (By Station) – Total Phosphorus Time Series 1998 - present



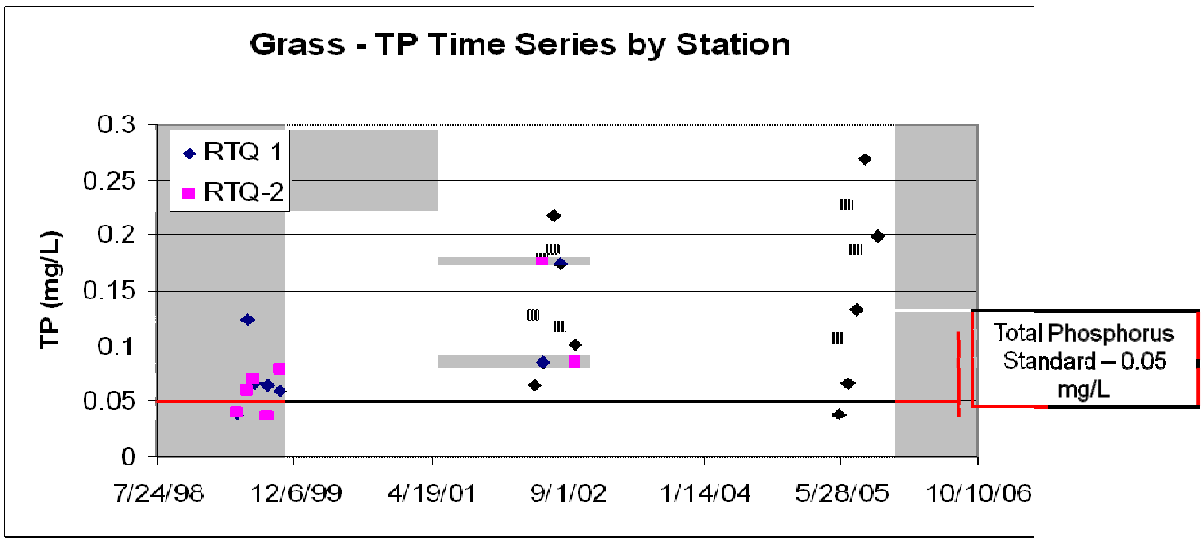
Grass (All Stations) – Total Phosphorus
1998 - present



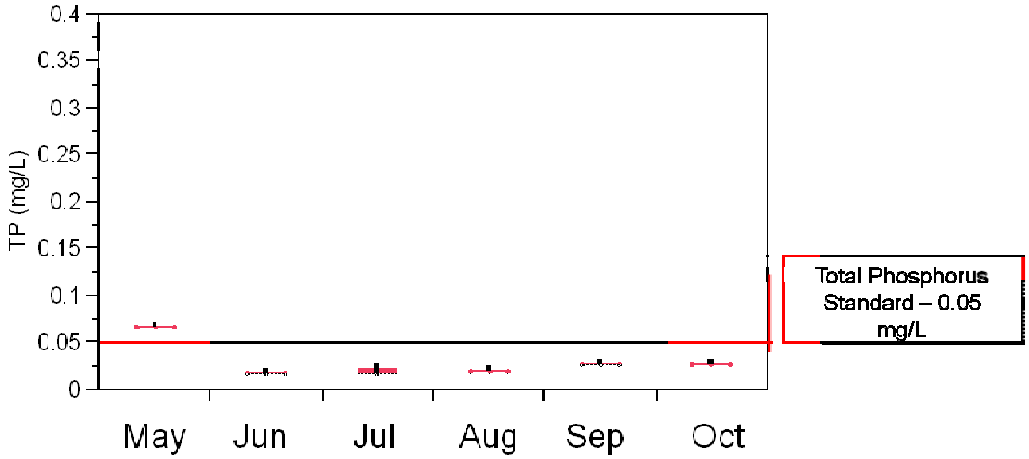
Grass (All Stations) – Total Phosphorus Time Series
1998 - present



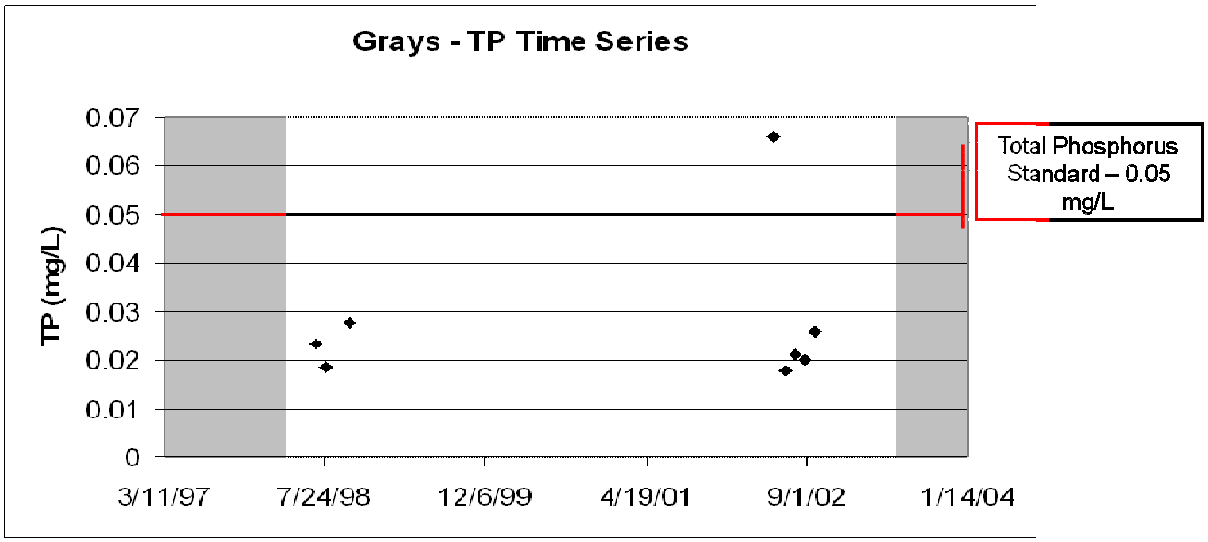
Grass (By Station) – Total Phosphorus Time Series 1998 - present



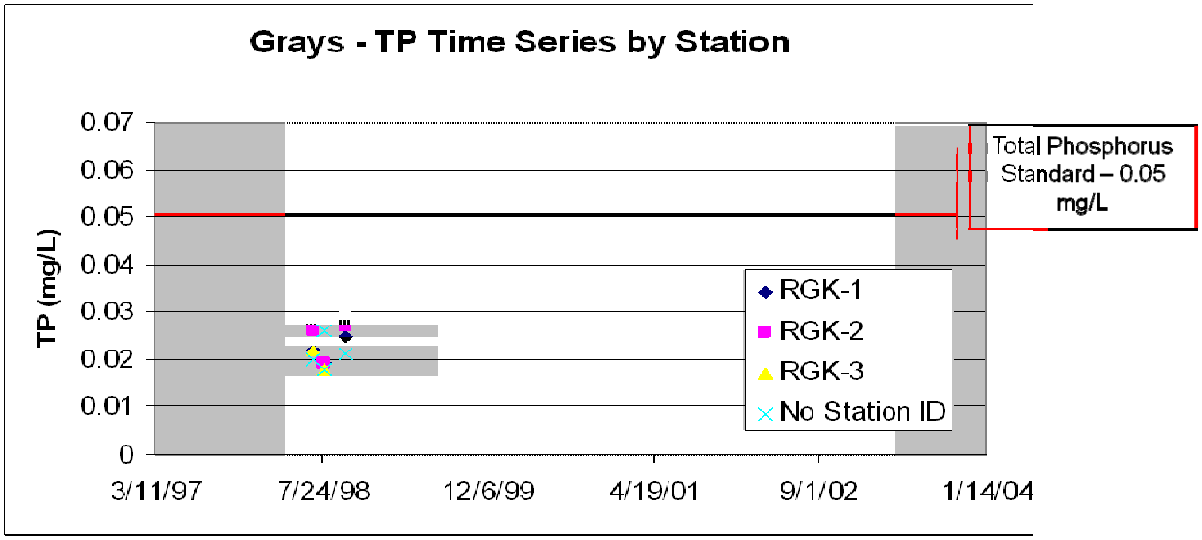
Grays (All Stations) – Total Phosphorus 1998 - present



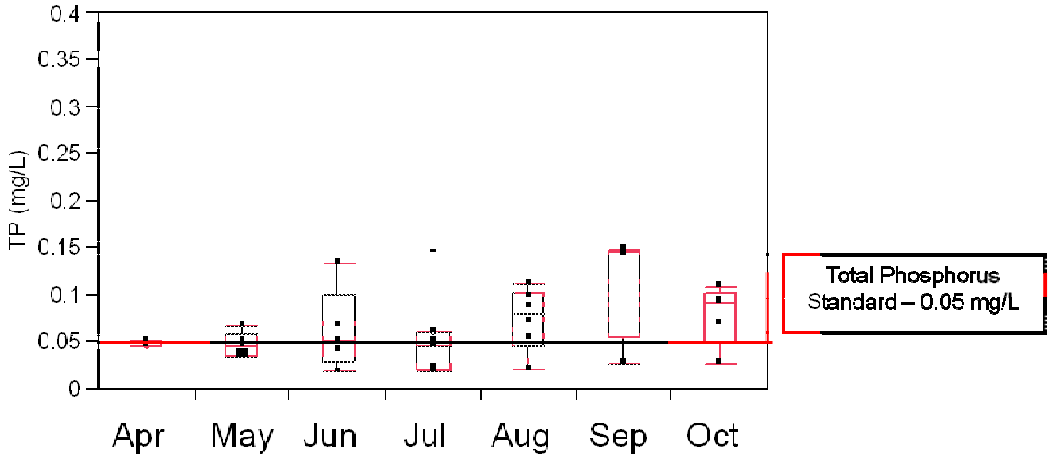
Grays (All Stations) – Total Phosphorus Time Series 1998 - present



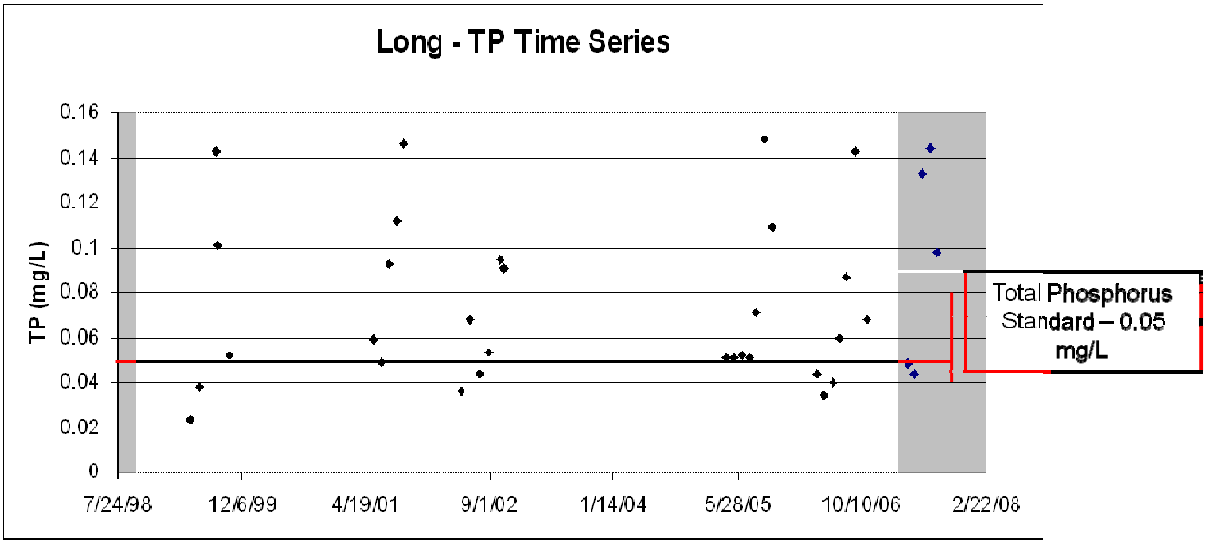
Grays (By Station) – Total Phosphorus Time Series 1998 - present



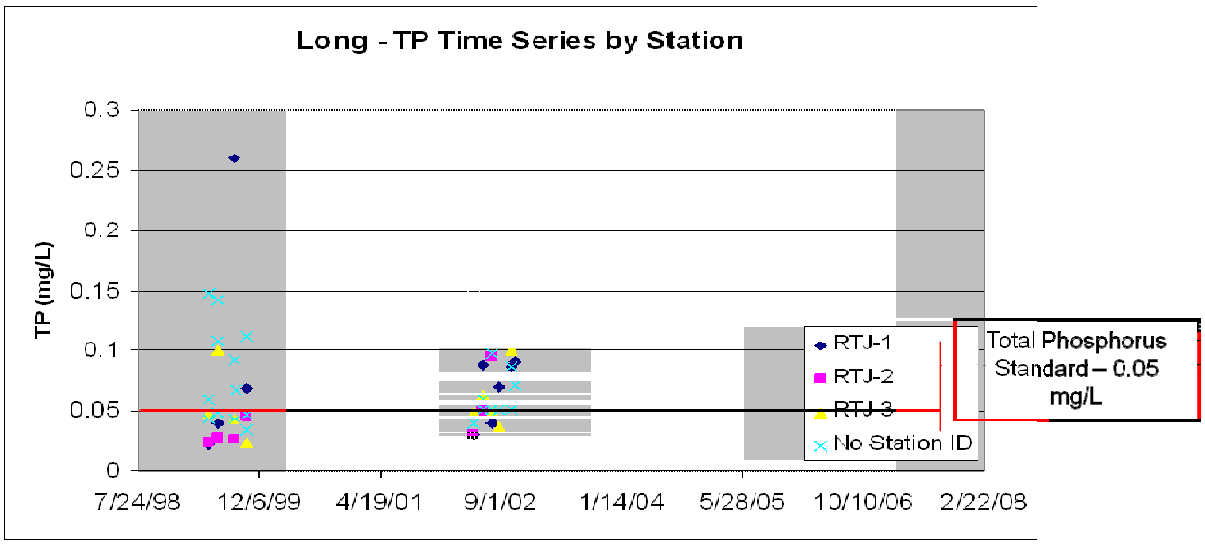
Long (All Stations) – Total Phosphorus
1998 - present



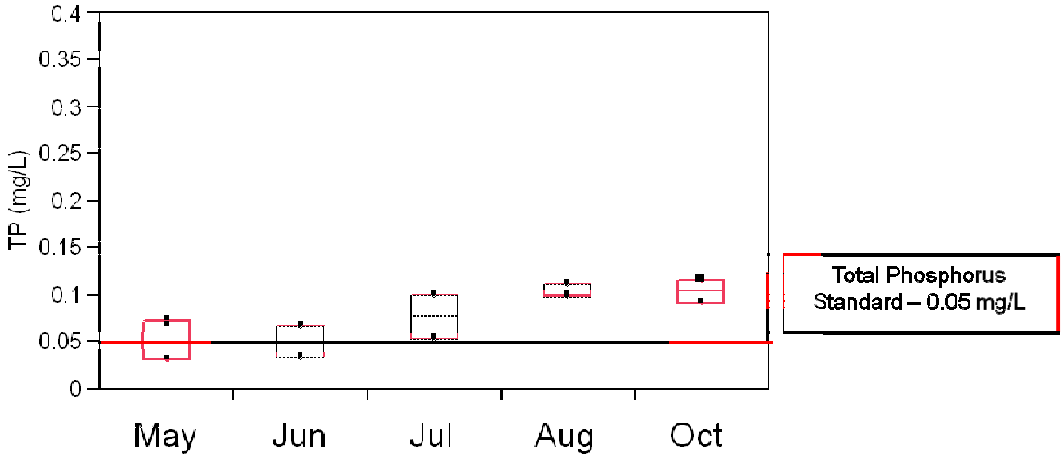
Long (All Stations) – Total Phosphorus Time Series
1998 - present



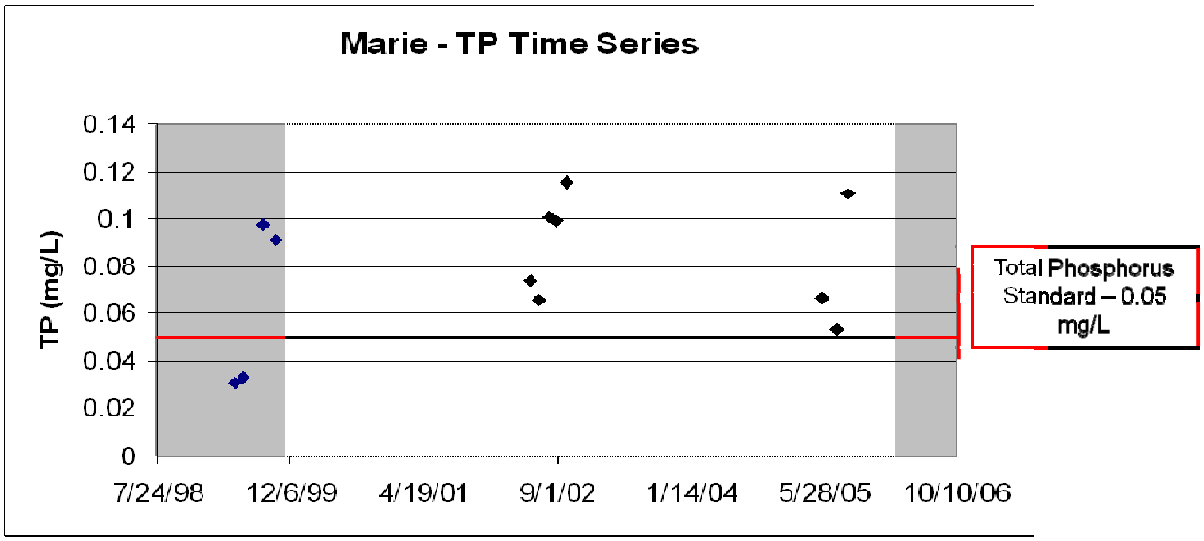
Long (By Station) – Total Phosphorus Time Series 1998 - present



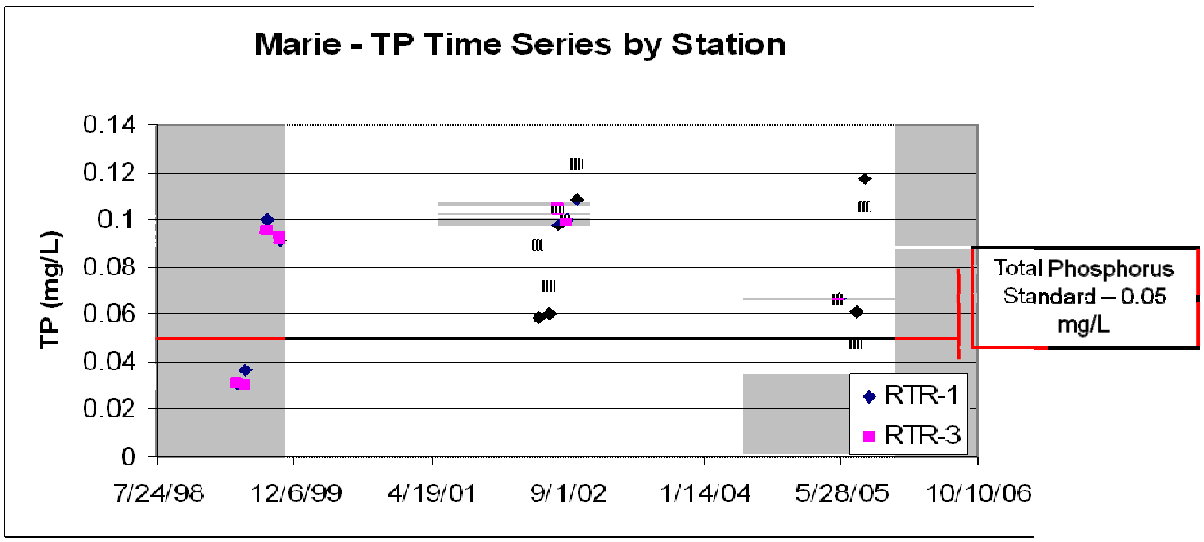
Marie (All Stations) – Total Phosphorus
1998 - present



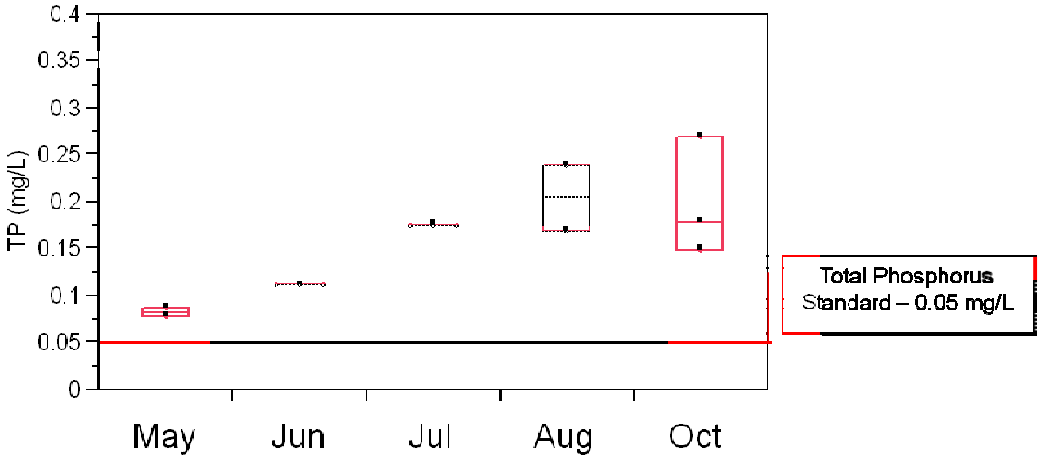
Marie (All Stations) – Total Phosphorus Time Series
1998 - present



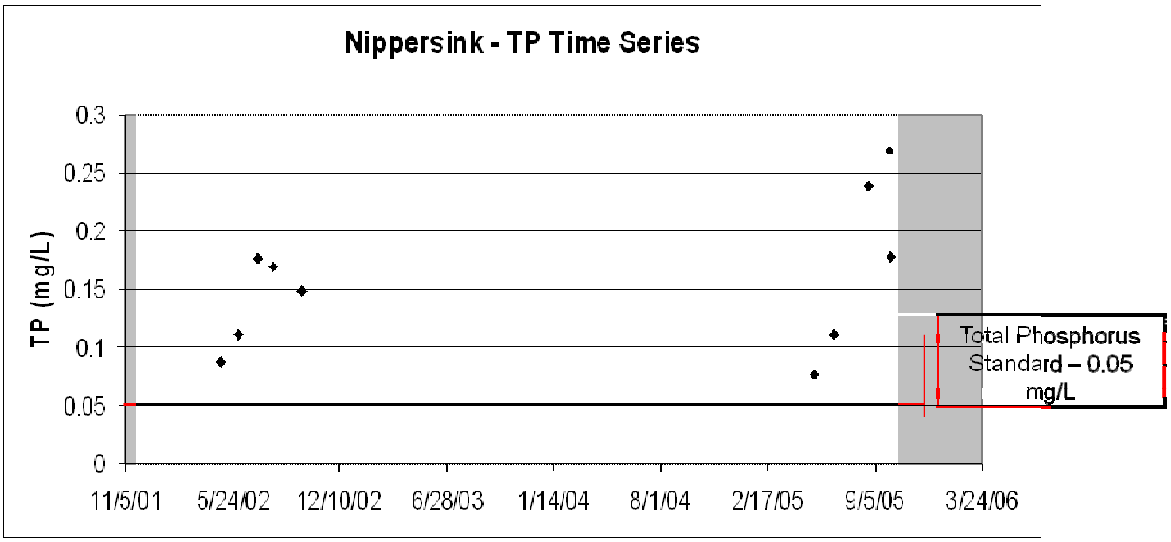
Marie (By Station) – Total Phosphorus Time Series 1998 - present



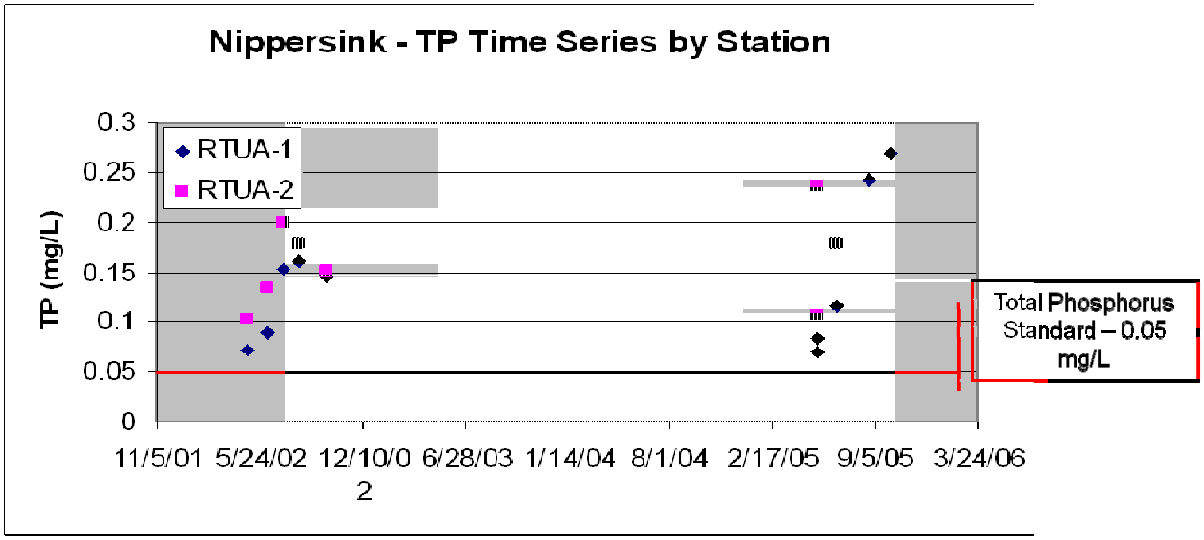
Nippersink (All Stations) – Total Phosphorus 1998 - present



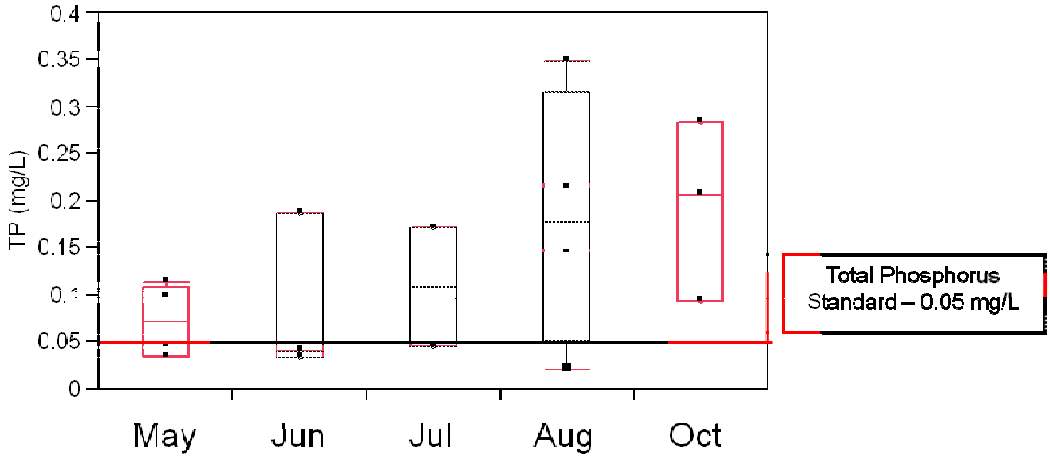
Nippersink (All Stations) – Total Phosphorus Time Series 1998 - present



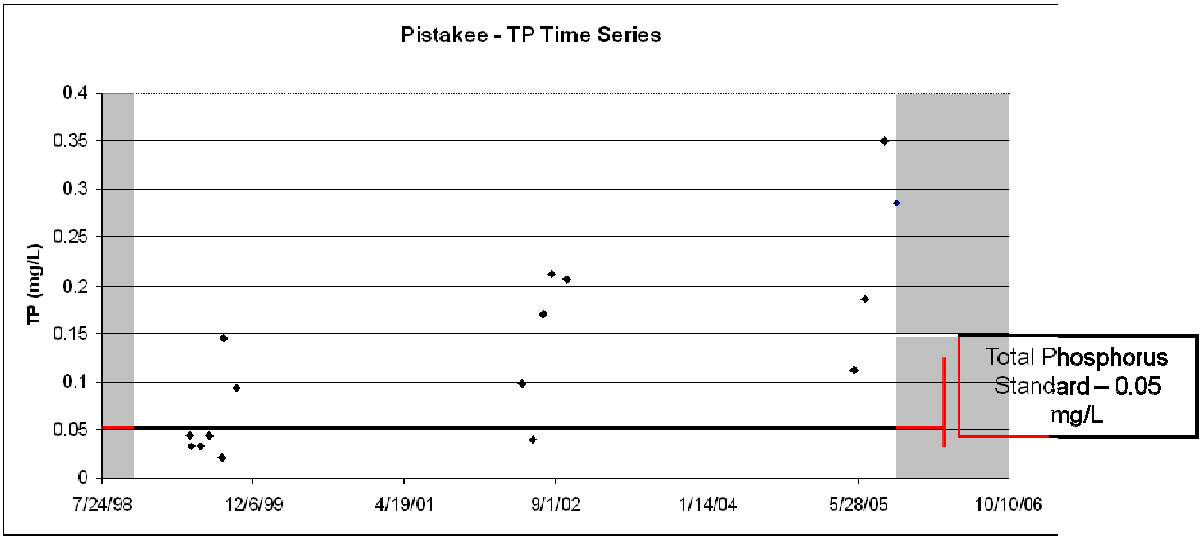
Nippersink (By Station) – Total Phosphorus Time Series 1998 - present



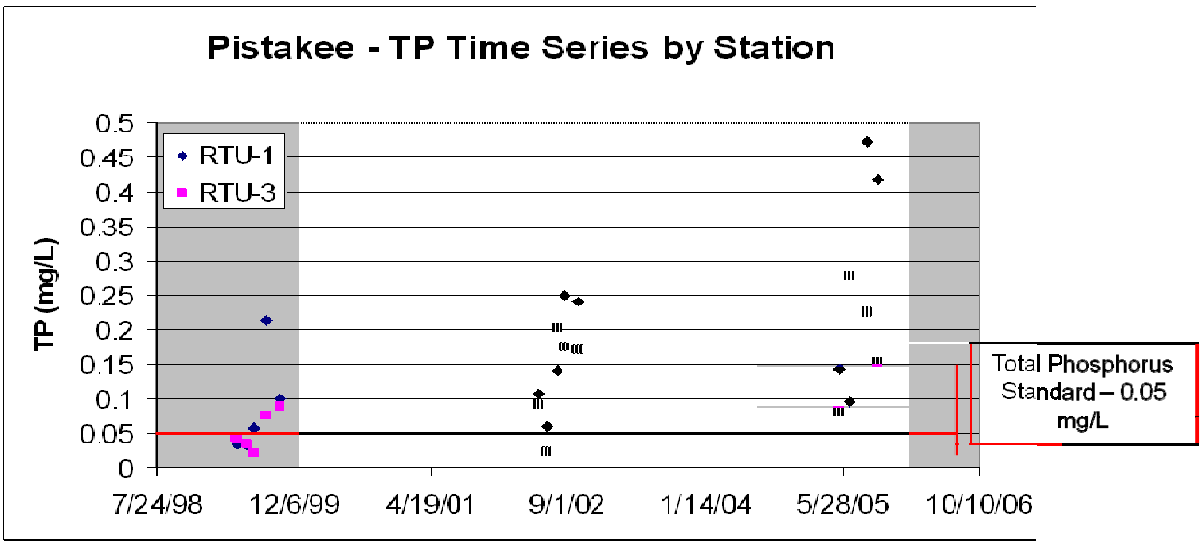
Pistakee (All Stations) – Total Phosphorus
1998 - present



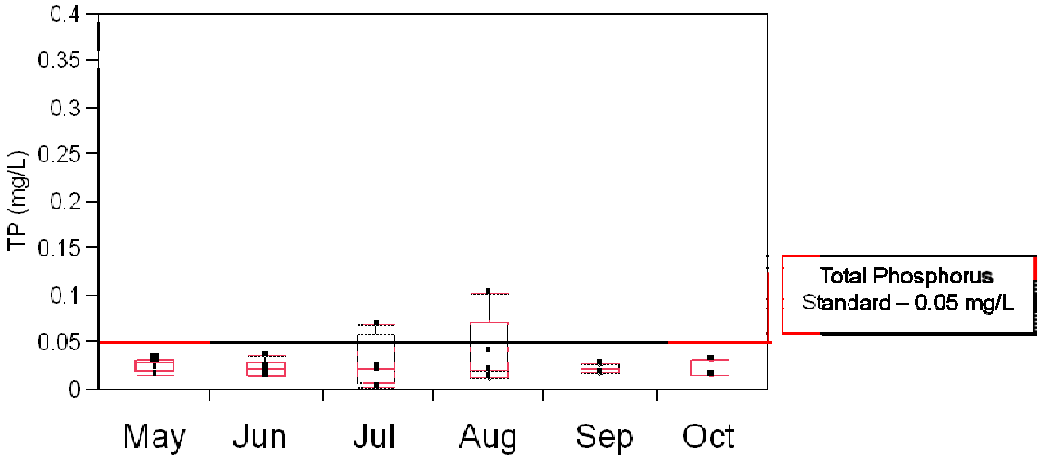
Pistakee (All Stations) – Total Phosphorus Time Series
1998 - present



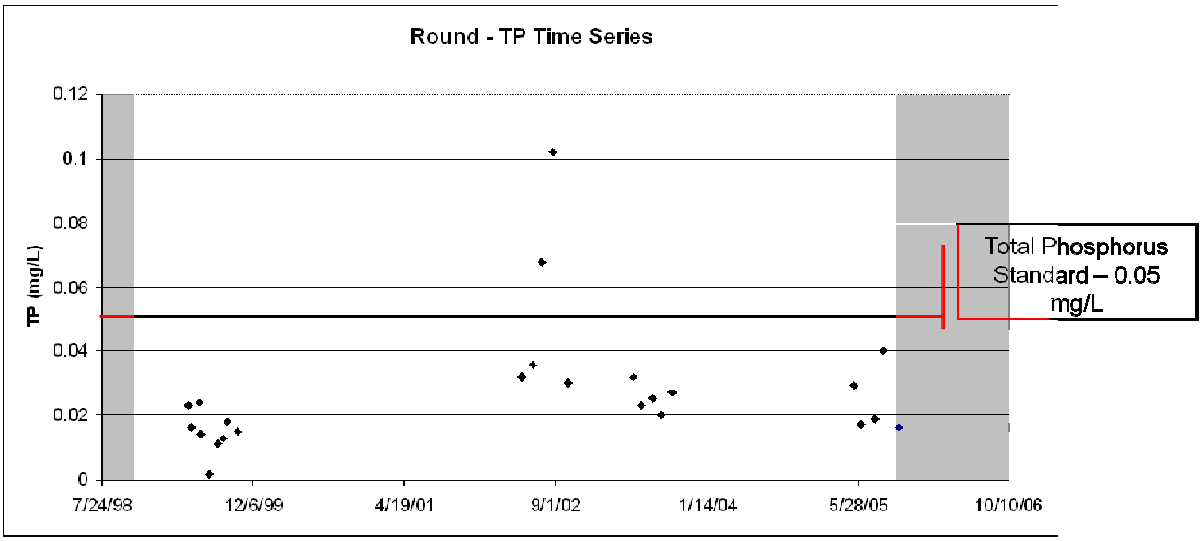
Pistakee (By Station) – Total Phosphorus Time Series 1998 - present



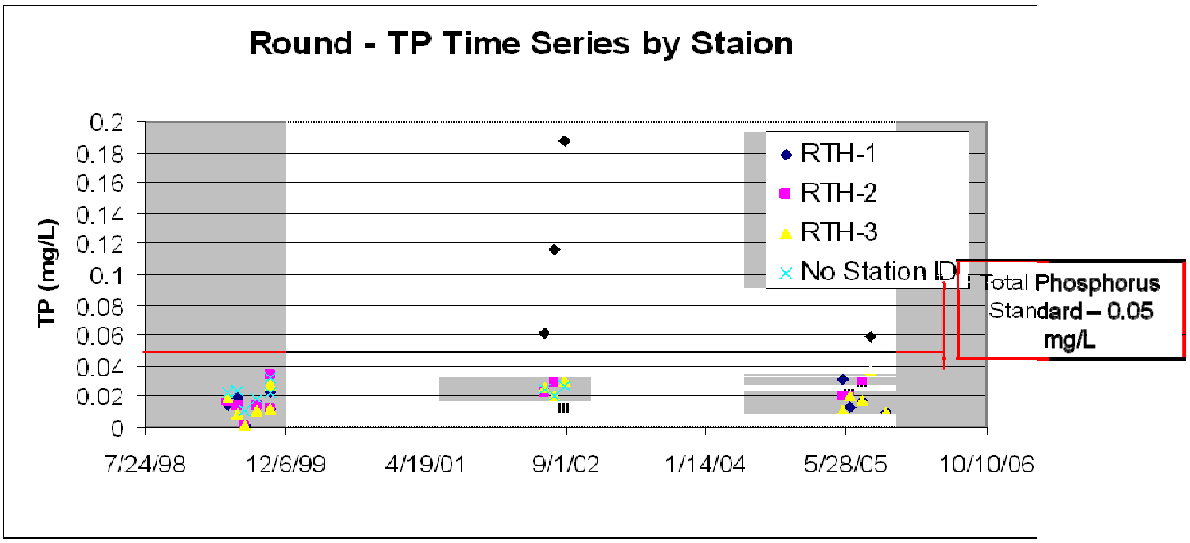
Round (All Stations) – Total Phosphorus 1998 - present



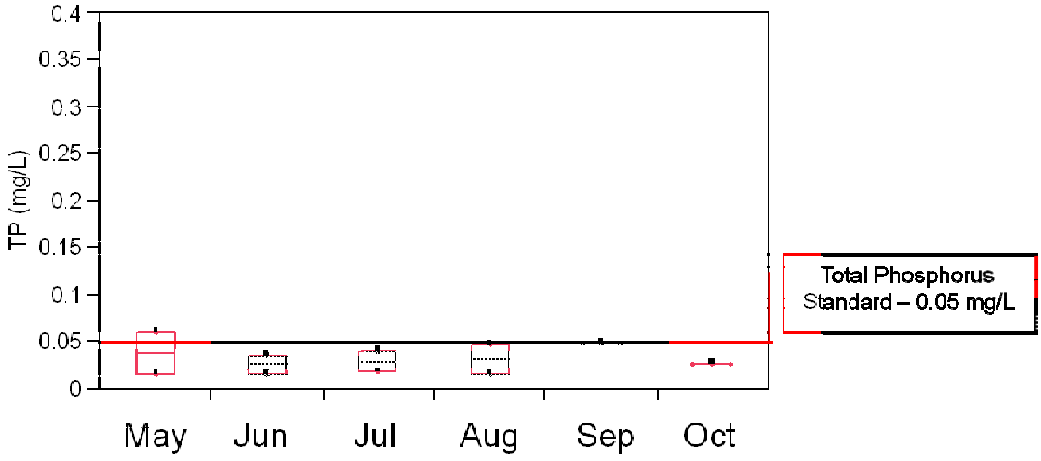
Round (All Stations) – Total Phosphorus Time Series 1998 - present



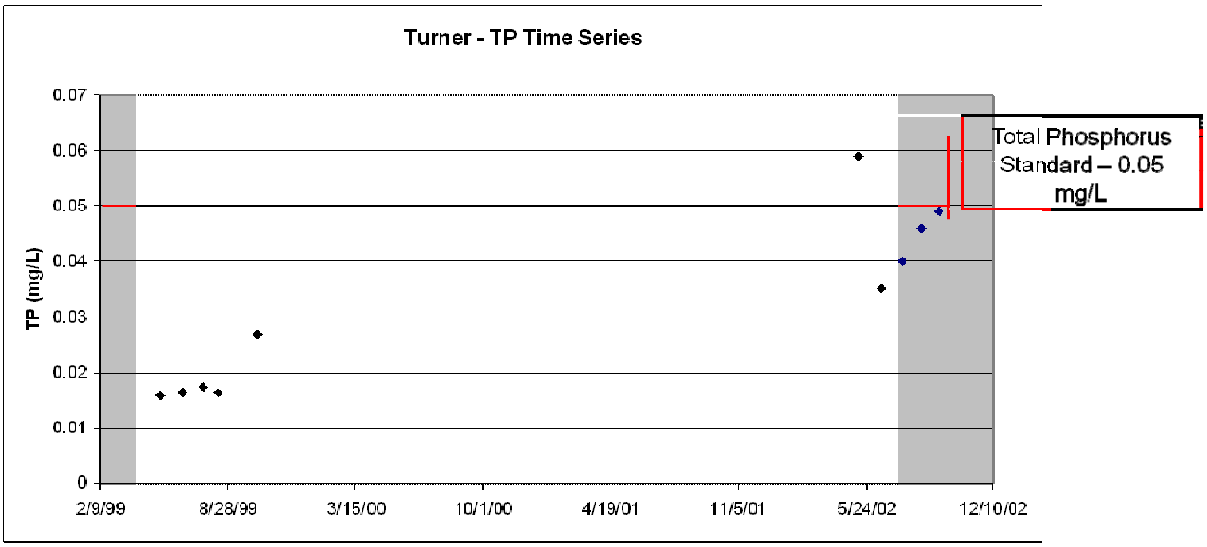
Round (By Station) – Total Phosphorus Time Series 1998 - present



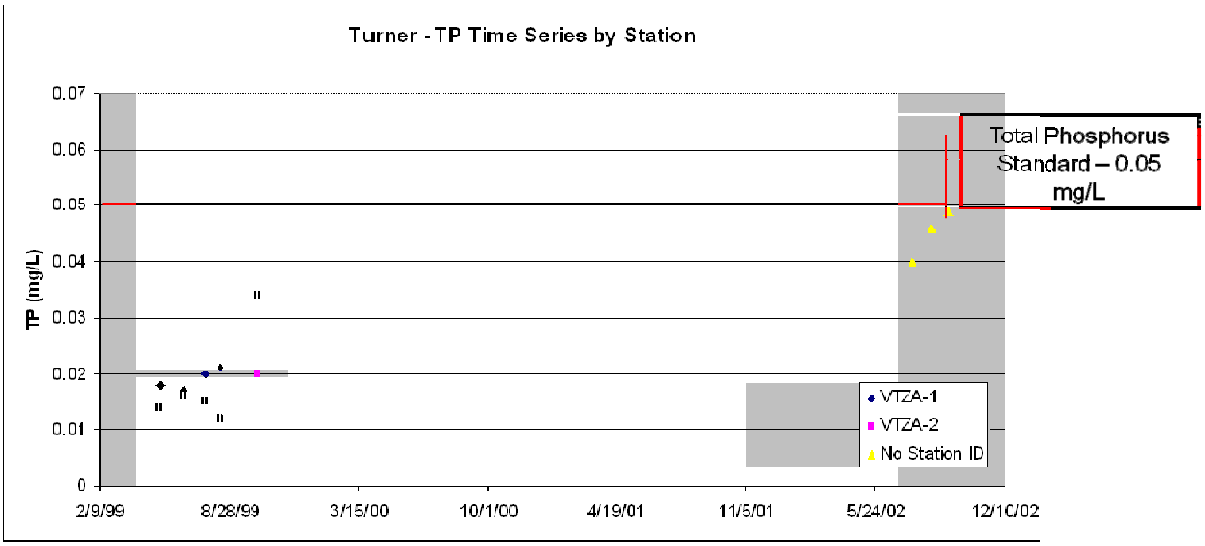
Turner (All Stations) – Total Phosphorus
1998 - present



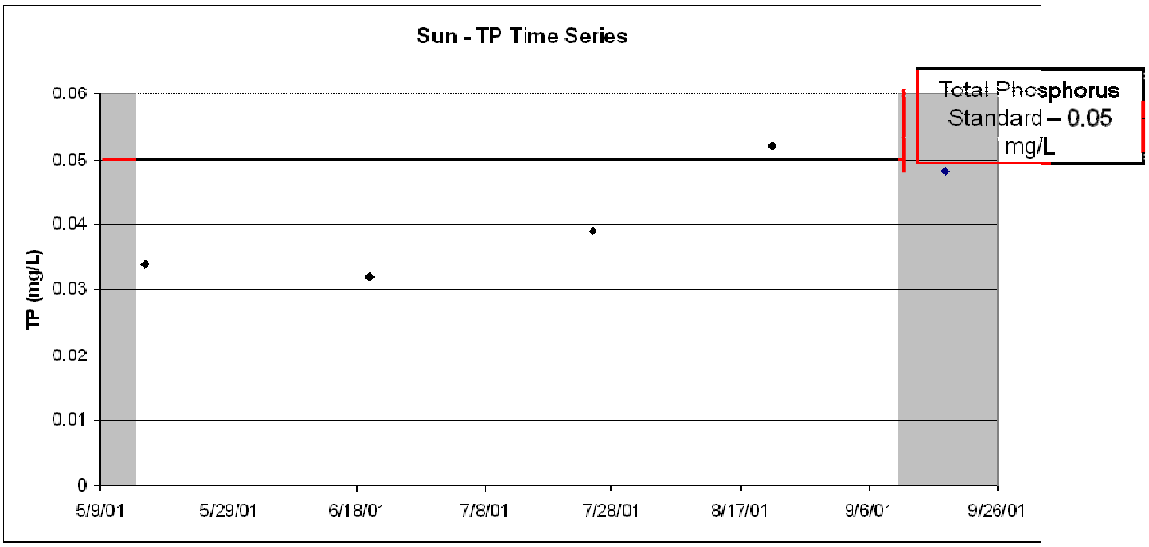
Turner (All Stations) – Total Phosphorus Time Series
1998 - present



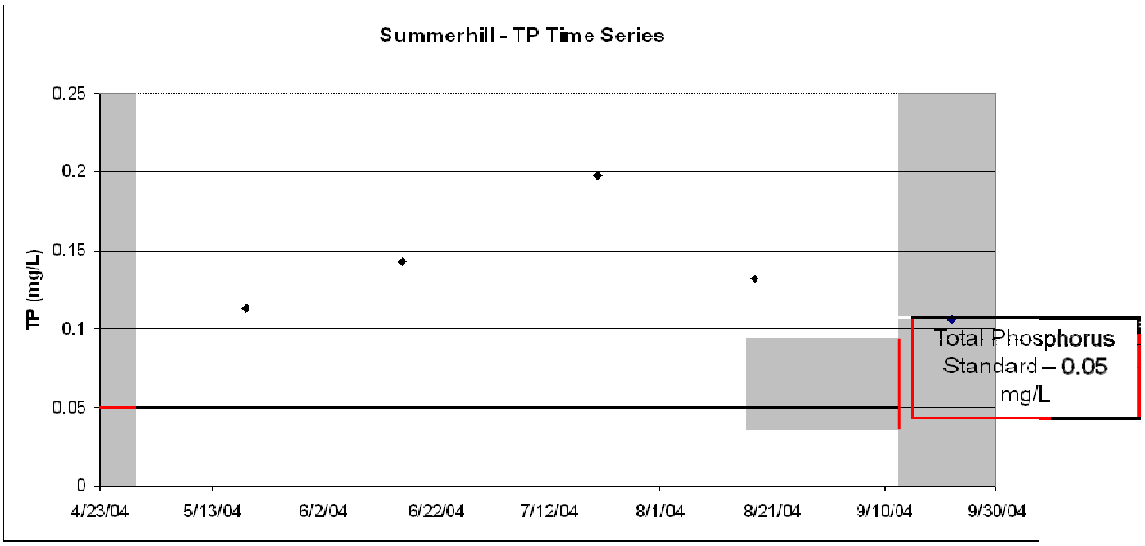
Turner (By Station) – Total Phosphorus Time Series 1998 - present



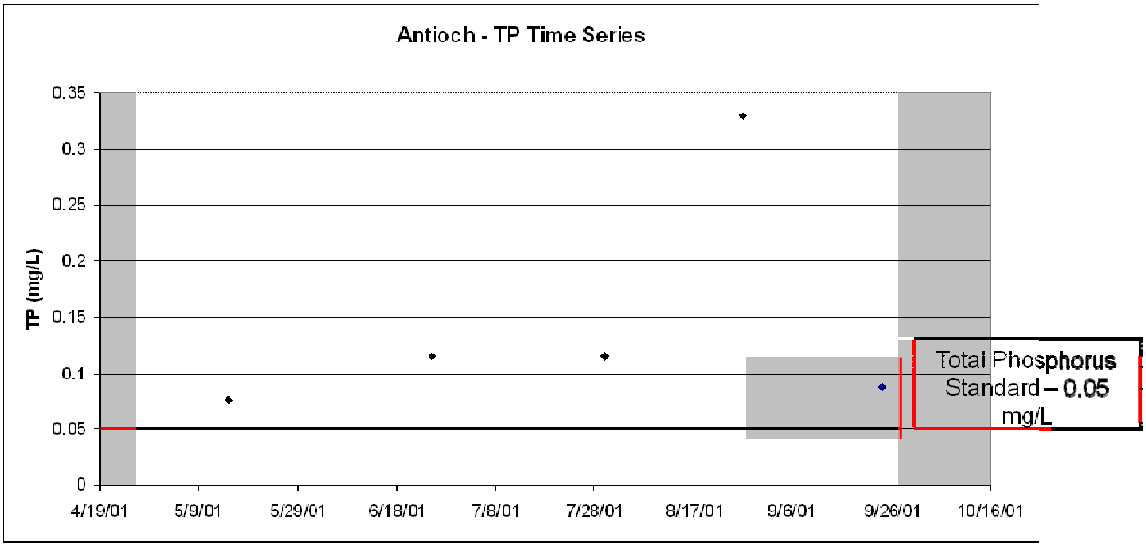
Sun (All Stations) – Total Phosphorus Time Series 1998 - present



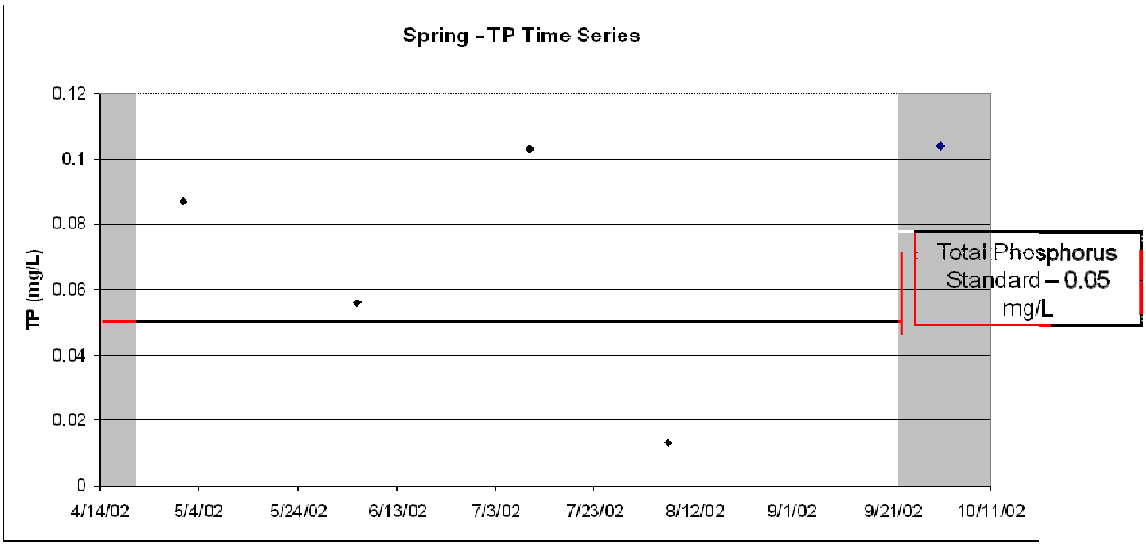
Summerhill (All Stations) – Total Phosphorus Time Series 1998 - present



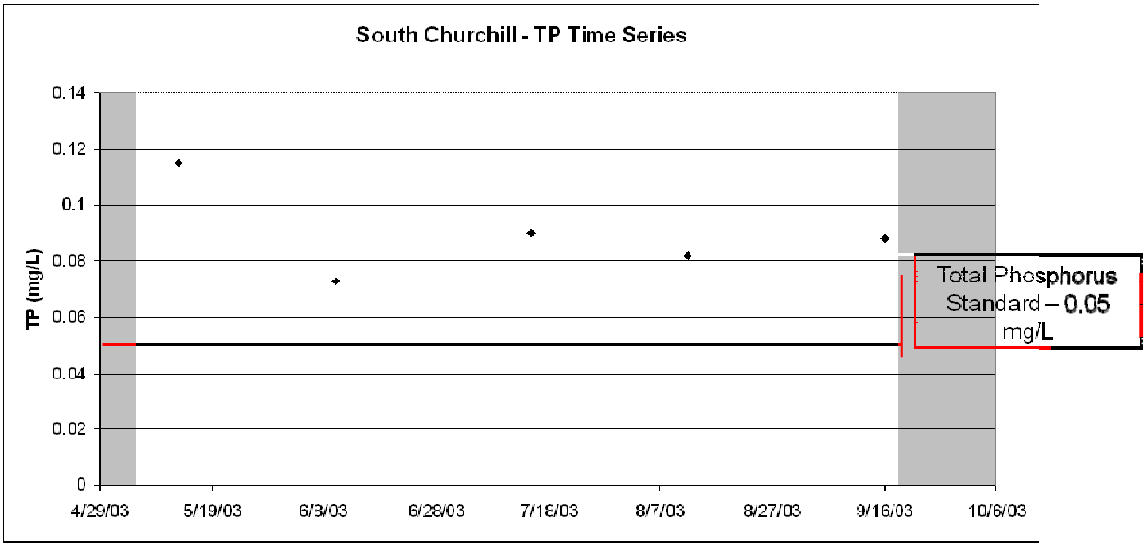
Antioch (All Stations) – Total Phosphorus Time Series 1998 - present



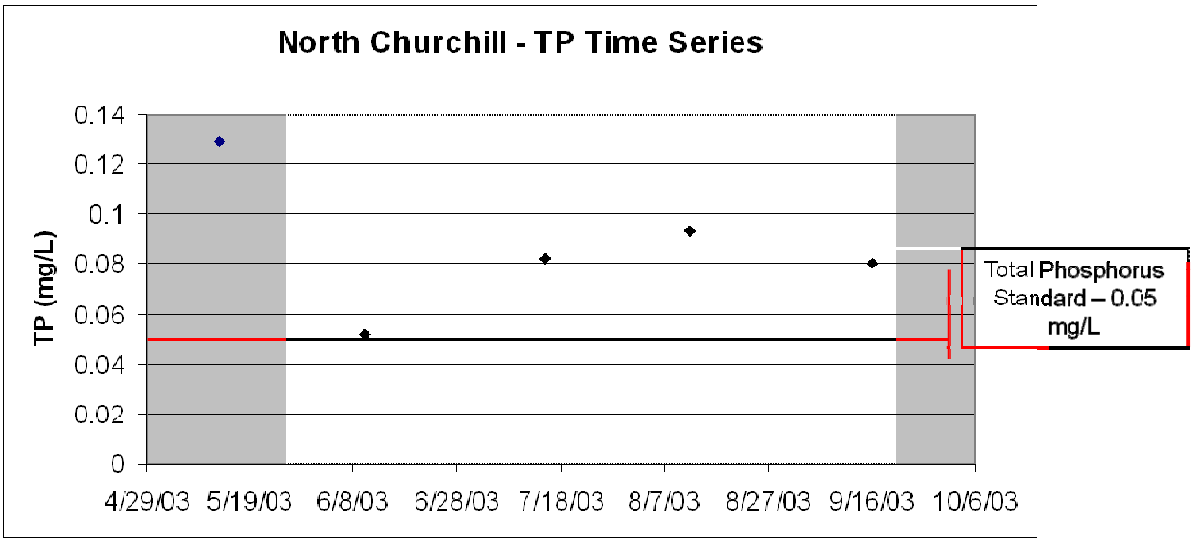
Spring (All Stations) – Total Phosphorus Time Series 1998 - present



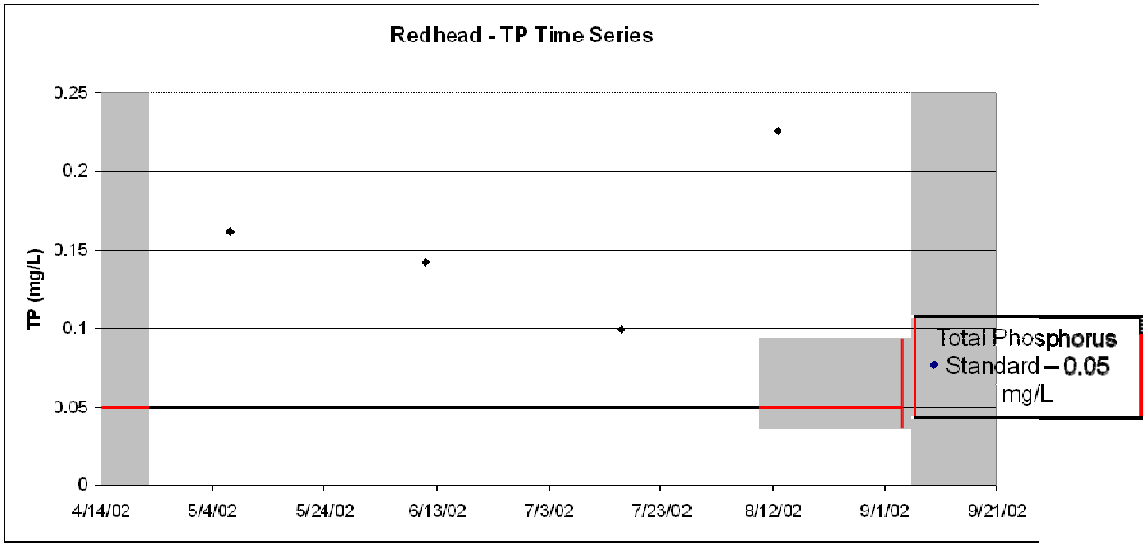
South Churchill (All Stations) – Total Phosphorus Time Series 1998 - present



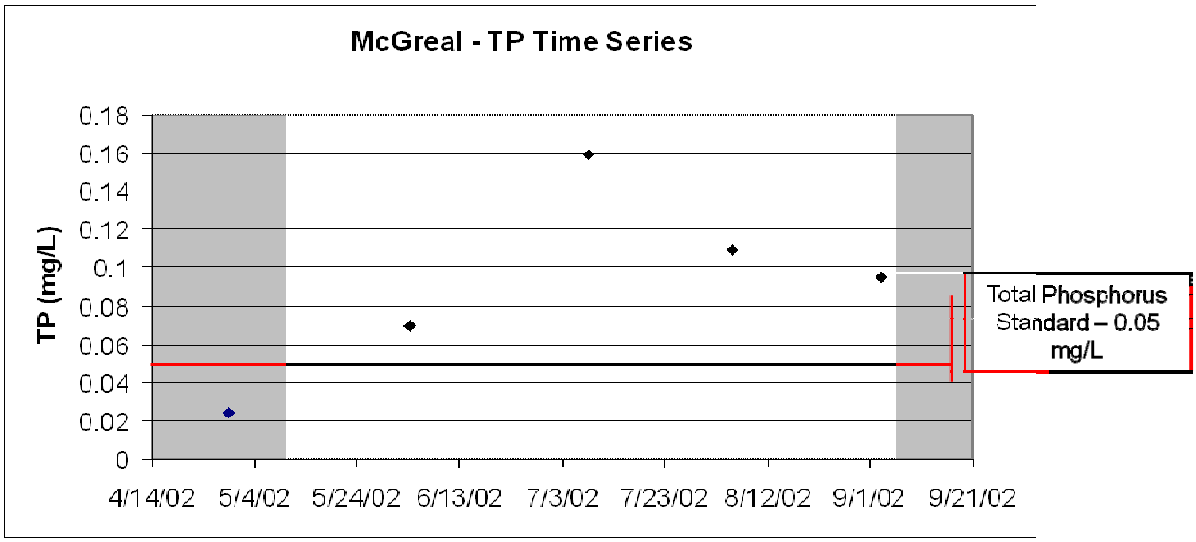
North Churchill (All Stations) – Total Phosphorus Time Series 1998 - present



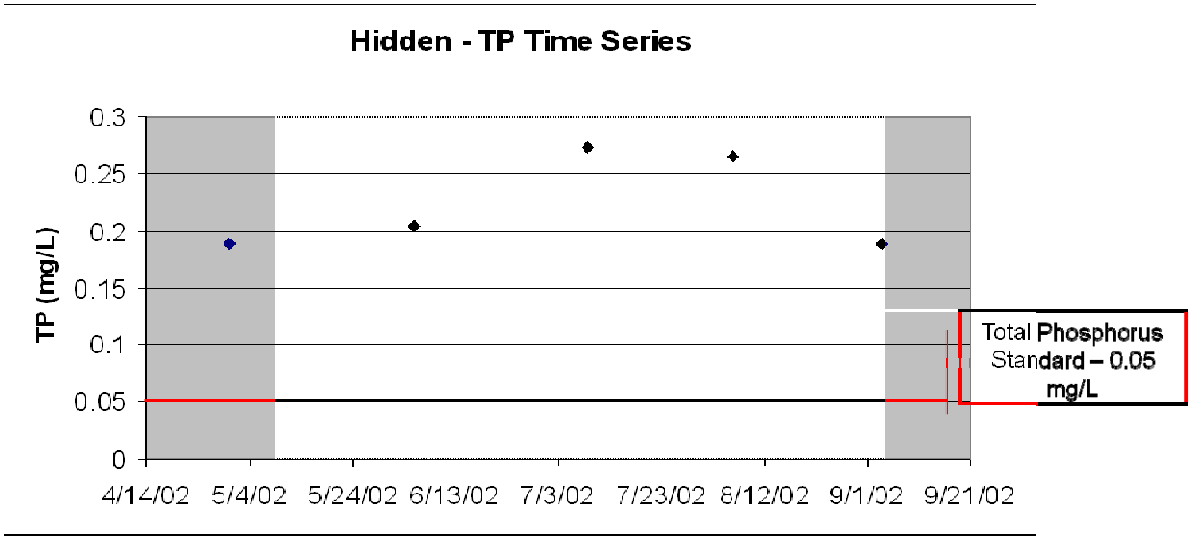
Redhead (All Stations) – Total Phosphorus Time Series 1998 - present



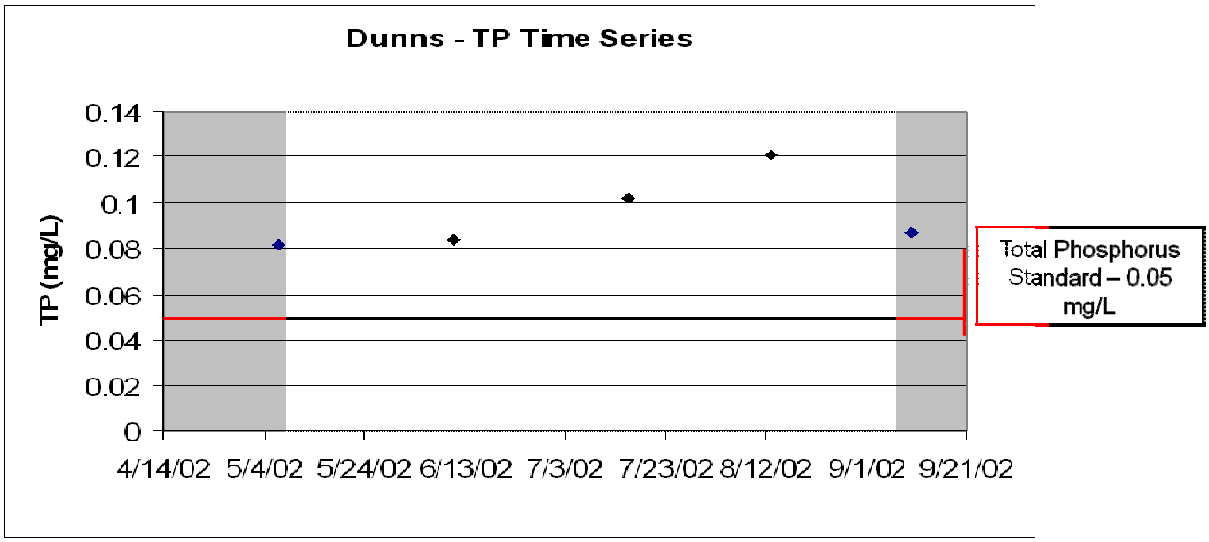
McGreal (All Stations) – Total Phosphorus Time Series 1998 - present



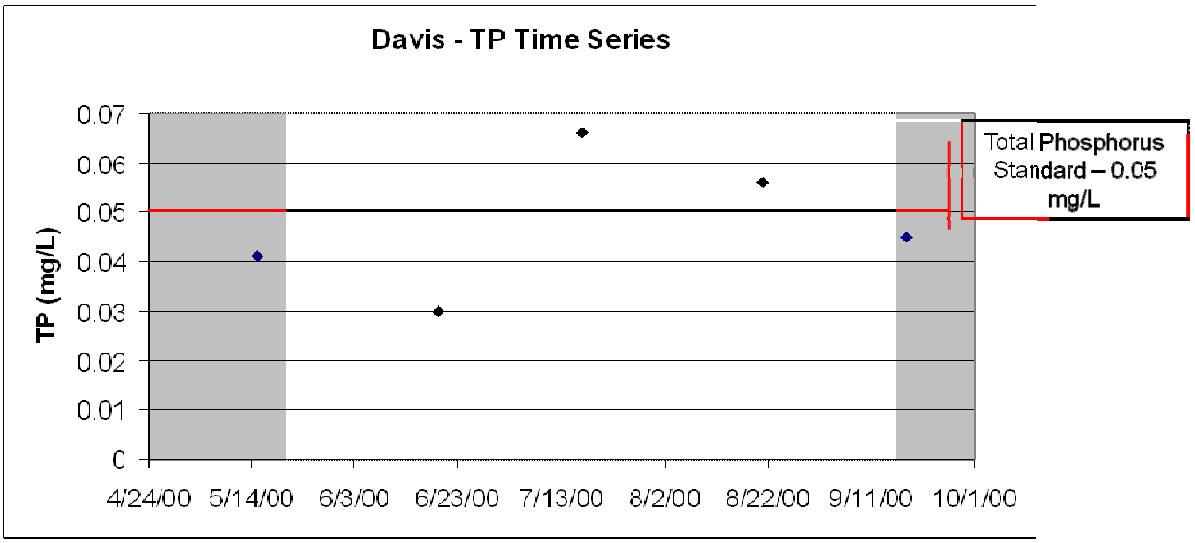
Hidden (All Stations) – Total Phosphorus Time Series 1998 - present



Dunns (All Stations) – Total Phosphorus Time Series 1998 - present



Davis (All Stations) – Total Phosphorus Time Series 1998 - present



Appendix F

Responsiveness Summary

Responsiveness Summary

This responsiveness summary responds to substantive questions and comments received during the public comment period from July 20, 2009 through September 24, 2009 postmarked, including those from the August 25, 2009 public meeting discussed below.

What is a TMDL?

A Total Maximum Daily Load (TMDL) is the sum of the allowable amount of a pollutant that a water body can receive from all contributing sources and still meet water quality standards or designated uses. The Upper Fox River-Chain O' Lakes watershed and Upper Fox River-Flint Creek watershed TMDL Stage One reports contain information that will form the basis for calculating TMDLs for impaired water bodies so that they meet their designated uses and water quality standards. The Illinois EPA implements the TMDL program in accordance with Section 303(d) of the federal Clean Water Act and regulations thereunder.

Public Meeting

A public meeting was held at the University Center of Lake County, in Grayslake, Illinois on August 25, 2009. The Illinois EPA provided public notice for both meetings by placing display ads in the *Northwest Herald and Grayslake Review* newspapers on August 6, 2009. This notice gave the date, time, location, and purpose of the meeting. The notice also provided references to obtain additional information about this specific site, the TMDL Program and other related issues. Approximately 87 individuals and organizations were also sent the public notice by first class mail, as well as many organization email lists. The draft TMDL Report was available for review at the Lake County Stormwater Commision office, and also on the Agency's web page at http://www.epa.state.il.us/public-notices/

A public meeting started at 6:00 p.m. on Tuesday, August 25, 2009. It was attended by approximately 39 people and concluded at 8:15 p.m. with the meeting record remaining open until midnight, September 24, 2009.

Questions and Comments

Many comments were received by mail and email. Comments related to typos, misspellings, and issues regarding report formatting are not discussed in this responsiveness summary. Those items have been reviewed and have been taken into account during the development of the final Stage One reports, and the future work in Stage Three. Below are the relevant questions and comments received along with the Illinois EPA response.

Isn't Gray's Lake actually in the Des Plaines River watershed?

Response: According to Lake County Storm Water Commission, while historically part of the Fox River basin, surface flow from Grays Lake is now diverted via a spillway and stormsewer system into the Des Plaines River watershed (Mill Creek). The NRCS watershed coverage used by Illinois EPA in developing the "Illinois Integrated Water Quality Report-2008" and AECOM in producing the draft Upper Fox Stage One reports incorrectly includes Grays Lake in the Fox River watershed. This will be noted in the final Stage One report. However, since a significant amount of effort has already been expended, including collecting additional water quality data from Grays lakes, Illinois EPA will continue on to Stage 3 TMDL development, unless the results of the newly collected data reveals no standard violations, at which time the cause would be considered for delisting. Lake County Stormwater Commission has provided Illinois EPA and AECOM with the correct watershed boundaries, which will be used to update the current Stage One reports and used in the Stage 3 reports.

Is it appropriate to calculate a whole lake TSI based on a median value? (This is probably a larger question for how TSIs are actually calculated and used in 305(b) assessments.)

Response: At Illinois EPA, a parameter-specific TSI is calculated from median total phosphorus (1' depth only), median chlorophyll a, and median NVSS values. We believe that the median value better represents central tendency for these water quality parameters than does an average value. The median is less affected by a single outlier, especially when relatively few data points are available. When available, data from multiple lake sites are used in the calculation of the parameter-specific median value and that is why we refer to the TSI calculated from that median value as a "whole-lake" TSI. The whole lake TSI is used in the assessment guidelines more as an indicator of resource health than as an actual determination of trophic state. Assessments for lakes are made for the lake as a whole waterbody and are not made for lake segments or portions of lakes.

Section 5.2.2 in Chain O'Lakes report: Hidden Lake is targeted for a TMDL due to elevated pH. But, it is stated that "if these impairments are found to be related to TP concentrations than [sp] a TP TMDL should be prepared." However, because Hidden Lake is only listed as 19.0 acres, then would a TP TMDL actually not be required?

Response: As stated in the report, if total phosphorus is found as the limiting factor in causing pH imbalances in the lake due to algal production, then a TMDL will be developed for total phosphorus as a surrogate for pH. Even though the standard does not apply, an appropriate target will be determined as necessary for bringing the pH into compliance with the pH water quality standard.

Fox/Chain Report: pg. 2-5, Line 1: Is there really no change in elevation from the start to the terminus of the watershed?

Response: According to an analysis of topographic maps, that is correct.

Can you explain why Grays Lake (and other similar lakes) needs a TMDL? 8 samples were used in the determination, but only 1 exceeded the water quality standard and both the average and median are less than the water quality standard. Are there any lakes where they exceeded the water quality standard at least once but no TMDL is being developed?

<u>Response:</u> According to the "Illinois Integrated Water Quality Report-2008", Grays Lake is impaired for Aesthetic Quality, with the cause being listed as total phosphorus. The methodology for determining use support for aesthetic quality can be found on pages 98-101 of the "Illinois Integrated Water Quality Report-2008". Once the use, in this case aesthetic quality, is determined to be impaired, potential cause or causes are then listed. If a single sample exceeds a parameter standard or criteria, that parameter is listed as a potential cause of impairment. As mentioned above, additional data was collected this summer and those sample results will be evaluated to determine if the causes of impairment have changed. If no total phosphorus results show violation, then a total phosphorus TMDL will not be developed for Grays Lake.

Since septic tanks are often referenced as potential sources, is there any way of constructing a septic tank service area map or overlay?

<u>Response:</u> Yes. This information will be presented and discussed in the Stage Three implementation plan. Those areas that are served by a sewage collection system will be noted, so those not in that area will be assumed to utilize on-site septic systems. If septic systems are thought to be considered a potential cause of impairment, the implementation plan will give recommendations for mitigating causes associated with this source.

Grays Lake is included in the report for TMDL development. SMC does not object to the development of a TMDL for this water body, but it should be noted that while historically part of the Fox River basin, surface flow from Grays Lake is now diverted via a spillway and stormsewer system into the Des Plaines River watershed (Mill Creek). Therefore, Grays Lake does not presently contribute surface drainage to the Upper Fox River-Chain O' Lakes watershed. SMC recommends that Illinois EPA verify the accuracy of the GraysLake catchment boundary that it will use to develop the Total Phosphorus TMDL. This isparticularly significant because Grays Lake has a relatively small catchment area and the export coefficients derived from land uses appear to be a main driver of loadings in the proposed model (LLRM).

<u>Response:</u> As discussed in previous comments, a TMDL for Grays Lake will be developed pending the results of the 2009 monitoring.

Final mapping for the TMDL reports could be improved for accuracy and legibility. In particular, Figures 2-2 and 2-12 incorrectly identify the locations of Chicago, McHenry, Round Lake Beach, and Grayslake. Figure 2-4 uses point markers to signify the locations of "cities," however, few municipalities are labeled and the geographic scale of the map is probably such that a polygon representing the actual corporate boundaries would be more useful. Additionally, the font size and color schemes used on some of the maps make them difficult to read. SMC also recommends that the GIS shapefiles for the watersheds of the Fox and Des Plaines Rivers be updated to show the present watershed boundary (with Grays Lake included in the Des Plaines watershed). Figure 5-1 does not show monitoring locations for Fox River segment DT-35 or for a number of lakes, although there is apparently existing water quality monitoring data.

<u>Response:</u> Thank you for your comment. Mapping corrections will appear in the final reports.

SMC maintains a rain gauge network with locations in the Fox River watershed at Antioch, Long Lake, Round Lake Park, and Wauconda. While the period of record is not as extensive as the data available from the State Climatologist for Antioch, the data could be of use for model calibration.

<u>Response:</u> Thank you for your comment. Illinois EPA and AECOM will work with SMC in identifying the appropriate gauges to use in modeling the hydrology.

The report indicates that discharge data for the Johnsburg gauge is available only for the period between 1997 and 1999. SMC recommends contacting IDNR-OWR for possible additional discharge information for the Stratton Dam. IDNR-OWR calculates discharges for use in the dam operation.

<u>Response:</u> Thank you for your comment. Illinois EPA and AECOM will contact IDNR-OWR concerning dam operation.

Figure 5-2 depicting the relationship between temperature, depth and dissolved oxygen concentration could be simplified or reformatted to make it easier to read. It is difficult to show the relationship between 4 variables (depth, temperature, dissolved oxygen, and date) on a graph with 2 axes. Perhaps using the same color for temperature and DO data from the same date would make the relationship between these two variables more apparent.

<u>Response:</u> Thank you for your comment. AECOM will re-evaluate the graph.

The findings of the Center for Watershed Protection report "Impacts of Impervious Cover on Aquatic Systems" and its associated Impervious Cover Model (e.g., that impairment of waters is common at 25% watershed impervious cover) are applicable only to 1st, 2nd, and 3rd order streams. While the relationship between watershed imperviousness and water quality is likely similar in lakes and streams, the model has not been validated for large rivers or lakes and reservoirs. If findings or information from this report are to be used as sources of data for model or TMDL development, this is an important consideration. Application of this data to lakes (or to segment DT-35, which may be larger than 3rd order) may not be scientifically defensible.

<u>Response:</u> The reference to the "Center for Watershed Protection" report was merely used as an explanation for linking land use to sources of water body impairment. This information will not be used in the modeling approach.

Under section "6.1.1 Fox River," combined sewer overflows are listed as a potential source of the fecal coliform impairment. It would be helpful to verify the locations of any combined sewer systems (in both the Illinois and Wisconsin portions of the watershed) before any models are developed. There are no known CSO outfalls in Lake County.

<u>Response:</u> Thank you for your comment. The Stage 3 report will investigate the locations of CSO outfalls. The Stage 1 report will be updated to note that no known CSOs exist in Lake County.

It was unclear at the public meeting (August 25, 2009) how the model will account for the pollutant loads from the Wisconsin portion of the watershed. This should be clarified in the Stage 3 report. The Wisconsin land area tributary to the mainstem Fox River and Nippersink Creek watersheds encompasses over 1,000 square miles (according to the Wisconsin Department of Natural Resources) and is a mix of agricultural and urban areas. This is likely a significant source area for loadings entering the Illinois portion of watershed in the TMDL study area, particularly since Wisconsin accounts for the vast majority of the drainage area tributary to segment DT-35. The Southeastern Wisconsin Regional Planning Commission (SEWRPC) has provided land use data to SMC for past watershed plans and should be contacted if this information would benefit the development of TMDLs. SMC can provide contact information for SEWRPC if needed. It will also be important to coordinate with Wisconsin DNR, since the TMDL implementation plan will likely require significant actions in the

Wisconsin portion of the watershed to meet the water quality standards for the impaired Illinois segments of the Fox River and Chain O' Lakes.

<u>Response:</u> Thank you for your comment. Illinois EPA and AECOM will contact SEWRPC and Wisconsin Department of Natural Resources regarding these issues.

Numerous lakes in this watershed have internal cycling of nutrients listed as a potential cause of impairment. While modeling may provide more information toward this conclusion, it is unlikely that a TMDL implementation plan will be able to provide much in the way of actionable items or preventive measures (aside from dredging). If the models suggest this (internal cycling), it might be more useful to direct effort to waters where development of an implementation plan might lead to more meaningful action items (such as additional data gathering to illuminate source areas and identifying specific measures that can be taken to reduce loadings).

<u>Response:</u> Thank you for your comment. The amount of loading from internal cycling will be investigated during the modeling. The implementation plan will attempt to identify and address all potential sources of impairment, as well as future monitoring needs for the purpose of identifying sources of pollutants.

In addition to the calculation of pollutant loads, the most important outcome of the TMDL process is the implementation plan that will provide recommendations for site-specific practices that will reduce pollutant loads to impaired waters. The TMDL approaches used for lakes and the Fox River should ensure that model results will be precise enough to produce geographically specific recommendations that can be implemented to meet water quality standards. A more detailed watershed assessment may be needed if the data sources and models proposed for the TMDL cannot provide this level of precision. The report suggests that this may be done during stage 3 for segment DT-35 of the Fox River, but it is unclear if this will be done for other water bodies. For water bodies with allochthonous, non-point sources of impairment, particularly those with large tributary areas, additional monitoring and assessment are likely needed to produce meaningful, site-specific recommendations that can be implemented to reduce non-point source pollution.

<u>Response:</u> An implementation plan will be developed for the Fox-Chain and Fox-Flint TMDL reports. These plans will be specific to the listed causes of impairment for each waterbody that will have a TMDL developed. Due to the lack of resources and lack of site specific data, a general implementation plan will be developed that is based largely on known land uses and point sources for each subwatershed. While the TMDL implementation plan will not recommend site-specific actions, it can be used as the basis for a more detailed, site-specific watershed-based implementation plan that Illinois EPA encourages local agencies or watershed groups to develop.

Please consider the use of public domain models in the generation of the TMDLs for the Fox-Chain O' Lakes and Fox-Flint watershed. The use of proprietary models could present difficulties for stakeholders that might want to re-run the models with different parameter values (for instance, if a stakeholder group wanted to model future conditions with different land use values).

<u>Response:</u> Illinois will work with AECOM in selecting appropriate models based on the characteristics of the watershed, the causes of impairment, and the amount of available data. If a public domain model is not used, efforts will be made to ensure that the model and accompanying data can be shared with other entities.

Please consider providing a bibliography or list of references for literature cited in the report. This information could be helpful or of interest to others.

<u>Response:</u> Thank you for your comment. The final Stage 1 reports will include a list of references in the appendices.

Section 6.1 “Fox River DT-23” suggests that Stratton (McHenry) Lock and Dam is located upstream of this reach (this is suggested again in section 7.1). One would infer from the maps, however, that the dam is located near the downstream end of the reach. The dam is located adjacent to Moraine Hills State Park in McHenry County. Presumably, the location of the dam affects the outcome of the model for this reach. Please ensure that the correct geographic location of Stratton (McHenry) Dam is used in TMDL development and stage reports.

Response: Thank you for your comment. This will be corrected in the final Stage 1 report.

Section 6.5 “Island Lake” reports only 2 impaired waters tributary to Island Lake: Drummond and Napa Suwe. Section 6.4 “Woodland Lake” reports that it is tributary to Mutton Creek and, therefore, to Island Lake.

Response: Thank you for your comment. This will be corrected in the final Stage 1 report.

Section 7.2 “Recommended Modeling Approach for Fecal Coliform” refers to impaired segments DT-35 and Deep Lake, which are not within the study area. This section should be revised, particularly if it affects the recommended modeling approach.

Response: Thank you for your comments. This will be corrected in the final Stage 1 report.

The Flint Creek Watershed Partnership completed a watershed-based plan under the USEPA/Illinois EPA 319 program. Please consider the recommendations in this plan when drafting recommendations for the implementation of the TMDL study for Grassy, Honey, Echo, and Louise Lakes. The Flint Creek plan is available online at: http://www.flintcreekwatershed.org/watershed_plan.html.

Response: Thank you for your comment. Any recent or past watershed plans will be incorporated into the TMDL implementation plans as appropriate.

Both reports document hydrology of the Fox River watershed in Section 2.7 Hydrology. The “Fox River - Chain of Lakes Watershed” report uses the gage located at the outlet for Grass Lake with a drainage area of 919 square miles and a range of flows of 230 cfs to 2500 cfs. These statistics are based on 2 years of record. We suggest that the hydrology of the Fox River could be improved by the use of the gage “Fox River near New Munster, Wisconsin” (drainage area 811 square miles) and its predecessor gage “Fox River at Wilmot, Wisconsin.” The range of flows for their combined period of record of 68 years is 35 cfs to 7100 cfs. The “Upper Fox River - Flint Creek Watershed” report uses the Fox River at Johnsburg gage with a drainage area of 1205 square miles and a range of flows of 239 cfs to 4610 cfs. The discharge estimates for this gage are only based on 2 years of record. The gage “Nippersink Creek near Spring Grove” has 43 years of discharge record and a drainage area of 192 square miles. Combining the flow records from the gage “Fox River near New Munster, Wisconsin” with the gage “Nippersink Creek near Spring Grove, Illinois” (referenced in the Fox River- Chain of Lake Watershed report) would give the flows for 1003 square mile drainage area for the 43 years of record.

Response: Thank you for your comments. Illinois EPA and AECOM will work with IDNR and Lake County SMC to determine the appropriate gauges to use in modeling the watershed hydrology.

In the “Upper Fox River – Flint Creek Watershed” report, Section 6.1 Fox River DT-23 states “Suspected sources of low DO in this segment include flow and water level manipulation at the McHenry Dam located just upstream of this segment.” Stratton Dam (McHenry Dam) is located at the downstream end of this segment. We question whether the gate operations at Stratton Dam have an impact on low dissolved oxygen levels considering that DO levels upstream of run-of-river dams typically have diurnal fluctuations that result in low DO levels for part of the time. We would like to see the results of the Stage 3 study which will determine the impacts of other potential sources of low DO, including the NPDES discharge, before the low DO levels are attributed to the Stratton Dam gate operations.

<u>Response:</u> Thank you for your comment. The location of the dam with respect to the stream segment will be corrected. Confirming sources of impairment from all sources will be one of the goals of Stage 3 TMDL development. The models used will account for impacts from all upstream point sources and other sources causing low DO in the stream segment.

In the "Upper Fox River – Flint Creek Watershed' report, Section 6.11 Fox River DT-22 discusses the impairments to the Fox River. The report states "Potential sources of water quality impairment in this segment include flow and water level manipulation at the McHenry Dam located upstream of this segment." We question how the operation of the gates at Stratton Dam effects dissolved oxygen, fecal coliform, and high pH levels. Under natural conditions flow and water levels fluctuate on rivers; how are the flow and water levels at Stratton Dam different than what occurs naturally on other parts of the Fox River.

<u>Response:</u> In the *Integrated Water Quality Report and 303(d) List-2008 lists* "dam or impoundment" as a potential source of low dissolved oxygen and pH. The potential source for total fecal coliform is listed as "unknown". Dams can restrict flow and cause impoundment-like conditions. These conditions can contribute to excessive algal growth, which in turn can contribute to low and high (super saturation) dissolved oxygen concentrations and high pH.

Please respond with the IEPA's plan to comply with the CWA to limit all forms of pollution as necessary to attain full use.

<u>Response:</u> The Illinois Water Quality Management Plan is available upon request.

As presented at the meeting, both pollutant and non-pollutant agents are increasingly responsible for impairment of our lakes and streams and lead to non-point source pollution. Because non-pollutant agents are very difficult to reverse or effectively mitigate, I strongly urge you to include them in this TMDL so that we can manage them proactively to prevent lakes in this watershed which are not yet impaired from becoming so. For this TMDL, please provide models that enable awareness of the threat posed by potential non-pollutant agents, that we can use to protect waters not presently impaired - that might become so as the others have. Please include all lakes in this watershed in this TMDL, and provide a predictive TMDL model for each.

<u>Response:</u> At this time, Illinois EPA only develops TMDLs for pollutants with numeric standards for water bodies that are currently listed as impaired. However, both pollutants without numeric standards and non-pollutants may be addressed in the implementation plan for water bodies which have TMDLs developed. Local entities or watershed groups are encouraged to develop watershed based plans that address local water quality concerns, including protection of waters that are currently not listed as impaired.

I also note that IEPA has already completed many TMDLs, and I would like to know what lessons from those prior TMDL's might reasonably be applied now to all of Illinois watersheds, but in particular, the Subject watershed, to prevent further decline, and to begin their recovery. Such measures can still be adjusted or augmented at the conclusion of this and other TMDL studies, and can serve to prevent further decline in the interim.

<u>Response:</u> We have found that a majority of the watersheds we have developed TMDLs in are mostly impaired due to nonpoint sources. Since Illinois EPA lacks any regulatory authority over nonpoint sources of pollution, the implementation needed to restore water quality depends on voluntary action. Therefore, the success of implementation hinges on the dedicated actions of local governments and private citizens. Illinois EPA highly encourages the formation of local watershed groups made up of a diverse group of stakeholders representing government, industry, and private citizens working together to develop and implement a watershed-based plan. Illinois EPA provides grant money to help offset costs of both watershed planning and implementation of that plan.

I urge you to request stage 2 data collection for Sequoit Creek itself. Using instruction and methods provided by Dr. Skrukrud, a group of volunteers conducted a limited number of monitoring visits to Sequoit Creek, performing chemical and biological measurements. The chemical data is presented at http://illinois.sierraclub.org/w&w/Sprawl/SentinelSequoit.html

Response: We will investigate the usability of this data for the purpose of estimating pollutant loading from Sequoit Creek into downstream TMDL water bodies. However, since Sequoit creek is currently not listed as impaired, a TMDL will not be developed. Illinois EPA recently completed a Facility Related Stream Survey on the Village of Antioch's wastewater treatment plant. The chemical data from this survey will be reviewed and incorporated into the TMDL as appropriate.

Karr and Yoder also urge greater reliance on biological indicators. As documented by Linda Curtis in the book Aquatic Plants of Northeastern Illinois, these lakes have evolved and support unique threatened and endangered aquatic plants, and their habitats should be protected for them.

Response: Thank you for your comment. The methodology for assessing the Aquatic Life Use in lakes can be found in the Illinois Integrated Water Quality Report and Section 303(d) List-2008

Appendix B

Load Duration Curve Calculations

Gage ID	Date	Discharge (CFS)	Gage Discharge - NPDES (CFS)	Watershed Area Ratio	Calculated flow (CFS)	Rank	Flow Exceedance %	Parameter	Results	Units	Limit/ Standard (mg/L)	Actual Load (lbs/day)	Allowable Load (lbs/day)
5545750	12/29/2008	3180	3180.00	1.04	3317.2380	76	0.8730%	NVSS	40	0	13.6	715272.309	243192.5849
5545750	8/5/2010	2330	2330.00	1.04	2430.5549	257	2.9520%	NVSS	9	0	13.6	117918.713	178188.2776
5545750	4/30/2013	2310	2310.00	1.04	2409.6917	261	2.9979%	NVSS	9	0	13.6	116906.535	176658.7645
5545750	7/2/2013	2210	2210.00	1.04	2305.3761	300	3.4459%	NVSS	13	0	13.6	161554.823	169011.1989
5545750	5/7/2009	1930	1930.00	1.04	2013.2922	439	5.0425%	NVSS	16	0	13.6	173644.724	147598.0154
5545750	2/9/2009	1770	1770.00	1.04	1846.3872	570	6.5472%	NVSS	9	0	13.6	89577.7349	135361.9105
5545750	4/20/2011	1650	1650.00	1.04	1721.2084	678	7.7877%	NVSS	18	0	13.6	167009.336	126184.8318
5545750	7/1/2008	1400	1400.00	1.04	1460.4192	972	11.1647%	NVSS	24	0	13.6	188939.855	107065.9179
5545750	3/25/2009	1380	1380.00	1.04	1439.5561	1001	11.4978%	NVSS	13	0	13.6	100880.387	105536.4048
5545750	6/10/2010	1380	1380.00	1.04	1439.5561	1001	11.4978%	NVSS	19	0	13.6	147440.565	105536.4048
5545750	3/20/2013	1230	1230.00	1.04	1283.0826	1249	14.3464%	NVSS	13	0	13.6	89915.1275	94065.05642
5545750	3/10/2010	1210	1210.00	1.04	1262.2195	1284	14.7484%	NVSS	11	0	13.6	74844.9247	92535.54331
5545750	4/27/2010	1160	1160.00	1.04	1210.0617	1377	15.8167%	NVSS	48	0	13.6	313100.331	88711.76053
5545750	11/4/2009	1060	1060.00	1.04	1105.7460	1574	18.0795%	NVSS	6	0	13.6	35763.6154	81064.19497
5545750	5/22/2013	1000	1000.00	1.04	1043.1566	1718	19.7335%	NVSS	35	0	13.6	196812.349	76475.65563
5545750	6/28/2011	966	966.00	1.04	1007.6893	1829	21.0085%	NVSS	35	0	13.6	190120.729	73875.48334
5545750	3/2/2011	962	962.00	1.04	1003.5166	1836	21.0889%	NVSS	1	0	13.6	5409.52799	73569.58072
5545750	2/3/2010	943	943.00	1.04	983.6967	1887	21.6747%	NVSS	2	0	13.6	10605.374	72116.54326
5545750	12/16/2009	869	869.00	1.04	906.5031	2128	24.4429%	NVSS	1	0	13.6	4886.56947	66457.34474
5545750	5/17/2011	814	814.00	1.04	849.1295	2316	26.6023%	NVSS	23	0	13.6	105277.737	62251.18368
5545750	1/24/2012	754	754.00	1.04	786.5401	2556	29.3591%	NVSS	0	0	13.6	0	57662.64434
5545750	5/27/2009	725	725.00	1.04	756.2885	2669	30.6570%	NVSS	30	0	13.6	122304.817	55444.85033
5545750	4/23/2012	677	677.00	1.04	706.2170	2877	33.0462%	NVSS	19	0	13.6	72331.3499	51774.01886
5545750	6/17/2009	673	673.00	1.04	702.0444	2899	33.2989%	NVSS	13	0	13.6	49197.4641	51468.11624
5545750	5/21/2008	665	665.00	1.04	693.6991	2939	33.7583%	NVSS	11	0	13.6	41133.781	50856.31099
5545750	1/29/2013	589	589.00	1.04	614.4192	3443	39.5474%	NVSS	2	0	13.6	6624.14135	45044.16117
5545750	12/15/2010	584	584.00	1.04	609.2035	3471	39.8691%	NVSS	3	0	13.6	9851.86387	44661.78289
5545750	8/5/2008	580	580.00	1.04	605.0308	3497	40.1677%	NVSS	16	0	13.6	52183.3885	44355.88026
5545750	12/1/2011	479	479.00	1.04	499.6720	4316	49.5750%	NVSS	0	0	13.6	0	36631.83905
5545750	10/30/2008	455	455.00	1.04	474.6363	4538	52.1250%	NVSS	2	0	13.6	5117.12108	34796.42331
5545750	12/4/2013	454	454.00	1.04	473.5931	4553	52.2973%	NVSS	1	0	13.6	2552.93733	34719.94766
5545750	8/19/2009	442	442.00	1.04	461.0752	4690	53.8709%	NVSS	17	0	13.6	42252.7997	33802.23979
5545750	8/8/2013	424	424.00	1.04	442.2984	4906	56.3519%	NVSS	9	0	13.6	21458.1693	32425.67799
5545750	9/23/2008	412	412.00	1.04	429.7805	5051	58.0175%	NVSS	14	0	13.6	32434.6751	31507.97012
5545750	10/27/2011	404	404.00	1.04	421.4353	5154	59.2006%	NVSS	10	0	13.6	22717.7683	30896.16487
5545750	11/9/2010	373	373.00	1.04	389.0974	5584	64.1397%	NVSS	6	0	13.6	12584.7439	28525.41955
5545750	2/22/2012	368	368.00	1.04	383.8816	5664	65.0586%	NVSS	0	0	13.6	0	28143.04127
5545750	9/25/2013	339	339.00	1.04	353.6301	6074	69.7680%	NVSS	11	0	13.6	20968.95	25925.24726

Gage ID	Date	Discharge (CFS)	Gage Discharge - NPDES (CFS)	Watershed Area Ratio	Calculated flow (CFS)	Rank	Flow Exceedance %	Parameter	Results	Units	Limit/ Standard (mg/L)	Actual Load (lbs/day)	Allowable Load (lbs/day)
5545750	9/28/2010	316	316.00	1.04	329.6375	6381	73.2943%	NVSS	11	0	13.6	19546.2779	24166.30718
5545750	9/16/2009	285	285.00	1.04	297.2996	6845	78.6239%	NVSS	18	0	13.6	28847.0672	21795.56185
5545750	10/28/2013	275	275.00	1.04	286.8681	7002	80.4273%	NVSS	4	0	13.6	6185.53097	21030.8053
5545750	7/19/2011	268	268.00	1.04	279.5660	7120	81.7827%	NVSS	20	0	13.6	30140.4055	20495.47571
5545750	9/7/2011	254	254.00	1.04	264.9618	7316	84.0340%	NVSS	29	0	13.6	41420.5647	19424.81653
5545750	12/13/2012	228	228.00	1.04	237.8397	7663	88.0198%	NVSS	0	0	13.6	0	17436.44948
5545750	11/8/2012	209	209.00	1.04	218.0197	7863	90.3170%	NVSS	5	0	13.6	5876.25442	15983.41203
5545750	6/11/2012	194	194.00	1.04	202.3724	8012	92.0285%	NVSS	17	0	13.6	18545.3465	14836.27719
5545750	9/11/2012	186	186.00	1.04	194.0271	8094	92.9704%	NVSS	13	0	13.6	13596.9217	14224.47195
5545750	7/26/2012	181	181.00	1.04	188.8113	8136	93.4528%	NVSS	20	0	13.6	20356.0201	13842.09367
5545750	7/30/2012	162	162.00	1.04	168.9914	8300	95.3365%	NVSS	26	0	13.6	23684.9604	12389.05621
5545750	10/1/2012	127	127.00	1.04	132.4809	8536	98.0473%	NVSS	14	0	13.6	9998.06733	9712.408265
5545750	6/28/2012	122	122.00	1.04	127.2651	8560	98.3230%	NVSS	27	0	13.6	18522.8537	9330.029987

Appendix C

Phosphorus Export Coefficients by Land Use Category

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

	Watershed Information	Total Phosphorus Export		
Segment	**Land Use**	**Low (lb/ac/yr)**	**Median (lb/ac/yr)**	**High (lb/ac/yr)**
ALL	Barren Land	0.16	0.16	0.16
ALL	Cultivated Crops	0.66	0.92	0.94
ALL	Deciduous Forest	0.08	0.105	0.13
ALL	Developed, High Intensity	0.7	1.96	4.77
ALL	Developed, Low Intensity	0.04	0.47	1.43
ALL	Developed, Medium Intensity	0.46	1.38	4.77
ALL	Developed, Open Space	0.03	0.04	0.16
ALL	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
ALL	Evergreen Forest	0.08	0.105	0.13
ALL	Herbaceuous	0.5	0.5	0.5
ALL	Mixed Forest	0.08	0.105	0.13
ALL	Open Water	0	0	0
ALL	Hay/Pasture	0.5	0.5	0.5
ALL	Shrub/Scrub	0.08	0.105	0.13
ALL	Woody Wetlands	0.22	0.22	0.22

	Watershed Information	Total Phosphorus Export		
Segment	**Land Use**	**Low (lb/ac/yr)**	**Median (lb/ac/yr)**	**High (lb/ac/yr)**
Catherine	Barren Land	0.16	0.16	0.16
Catherine	Cultivated Crops	0.66	0.92	0.94
Catherine	Deciduous Forest	0.08	0.105	0.13
Catherine	Developed, High Intensity	0.7	1.96	4.77
Catherine	Developed, Low Intensity	0.04	0.47	1.43
Catherine	Developed, Medium Intensity	0.46	1.38	4.77
Catherine	Developed, Open Space	0.03	0.04	0.16
Catherine	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Catherine	Evergreen Forest	0.08	0.105	0.13
Catherine	Herbaceuous	0.5	0.5	0.5
Catherine	Mixed Forest	0.08	0.105	0.13
Catherine	Open Water	0	0	0
Catherine	Hay/Pasture	0.5	0.5	0.5
Catherine	Shrub/Scrub	0.08	0.105	0.13
Catherine	Woody Wetlands	0.22	0.22	0.22

	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Segment	Barren Land	0.16	0.16	0.16
Channel	Cultivated Crops	0.66	0.92	0.94
Channel	Deciduous Forest	0.08	0.105	0.13
Channel	Developed, High Intensity	0.7	1.96	4.77
Channel	Developed, Low Intensity	0.04	0.47	1.43
Channel	Developed, Medium Intensity	0.46	1.38	4.77
Channel	Developed, Open Space	0.03	0.04	0.16
Channel	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Channel	Evergreen Forest	0.08	0.105	0.13
Channel	Herbaceuous	0.5	0.5	0.5
Channel	Mixed Forest	0.08	0.105	0.13
Channel	Open Water	0	0	0
Channel	Hay/Pasture	0.5	0.5	0.5
Channel	Shrub/Scrub	0.08	0.105	0.13
Channel	Woody Wetlands	0.22	0.22	0.22
Channel				

	Watershed Information	Total Phosphorus Export Coefficients		
Segment	**Land Use**	**Low (lb/ac/yr)**	**Median (lb/ac/yr)**	**High (lb/ac/yr)**
Churchill Lakes	Barren Land	0.16	0.16	0.16
Churchill Lakes	Cultivated Crops	0.66	0.92	0.94
Churchill Lakes	Deciduous Forest	0.08	0.105	0.13
Churchill Lakes	Developed, High Intensity	0.7	1.96	4.77
Churchill Lakes	Developed, Low Intensity	0.04	0.47	1.43
Churchill Lakes	Developed, Medium Intensity	0.46	1.38	4.77
Churchill Lakes	Developed, Open Space	0.03	0.04	0.16
Churchill Lakes	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Churchill Lakes	Evergreen Forest	0.08	0.105	0.13
Churchill Lakes	Herbaceuous	0.5	0.5	0.5
	Mixed Forest	0.08	0.105	0.13
	Open Water	0	0	0
	Hay/Pasture	0.5	0.5	0.5
	Shrub/Scrub	0.08	0.105	0.13
	Woody Wetlands	0.22	0.22	0.22

	Watershed Information	Total Phosphorus Export Coefficients		
Segment	**Land Use**	**Low (lb/ac/yr)**	**Median (lb/ac/yr)**	**High (lb/ac/yr)**
South Churchill	Barren Land	0.16	0.16	0.16
South Churchill	Cultivated Crops	0.66	0.92	0.94
South Churchill	Deciduous Forest	0.08	0.105	0.13
South Churchill	Developed, High Intensity	0.7	1.96	4.77
South Churchill	Developed, Low Intensity	0.04	0.47	1.43
South Churchill	Developed, Medium Intensity	0.46	1.38	4.77
South Churchill	Developed, Open Space	0.03	0.04	0.16
South Churchill	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
South Churchill	Evergreen Forest	0.08	0.105	0.13
	Herbaceuous	0.5	0.5	0.5
	Mixed Forest	0.08	0.105	0.13
	Open Water	0	0	0
	Hay/Pasture	0.5	0.5	0.5
	Shrub/Scrub	0.08	0.105	0.13
	Woody Wetlands	0.22	0.22	0.22

Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
North Churchill	Barren Land	0.16	0.16	0.16
North Churchill	Cultivated Crops	0.66	0.92	0.94
North Churchill	Deciduous Forest	0.08	0.105	0.13
North Churchill	Developed, High Intensity	0.7	1.96	4.77
North Churchill	Developed, Low Intensity	0.04	0.47	1.43
North Churchill	Developed, Medium Intensity	0.46	1.38	4.77
North Churchill	Developed, Open Space	0.03	0.04	0.16
North Churchill	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
	Evergreen Forest	0.08	0.105	0.13
	Herbaceuous	0.5	0.5	0.5
	Mixed Forest	0.08	0.105	0.13
	Open Water	0	0	0
	Hay/Pasture	0.5	0.5	0.5
	Shrub/Scrub	0.08	0.105	0.13
	Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
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Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
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Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

	Watershed Information	Total Phosphorus Export		
Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
ALL	Barren Land	0.16	0.16	0.16
ALL	Cultivated Crops	0.66	0.92	0.94
ALL	Deciduous Forest	0.08	0.105	0.13
ALL	Developed, High Intensity	0.7	1.96	4.77
ALL	Developed, Low Intensity	0.04	0.47	1.43
ALL	Developed, Medium Intensity	0.46	1.38	4.77
ALL	Developed, Open Space	0.03	0.04	0.16
ALL	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
ALL	Evergreen Forest	0.08	0.105	0.13
ALL	Herbaceuous	0.5	0.5	0.5
ALL	Mixed Forest	0.08	0.105	0.13
ALL	Open Water	0	0	0
ALL	Hay/Pasture	0.5	0.5	0.5
ALL	Shrub/Scrub	0.08	0.105	0.13
ALL	Woody Wetlands	0.22	0.22	0.22

	Watershed Information	Total Phosphorus Export		
Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Fox Subbasin only	Barren Land	0.16	0.16	0.16
Fox Subbasin only	Cultivated Crops	0.66	0.92	0.94
Fox Subbasin only	Deciduous Forest	0.08	0.105	0.13
Fox Subbasin only	Developed, High Intensity	0.7	1.96	4.77
Fox Subbasin only	Developed, Low Intensity	0.04	0.47	1.43
Fox Subbasin only	Developed, Medium Intensity	0.46	1.38	4.77
Fox Subbasin only	Developed, Open Space	0.03	0.04	0.16
Fox Subbasin only	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Fox Subbasin only	Evergreen Forest	0.08	0.105	0.13
Fox Subbasin only	Herbaceuous	0.5	0.5	0.5
Fox Subbasin only	Mixed Forest	0.08	0.105	0.13
Fox Subbasin only	Open Water	0	0	0
Fox Subbasin only	Hay/Pasture	0.5	0.5	0.5
Fox Subbasin only	Shrub/Scrub	0.08	0.105	0.13
Fox Subbasin only	Woody Wetlands	0.22	0.22	0.22

	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Segment	Barren Land	0.16	0.16	0.16
Nippersink Subbasin only	Cultivated Crops	0.66	0.92	0.94
Nippersink Subbasin only	Deciduous Forest	0.08	0.105	0.13
Nippersink Subbasin only	Developed, High Intensity	0.7	1.96	4.77
Nippersink Subbasin only	Developed, Low Intensity	0.04	0.47	1.43
Nippersink Subbasin only	Developed, Medium Intensity	0.46	1.38	4.77
Nippersink Subbasin only	Developed, Open Space	0.03	0.04	0.16
Nippersink Subbasin only	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Nippersink Subbasin only	Evergreen Forest	0.08	0.105	0.13
Nippersink Subbasin only	Herbaceuous	0.5	0.5	0.5
Nippersink Subbasin only	Mixed Forest	0.08	0.105	0.13
Nippersink Subbasin only	Open Water	0	0	0
Nippersink Subbasin only	Hay/Pasture	0.5	0.5	0.5
Nippersink Subbasin only	Shrub/Scrub	0.08	0.105	0.13
Nippersink Subbasin only	Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Segment	Watershed Information	Total Phosphorus Export Coefficients		
Long	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Long	Barren Land	0.16	0.16	0.16
Long	Cultivated Crops	0.66	0.92	0.94
Long	Deciduous Forest	0.08	0.105	0.13
Long	Developed, High Intensity	0.7	1.96	4.77
Long	Developed, Low Intensity	0.04	0.47	1.43
Long	Developed, Medium Intensity	0.46	1.38	4.77
Long	Developed, Open Space	0.03	0.04	0.16
Long	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Long	Evergreen Forest	0.08	0.105	0.13
Long	Herbaceuous	0.5	0.5	0.5
Long	Mixed Forest	0.08	0.105	0.13
Long	Open Water	0	0	0
Long	Hay/Pasture	0.5	0.5	0.5
Long	Shrub/Scrub	0.08	0.105	0.13
	Woody Wetlands	0.22	0.22	0.22

	Watershed Information	Total Phosphorus Export Coefficients		
Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
RTJ_1	Barren Land	0.16	0.16	0.16
RTJ_1	Cultivated Crops	0.66	0.92	0.94
RTJ_1	Deciduous Forest	0.08	0.105	0.13
RTJ_1	Developed, High Intensity	0.7	1.96	4.77
RTJ_1	Developed, Low Intensity	0.04	0.47	1.43
RTJ_1	Developed, Medium Intensity	0.46	1.38	4.77
RTJ_1	Developed, Open Space	0.03	0.04	0.16
RTJ_1	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
RTJ_1	Evergreen Forest	0.08	0.105	0.13
RTJ_1	Herbaceuous	0.5	0.5	0.5
RTJ_1	Mixed Forest	0.08	0.105	0.13
RTJ_1	Open Water	0	0	0
RTJ_1	Hay/Pasture	0.5	0.5	0.5
RTJ_1	Shrub/Scrub	0.08	0.105	0.13
RTJ_1	Woody Wetlands	0.22	0.22	0.22

Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
RTJ_2	Barren Land	0.16	0.16	0.16
RTJ_2	Cultivated Crops	0.66	0.92	0.94
RTJ_2	Deciduous Forest	0.08	0.105	0.13
RTJ_2	Developed, High Intensity	0.7	1.96	4.77
RTJ_2	Developed, Low Intensity	0.04	0.47	1.43
RTJ_2	Developed, Medium Intensity	0.46	1.38	4.77
RTJ_2	Developed, Open Space	0.03	0.04	0.16
RTJ_2	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
RTJ_2	Evergreen Forest	0.08	0.105	0.13
RTJ_2	Herbaceuous	0.5	0.5	0.5
RTJ_2	Mixed Forest	0.08	0.105	0.13
RTJ_2	Open Water	0	0	0
RTJ_2	Hay/Pasture	0.5	0.5	0.5
RTJ_2	Shrub/Scrub	0.08	0.105	0.13
RTJ_2	Woody Wetlands	0.22	0.22	0.22

Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
RT1_3	Barren Land	0.16	0.16	0.16
RT1_3	Cultivated Crops	0.66	0.92	0.94
RT1_3	Deciduous Forest	0.08	0.105	0.13
RT1_3	Developed, High Intensity	0.7	1.96	4.77
RT1_3	Developed, Low Intensity	0.04	0.47	1.43
RT1_3	Developed, Medium Intensity	0.46	1.38	4.77
RT1_3	Developed, Open Space	0.03	0.04	0.16
RT1_3	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
RT1_3	Evergreen Forest	0.08	0.105	0.13
RT1_3	Herbaceuous	0.5	0.5	0.5
RT1_3	Mixed Forest	0.08	0.105	0.13
RT1_3	Open Water	0	0	0
RT1_3	Hay/Pasture	0.5	0.5	0.5
RT1_3	Shrub/Scrub	0.08	0.105	0.13
RT1_3	Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

	Watershed Information	Total Phosphorus Export		
Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
ALL	Barren Land	0.16	0.16	0.16
ALL	Cultivated Crops	0.66	0.92	0.94
ALL	Deciduous Forest	0.08	0.105	0.13
ALL	Developed, High Intensity	0.7	1.96	4.77
ALL	Developed, Low Intensity	0.04	0.47	1.43
ALL	Developed, Medium Intensity	0.46	1.38	4.77
ALL	Developed, Open Space	0.03	0.04	0.16
ALL	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
ALL	Evergreen Forest	0.08	0.105	0.13
ALL	Herbaceuous	0.5	0.5	0.5
ALL	Mixed Forest	0.08	0.105	0.13
ALL	Open Water	0	0	0
ALL	Hay/Pasture	0.5	0.5	0.5
ALL	Shrub/Scrub	0.08	0.105	0.13
ALL	Woody Wetlands	0.22	0.22	0.22

	Watershed Information	Total Phosphorus Export		
Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
RTU-3 Subbasin	Barren Land	0.16	0.16	0.16
RTU-3 Subbasin	Cultivated Crops	0.66	0.92	0.94
RTU-3 Subbasin	Deciduous Forest	0.08	0.105	0.13
RTU-3 Subbasin	Developed, High Intensity	0.7	1.96	4.77
RTU-3 Subbasin	Developed, Low Intensity	0.04	0.47	1.43
RTU-3 Subbasin	Developed, Medium Intensity	0.46	1.38	4.77
RTU-3 Subbasin	Developed, Open Space	0.03	0.04	0.16
RTU-3 Subbasin	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
RTU-3 Subbasin	Evergreen Forest	0.08	0.105	0.13
RTU-3 Subbasin	Herbaceuous	0.5	0.5	0.5
RTU-3 Subbasin	Mixed Forest	0.08	0.105	0.13
RTU-3 Subbasin	Open Water	0	0	0
RTU-3 Subbasin	Hay/Pasture	0.5	0.5	0.5
RTU-3 Subbasin	Shrub/Scrub	0.08	0.105	0.13
RTU-3 Subbasin	Woody Wetlands	0.22	0.22	0.22

	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Segment	Barren Land	0.16	0.16	0.16
RTU-1 Subbasin	Cultivated Crops	0.66	0.92	0.94
RTU-1 Subbasin	Deciduous Forest	0.08	0.105	0.13
RTU-1 Subbasin	Developed, High Intensity	0.7	1.96	4.77
RTU-1 Subbasin	Developed, Low Intensity	0.04	0.47	1.43
RTU-1 Subbasin	Developed, Medium Intensity	0.46	1.38	4.77
RTU-1 Subbasin	Developed, Open Space	0.03	0.04	0.16
RTU-1 Subbasin	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
RTU-1 Subbasin	Evergreen Forest	0.08	0.105	0.13
RTU-1 Subbasin	Herbaceuous	0.5	0.5	0.5
RTU-1 Subbasin	Mixed Forest	0.08	0.105	0.13
RTU-1 Subbasin	Open Water	0	0	0
RTU-1 Subbasin	Hay/Pasture	0.5	0.5	0.5
RTU-1 Subbasin	Shrub/Scrub	0.08	0.105	0.13
RTU-1 Subbasin	Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Segment	Watershed Information	Total Phosphorus Export Coefficients		
Tranquility	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Tranquility	Barren Land	0.16	0.16	0.16
Tranquility	Cultivated Crops	0.66	0.92	0.94
Tranquility	Deciduous Forest	0.08	0.105	0.13
Tranquility	Developed, High Intensity	0.7	1.96	4.77
Tranquility	Developed, Low Intensity	0.04	0.47	1.43
Tranquility	Developed, Medium Intensity	0.46	1.38	4.77
Tranquility	Developed, Open Space	0.03	0.04	0.16
Tranquility	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Tranquility	Evergreen Forest	0.08	0.105	0.13
Tranquility	Herbaceuous	0.5	0.5	0.5
Tranquility	Mixed Forest	0.08	0.105	0.13
Tranquility	Open Water	0	0	0
Tranquility	Hay/Pasture	0.5	0.5	0.5
Tranquility	Shrub/Scrub	0.08	0.105	0.13
	Woody Wetlands	0.22	0.22	0.22

	Watershed Information	Total Phosphorus Export Coefficients		
Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
UTW-1	Barren Land	0.16	0.16	0.16
UTW-1	Cultivated Crops	0.66	0.92	0.94
UTW-1	Deciduous Forest	0.08	0.105	0.13
UTW-1	Developed, High Intensity	0.7	1.96	4.77
UTW-1	Developed, Low Intensity	0.04	0.47	1.43
UTW-1	Developed, Medium Intensity	0.46	1.38	4.77
UTW-1	Developed, Open Space	0.03	0.04	0.16
UTW-1	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
UTW-1	Evergreen Forest	0.08	0.105	0.13
UTW-1	Herbaceuous	0.5	0.5	0.5
UTW-1	Mixed Forest	0.08	0.105	0.13
UTW-1	Open Water	0	0	0
UTW-1	Hay/Pasture	0.5	0.5	0.5
UTW-1	Shrub/Scrub	0.08	0.105	0.13
UTW-1	Woody Wetlands	0.22	0.22	0.22

Segment	Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
UTW-2	Barren Land	0.16	0.16	0.16
UTW-2	Cultivated Crops	0.66	0.92	0.94
UTW-2	Deciduous Forest	0.08	0.105	0.13
UTW-2	Developed, High Intensity	0.7	1.96	4.77
UTW-2	Developed, Low Intensity	0.04	0.47	1.43
UTW-2	Developed, Medium Intensity	0.46	1.38	4.77
UTW-2	Developed, Open Space	0.03	0.04	0.16
UTW-2	Emergent Herbaceuous Wetlands	0.22	0.22	0.22
UTW-2	Evergreen Forest	0.08	0.105	0.13
UTW-2	Herbaceuous	0.5	0.5	0.5
UTW-2	Mixed Forest	0.08	0.105	0.13
UTW-2	Open Water	0	0	0
UTW-2	Hay/Pasture	0.5	0.5	0.5
UTW-2	Shrub/Scrub	0.08	0.105	0.13
UTW-2	Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Watershed Information	Total Phosphorus Export Coefficients		
Land Use	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)
Barren Land	0.16	0.16	0.16
Cultivated Crops	0.66	0.92	0.94
Deciduous Forest	0.08	0.105	0.13
Developed, High Intensity	0.7	1.96	4.77
Developed, Low Intensity	0.04	0.47	1.43
Developed, Medium Intensity	0.46	1.38	4.77
Developed, Open Space	0.03	0.04	0.16
Emergent Herbaceuous Wetlands	0.22	0.22	0.22
Evergreen Forest	0.08	0.105	0.13
Herbaceuous	0.5	0.5	0.5
Mixed Forest	0.08	0.105	0.13
Open Water	0	0	0
Hay/Pasture	0.5	0.5	0.5
Shrub/Scrub	0.08	0.105	0.13
Woody Wetlands	0.22	0.22	0.22

Appendix D

Land Use Characteristics by Subbasin

Land Use	Area (Acres)	Percentage (%)
Open Water	82.51	18.65
Developed, Open Space	48.93	11.06
Developed, Low Intensity	130.55	29.51
Developed, Medium Intensity	28.47	6.44
Developed, High Intensity	13.34	3.02
Deciduous Forest	37.14	8.40
Mixed Forest	3.56	0.80
Herbaceuous	11.34	2.56
Hay/Pasture	50.04	11.31
Cultivated Crops	31.36	7.09
Woody Wetlands	5.12	1.16

Land Use	Area (Acres)	Percentage (%)
Open Water	89.40	12.91
Developed, Open Space	27.35	3.95
Developed, Low Intensity	106.97	15.44
Developed, Medium Intensity	17.57	2.54
Developed, High Intensity	0.22	0.03
Barren Land	0.00	0.00
Deciduous Forest	120.76	17.43
Evergreen Forest	0.00	0.00
Mixed Forest	13.12	1.89
Shrub/Scrub	0.00	0.00
Herbaceuous	44.92	6.48
Hay/Pasture	74.95	10.82
Cultivated Crops	171.69	24.78
Woody Wetlands	24.69	3.56
Emergent Herbaceuous Wetlands	1.11	0.16

Segment	Land Use	Area (Acres)	Percentage (%)
ALL	Open Water	1337.93	10.77
ALL	Developed, Open Space	1534.30	12.35
ALL	Developed, Low Intensity	1616.81	13.01
ALL	Developed, Medium Intensity	231.51	1.86
ALL	Developed, High Intensity	57.38	0.46
ALL	Barren Land	4.00	0.03
ALL	Deciduous Forest	1498.72	12.06
ALL	Evergreen Forest	6.00	0.05
ALL	Mixed Forest	300.23	2.42
ALL	Shrub/Scrub	18.68	0.15
ALL	Herbaceuous	439.45	3.54
ALL	Hay/Pasture	725.45	5.84
ALL	Cultivated Crops	3208.71	25.83
ALL	Woody Wetlands	631.38	5.08
ALL	Emergent Herbaceuous Wetlands	813.74	6.55

Segment	Land Use	Area (Acres)	Percentage (%)
Catherine	Open Water	348.27	9.62
Catherine	Developed, Open Space	739.68	20.44
Catherine	Developed, Low Intensity	669.41	18.50
Catherine	Developed, Medium Intensity	105.64	2.92
Catherine	Developed, High Intensity	14.90	0.41
Catherine	Barren Land	0.22	0.01
Catherine	Deciduous Forest	346.27	9.57
Catherine	Evergreen Forest	0.00	0.00
Catherine	Mixed Forest	135.66	3.75
Catherine	Shrub/Scrub	12.68	0.35
Catherine	Herbaceuous	127.43	3.52
Catherine	Hay/Pasture	76.95	2.13
Catherine	Cultivated Crops	746.36	20.62
Catherine	Woody Wetlands	192.15	5.31
Catherine	Emergent Herbaceuous Wetlands	103.41	2.86

Segment	Land Use	Area (Acres)	Percentage (%)
Channel	Open Water	989.66	11.24
Channel	Developed, Open Space	794.62	9.02
Channel	Developed, Low Intensity	947.40	10.76
Channel	Developed, Medium Intensity	125.88	1.43
Channel	Developed, High Intensity	42.48	0.48
Channel	Barren Land	3.78	0.04
Channel	Deciduous Forest	1152.45	13.09
Channel	Evergreen Forest	6.00	0.07
Channel	Mixed Forest	164.57	1.87
Channel	Shrub/Scrub	6.00	0.07
Channel	Herbaceuous	312.02	3.54
Channel	Hay/Pasture	648.50	7.36
Channel	Cultivated Crops	2462.35	27.96
Channel	Woody Wetlands	439.23	4.99
Channel	Emergent Herbaceuous Wetlands	710.33	8.07

Segment	Land Use	Area (Acres)	Percentage (%)
Churchill Lakes	Open Water	56.04	8.70
Churchill Lakes	Developed, Open Space	60.05	9.33
Churchill Lakes	Developed, Low Intensity	167.91	26.08
Churchill Lakes	Developed, Medium Intensity	137.22	21.31
Churchill Lakes	Developed, High Intensity	3.78	0.59
Churchill Lakes	Deciduous Forest	1.56	0.24
Churchill Lakes	Evergreen Forest	0.22	0.03
Churchill Lakes	Herbaceuous	26.91	4.18
Churchill Lakes	Cultivated Crops	185.48	28.81
Churchill Lakes	Woody Wetlands	3.34	0.52
Churchill Lakes	Emergent Herbaceuous Wetlands	1.33	0.21

Segment	Land Use	Area (Acres)	Percentage (%)
South Churchill	Open Water	7.56	1.50
South Churchill	Developed, Open Space	50.71	10.09
South Churchill	Developed, Low Intensity	128.54	25.58
South Churchill	Developed, Medium Intensity	106.97	21.28
South Churchill	Developed, High Intensity	4.45	0.88
South Churchill	Deciduous Forest	2.00	0.40
South Churchill	Herbaceuous	23.13	4.60
South Churchill	Cultivated Crops	177.47	35.31
South Churchill	Woody Wetlands	1.78	0.35

Segment	Land Use	Area (Acres)	Percentage (%)
North Churchill	Open Water	51.37	35.54
North Churchill	Developed, Open Space	8.90	6.15
North Churchill	Developed, Low Intensity	45.15	31.23
North Churchill	Developed, Medium Intensity	28.69	19.85
North Churchill	Herbaceuous	4.23	2.92
North Churchill	Cultivated Crops	3.34	2.31
North Churchill	Woody Wetlands	1.56	1.08
North Churchill	Emergent Herbaceuous Wetlands	1.33	0.92

Land Use	Area (Acres)	Percentage (%)
Open Water	67.39	15.22
Developed, Open Space	58.71	13.26
Developed, Low Intensity	39.59	8.94
Developed, Medium Intensity	3.78	0.85
Developed, High Intensity	1.33	0.30
Deciduous Forest	137.66	31.10
Mixed Forest	31.80	7.18
Shrub/Scrub	10.45	2.36
Hay/Pasture	69.39	15.67
Woody Wetlands	20.46	4.62
Emergent Herbaceuous Wetlands	1.11	0.25

Segment	Land Use	Area (Acres)	Percentage (%)
Duck Subbasin	Open Water	83.18	9.54
Duck Subbasin	Developed, Open Space	183.92	21.09
Duck Subbasin	Developed, Low Intensity	284.66	32.64
Duck Subbasin	Developed, Medium Intensity	60.05	6.88
Duck Subbasin	Developed, High Intensity	8.01	0.92
Duck Subbasin	Barren Land	0.00	0.00
Duck Subbasin	Deciduous Forest	100.74	11.55
Duck Subbasin	Mixed Forest	31.58	3.62
Duck Subbasin	Shrub/Scrub	0.00	0.00
Duck Subbasin	Herbaceuous	5.78	0.66
Duck Subbasin	Hay/Pasture	14.68	1.68
Duck Subbasin	Cultivated Crops	0.00	0.00
Duck Subbasin	Woody Wetlands	75.84	8.69
Duck Subbasin	Emergent Herbaceuous Wetlands	23.80	2.73

Segment	Land Use	Area (Acres)	Percentage (%)
Duck All	Open Water	373.18	6.50
Duck All	Developed, Open Space	783.05	13.63
Duck All	Developed, Low Intensity	1212.72	21.11
Duck All	Developed, Medium Intensity	387.86	6.75
Duck All	Developed, High Intensity	57.60	1.00
Duck All	Barren Land	2.45	0.04
Duck All	Deciduous Forest	661.85	11.52
Duck All	Mixed Forest	79.17	1.38
Duck All	Shrub/Scrub	22.24	0.39
Duck All	Herbaceuous	178.81	3.11
Duck All	Hay/Pasture	348.71	6.07
Duck All	Cultivated Crops	1354.83	23.59
Duck All	Woody Wetlands	186.37	3.24
Duck All	Emergent Herbaceuous Wetlands	95.18	1.66

Segment	Land Use	Area (Acres)	Percentage (%)
Wooster_All	Open Water	290.00	5.95
Wooster_All	Developed, Open Space	599.13	12.30
Wooster_All	Developed, Low Intensity	928.05	19.05
Wooster_All	Developed, Medium Intensity	327.81	6.73
Wooster_All	Developed, High Intensity	49.59	1.02
Wooster_All	Barren Land	2.89	0.06
Wooster_All	Deciduous Forest	561.10	11.51
Wooster_All	Mixed Forest	47.59	0.98
Wooster_All	Shrub/Scrub	22.46	0.46
Wooster_All	Herbaceuous	173.02	3.55
Wooster_All	Hay/Pasture	334.04	6.86
Wooster_All	Cultivated Crops	1355.27	27.81
Wooster_All	Woody Wetlands	110.53	2.27
Wooster_All	Emergent Herbaceuous Wetlands	71.39	1.47

Land Use	Area (Acres)	Percentage (%)
Open Water	58.93	14.16
Developed, Open Space	107.86	25.92
Developed, Low Intensity	87.62	21.06
Developed, Medium Intensity	33.80	8.12
Developed, High Intensity	4.67	1.12
Deciduous Forest	60.94	14.64
Mixed Forest	17.12	4.12
Herbaceuous	8.45	2.03
Hay/Pasture	0.67	0.16
Woody Wetlands	27.58	6.63
Emergent Herbaceuous Wetlands	8.45	2.03

Segment	Land Use	Area (Acres)	Percentage (%)
Fischer-Subbasin	Open Water	34.69	2.98
Fischer-Subbasin	Developed, Open Space	225.06	19.34
Fischer-Subbasin	Developed, Low Intensity	300.23	25.79
Fischer-Subbasin	Developed, Medium Intensity	91.18	7.83
Fischer-Subbasin	Developed, High Intensity	15.35	1.32
Fischer-Subbasin	Barren Land	2.89	0.25
Fischer-Subbasin	Deciduous Forest	155.68	13.37
Fischer-Subbasin	Mixed Forest	20.91	1.80
Fischer-Subbasin	Shrub/Scrub	12.45	1.07
Fischer-Subbasin	Herbaceuous	54.04	4.64
Fischer-Subbasin	Hay/Pasture	116.53	10.01
Fischer-Subbasin	Cultivated Crops	118.98	10.22
Fischer-Subbasin	Woody Wetlands	16.01	1.38
Fischer-Subbasin	Emergent Herbaceuous Wetlands	0.00	0.00

Segment	Land Use	Area (Acres)	Percentage (%)
Fischer_All	Open Water	193.71	4.42
Fischer_All	Developed, Open Space	519.96	11.86
Fischer_All	Developed, Low Intensity	773.49	17.65
Fischer_All	Developed, Medium Intensity	308.02	7.03
Fischer_All	Developed, High Intensity	48.48	1.11
Fischer_All	Barren Land	2.89	0.07
Fischer_All	Deciduous Forest	479.70	10.94
Fischer_All	Mixed Forest	40.92	0.93
Fischer_All	Shrub/Scrub	18.68	0.43
Fischer_All	Herbaceuous	157.68	3.60
Fischer_All	Hay/Pasture	306.90	7.00
Fischer_All	Cultivated Crops	1369.51	31.24
Fischer_All	Woody Wetlands	91.85	2.10
Fischer_All	Emergent Herbaceuous Wetlands	71.39	1.63

Segment	Land Use	Area (Acres)	Percentage (%)
Fish-Duncan	Open Water	159.01	4.94
Fish-Duncan	Developed, Open Space	294.90	9.16
Fish-Duncan	Developed, Low Intensity	473.26	14.70
Fish-Duncan	Developed, Medium Intensity	216.83	6.74
Fish-Duncan	Developed, High Intensity	33.14	1.03
Fish-Duncan	Barren Land	0.00	0.00
Fish-Duncan	Deciduous Forest	324.03	10.07
Fish-Duncan	Mixed Forest	20.02	0.62
Fish-Duncan	Shrub/Scrub	6.23	0.19
Fish-Duncan	Herbaceuous	103.64	3.22
Fish-Duncan	Hay/Pasture	190.37	5.91
Fish-Duncan	Cultivated Crops	1250.52	38.85
Fish-Duncan	Woody Wetlands	75.84	2.36
Fish-Duncan	Emergent Herbaceuous Wetlands	71.39	2.22

Land Use	Area (Acres)	Percentage (%)
Open Water	159.01	4.94
Developed, Open Space	294.90	9.16
Developed, Low Intensity	473.26	14.70
Developed, Medium Intensity	216.83	6.74
Developed, High Intensity	33.14	1.03
Deciduous Forest	324.03	10.07
Mixed Forest	20.02	0.62
Shrub/Scrub	6.23	0.19
Herbaceuous	103.64	3.22
Hay/Pasture	190.37	5.91
Cultivated Crops	1250.52	38.85
Woody Wetlands	75.84	2.36
Emergent Herbaceuous Wetlands	71.39	2.22

Segment	Land Use	Area (Acres)	Percentage (%)
ALL	Open Water	2357.16	35.06
ALL	Developed, Open Space	693.65	10.32
ALL	Developed, Low Intensity	1326.81	19.74
ALL	Developed, Medium Intensity	359.61	5.35
ALL	Developed, High Intensity	98.52	1.47
ALL	Barren Land	0.00	0.00
ALL	Deciduous Forest	688.31	10.24
ALL	Evergreen Forest	2.67	0.04
ALL	Mixed Forest	116.31	1.73
ALL	Shrub/Scrub	89.85	1.34
ALL	Herbaceuous	120.54	1.79
ALL	Hay/Pasture	64.05	0.95
ALL	Cultivated Crops	97.85	1.46
ALL	Woody Wetlands	411.43	6.12
ALL	Emergent Herbaceuous Wetlands	295.56	4.40

Segment	Land Use	Area (Acres)	Percentage (%)
Fox Subbasin only	Open Water	1878.79	33.16
Fox Subbasin only	Developed, Open Space	546.87	9.65
Fox Subbasin only	Developed, Low Intensity	1200.71	21.19
Fox Subbasin only	Developed, Medium Intensity	322.92	5.70
Fox Subbasin only	Developed, High Intensity	91.63	1.62
Fox Subbasin only	Barren Land	0.00	0.00
Fox Subbasin only	Deciduous Forest	634.05	11.19
Fox Subbasin only	Evergreen Forest	2.67	0.05
Fox Subbasin only	Mixed Forest	95.85	1.69
Fox Subbasin only	Shrub/Scrub	89.85	1.59
Fox Subbasin only	Herbaceuous	109.86	1.94
Fox Subbasin only	Hay/Pasture	56.93	1.00
Fox Subbasin only	Cultivated Crops	97.85	1.73
Fox Subbasin only	Woody Wetlands	330.70	5.84
Fox Subbasin only	Emergent Herbaceuous Wetlands	207.72	3.67

Segment	Land Use	Area (Acres)	Percentage (%)
Nippersink Subbasin only	Open Water	478.37	45.30
Nippersink Subbasin only	Developed, Open Space	146.78	13.90
Nippersink Subbasin only	Developed, Low Intensity	126.10	11.94
Nippersink Subbasin only	Developed, Medium Intensity	36.70	3.48
Nippersink Subbasin only	Developed, High Intensity	6.89	0.65
Nippersink Subbasin only	Barren Land	0.00	0.00
Nippersink Subbasin only	Deciduous Forest	54.26	5.14
Nippersink Subbasin only	Evergreen Forest	0.00	0.00
Nippersink Subbasin only	Mixed Forest	20.46	1.94
Nippersink Subbasin only	Shrub/Scrub	0.00	0.00
Nippersink Subbasin only	Herbaceuous	10.67	1.01
Nippersink Subbasin only	Hay/Pasture	7.12	0.67
Nippersink Subbasin only	Cultivated Crops	0.00	0.00
Nippersink Subbasin only	Woody Wetlands	80.73	7.65
Nippersink Subbasin only	Emergent Herbaceuous Wetlands	87.85	8.32

Land Use	Area (Acres)	Percentage (%)
Open Water	1899.69	26.94
Developed, Open Space	409.65	5.81
Developed, Low Intensity	453.02	6.43
Developed, Medium Intensity	132.77	1.88
Developed, High Intensity	7.12	0.10
Barren Land	188.37	2.67
Deciduous Forest	1028.13	14.58
Evergreen Forest	3.34	0.05
Mixed Forest	132.77	1.88
Shrub/Scrub	18.01	0.26
Herbaceuous	235.96	3.35
Hay/Pasture	95.18	1.35
Cultivated Crops	398.98	5.66
Woody Wetlands	532.19	7.55
Emergent Herbaceuous Wetlands	1515.17	21.49

Land Use	Area (Acres)	Percentage (%)
Open Water	27.13	18.60
Developed, Open Space	22.91	15.70
Developed, Low Intensity	45.15	30.95
Developed, Medium Intensity	32.02	21.95
Developed, High Intensity	6.89	4.73
Barren Land	1.78	1.22
Deciduous Forest	6.67	4.57
Cultivated Crops	3.34	2.29

	Segment	Land Use	Area (Acres)	Percentage (%)
Whole_watershed	Long	Open Water	1379.74	5.51
Whole Watershed	Long	Developed, Open Space	3596.79	14.37
Whole Watershed	Long	Developed, Low Intensity	6793.04	27.13
Whole Watershed	Long	Developed, Medium Intensity	2113.41	8.44
Whole Watershed	Long	Developed, High Intensity	446.57	1.78
Whole Watershed	Long	Barren Land	98.97	0.40
Whole Watershed	Long	Deciduous Forest	1958.63	7.82
Whole Watershed	Long	Evergreen Forest	14.68	0.06
Whole Watershed	Long	Mixed Forest	308.91	1.23
Whole Watershed	Long	Shrub/Scrub	154.12	0.62
Whole Watershed	Long	Herbaceuous	1084.84	4.33
Whole Watershed	Long	Hay/Pasture	1596.13	6.37
Whole Watershed	Long	Cultivated Crops	4452.56	17.78
Whole Watershed	Long	Woody Wetlands	628.93	2.51
Whole Watershed	Long	Emergent Herbaceuous Wetlands	410.54	1.64

	Segment	Land Use	Area (Acres)	Percentage (%)
Long	RTJ_1	Open Water	222.17	7.04
Long	RTJ_1	Developed, Open Space	570.22	18.06
Long	RTJ_1	Developed, Low Intensity	941.40	29.81
Long	RTJ_1	Developed, Medium Intensity	242.41	7.68
Long	RTJ_1	Developed, High Intensity	54.49	1.73
Long	RTJ_1	Barren Land	7.78	0.25
Long	RTJ_1	Deciduous Forest	308.02	9.75
Long	RTJ_1	Evergreen Forest	7.12	0.23
Long	RTJ_1	Mixed Forest	40.48	1.28
Long	RTJ_1	Shrub/Scrub	40.70	1.29
Long	RTJ_1	Herbaceuous	120.76	3.82
Long	RTJ_1	Hay/Pasture	182.81	5.79
Long	RTJ_1	Cultivated Crops	273.55	8.66
Long	RTJ_1	Woody Wetlands	101.63	3.22
Long	RTJ_1	Emergent Herbaceuous Wetlands	44.03	1.39

	Segment	Land Use	Area (Acres)	Percentage (%)
Long	RTJ_2	Open Water	98.97	42.22
Long	RTJ_2	Developed, Open Space	40.03	17.08
Long	RTJ_2	Developed, Low Intensity	73.61	31.40
Long	RTJ_2	Developed, Medium Intensity	9.56	4.08
Long	RTJ_2	Developed, High Intensity	2.67	1.14
Long	RTJ_2	Deciduous Forest	2.45	1.04
Long	RTJ_2	Mixed Forest	3.11	1.33
Long	RTJ_2	Hay/Pasture	0.44	0.19
Long	RTJ_2	Woody Wetlands	3.56	1.52

	Segment	Land Use	Area (Acres)	Percentage (%)
Long	RT1_3	Open Water	1058.60	4.89
Long	RT1_3	Developed, Open Space	2986.54	13.80
Long	RT1_3	Developed, Low Intensity	5778.03	26.69
Long	RT1_3	Developed, Medium Intensity	1861.44	8.60
Long	RT1_3	Developed, High Intensity	389.41	1.80
Long	RT1_3	Barren Land	88.74	0.41
Long	RT1_3	Deciduous Forest	1647.50	7.61
Long	RT1_3	Evergreen Forest	7.12	0.03
Long	RT1_3	Mixed Forest	264.87	1.22
Long	RT1_3	Shrub/Scrub	113.42	0.52
Long	RT1_3	Herbaceuous	964.08	4.45
Long	RT1_3	Hay/Pasture	1413.32	6.53
Long	RT1_3	Cultivated Crops	4179.02	19.31
Long	RT1_3	Woody Wetlands	527.30	2.44
Long	RT1_3	Emergent Herbaceuous Wetlands	366.51	1.69

Land Use	Area (Acres)	Percentage (%)
Open Water	1510.95	16.09
Developed, Open Space	1028.57	10.95
Developed, Low Intensity	1726.23	18.38
Developed, Medium Intensity	682.31	7.26
Developed, High Intensity	289.78	3.08
Barren Land	3.34	0.04
Deciduous Forest	1090.18	11.61
Evergreen Forest	9.79	0.10
Mixed Forest	182.81	1.95
Shrub/Scrub	14.01	0.15
Herbaceuous	404.31	4.30
Hay/Pasture	366.51	3.90
Cultivated Crops	1117.31	11.89
Woody Wetlands	408.76	4.35
Emergent Herbaceuous Wetlands	558.65	5.95

Land Use	Area (Acres)	Percentage (%)
Open Water	26.91	19.27
Developed, Open Space	7.12	5.10
Developed, Low Intensity	3.11	2.23
Deciduous Forest	23.57	16.88
Mixed Forest	1.56	1.11
Herbaceuous	11.56	8.28
Hay/Pasture	42.48	30.41
Cultivated Crops	23.35	16.72

Land Use	Area (Acres)	Percentage (%)
Open Water	201.49	13.19
Developed, Open Space	156.57	10.25
Developed, Low Intensity	239.96	15.71
Developed, Medium Intensity	22.91	1.50
Developed, High Intensity	0.67	0.04
Barren Land	0.00	0.00
Deciduous Forest	374.96	24.55
Evergreen Forest	3.56	0.23
Mixed Forest	89.62	5.87
Shrub/Scrub	5.78	0.38
Herbaceuous	82.29	5.39
Hay/Pasture	67.39	4.41
Cultivated Crops	127.65	8.36
Woody Wetlands	122.54	8.02
Emergent Herbaceuous Wetlands	32.25	2.11

Segment	Land Use	Area (Acres)	Percentage (%)
ALL	Open Water	4974.52	3.50
ALL	Developed, Open Space	11401.05	8.03
ALL	Developed, Low Intensity	10875.31	7.66
ALL	Developed, Medium Intensity	1880.12	1.32
ALL	Developed, High Intensity	690.76	0.49
ALL	Barren Land	1129.99	0.80
ALL	Deciduous Forest	13502.01	9.51
ALL	Evergreen Forest	44.48	0.03
ALL	Mixed Forest	2003.11	1.41
ALL	Shrub/Scrub	167.91	0.12
ALL	Herbaceuous	1970.64	1.39
ALL	Hay/Pasture	15875.19	11.18
ALL	Cultivated Crops	72823.75	51.28
ALL	Woody Wetlands	4012.89	2.83
ALL	Emergent Herbaceuous Wetlands	650.06	0.46

Segment	Land Use	Area (Acres)	Percentage (%)
RTU-3 Subbasin	Open Water	4322.01	3.17
RTU-3 Subbasin	Developed, Open Space	10578.64	7.77
RTU-3 Subbasin	Developed, Low Intensity	9834.28	7.22
RTU-3 Subbasin	Developed, Medium Intensity	1633.93	1.20
RTU-3 Subbasin	Developed, High Intensity	618.03	0.45
RTU-3 Subbasin	Barren Land	1044.81	0.77
RTU-3 Subbasin	Deciduous Forest	12670.26	9.31
RTU-3 Subbasin	Evergreen Forest	44.03	0.03
RTU-3 Subbasin	Mixed Forest	1820.97	1.34
RTU-3 Subbasin	Shrub/Scrub	122.76	0.09
RTU-3 Subbasin	Herbaceuous	1464.02	1.08
RTU-3 Subbasin	Hay/Pasture	15506.90	11.39
RTU-3 Subbasin	Cultivated Crops	72328.03	53.13
RTU-3 Subbasin	Woody Wetlands	3651.72	2.68
RTU-3 Subbasin	Emergent Herbaceuous Wetlands	490.60	0.36

Segment	Land Use	Area (Acres)	Percentage (%)
RTU-1 Subbasin	Open Water	652.51	11.11
RTU-1 Subbasin	Developed, Open Space	822.41	14.01
RTU-1 Subbasin	Developed, Low Intensity	1041.03	17.73
RTU-1 Subbasin	Developed, Medium Intensity	246.19	4.19
RTU-1 Subbasin	Developed, High Intensity	72.72	1.24
RTU-1 Subbasin	Barren Land	85.18	1.45
RTU-1 Subbasin	Deciduous Forest	831.76	14.17
RTU-1 Subbasin	Evergreen Forest	0.44	0.01
RTU-1 Subbasin	Mixed Forest	182.14	3.10
RTU-1 Subbasin	Shrub/Scrub	45.15	0.77
RTU-1 Subbasin	Herbaceuous	506.61	8.63
RTU-1 Subbasin	Hay/Pasture	368.29	6.27
RTU-1 Subbasin	Cultivated Crops	495.72	8.44
RTU-1 Subbasin	Woody Wetlands	361.17	6.15
RTU-1 Subbasin	Emergent Herbaceuous Wetlands	159.46	2.72

Land Use	Area (Acres)	Percentage (%)
Open Water	114.31	9.51
Developed, Open Space	101.41	8.44
Developed, Low Intensity	197.26	16.41
Developed, Medium Intensity	47.15	3.92
Developed, High Intensity	21.79	1.81
Deciduous Forest	235.07	19.55
Evergreen Forest	1.56	0.13
Mixed Forest	59.16	4.92
Shrub/Scrub	18.24	1.52
Herbaceuous	39.81	3.31
Hay/Pasture	84.29	7.01
Cultivated Crops	30.69	2.55
Woody Wetlands	222.62	18.52
Emergent Herbaceuous Wetlands	28.91	2.40

Land Use	Area (Acres)	Percentage (%)
Open Water	32.02	4.41
Developed, Open Space	144.11	19.85
Developed, Low Intensity	163.90	22.57
Developed, Medium Intensity	60.05	8.27
Developed, High Intensity	1.33	0.18
Barren Land	0.00	0.00
Deciduous Forest	73.83	10.17
Evergreen Forest	0.00	0.00
Mixed Forest	38.25	5.27
Shrub/Scrub	6.23	0.86
Herbaceuous	54.04	7.44
Hay/Pasture	37.58	5.18
Cultivated Crops	82.29	11.33
Woody Wetlands	31.36	4.32
Emergent Herbaceuous Wetlands	1.11	0.15

Land Use	Area (Acres)	Percentage (%)
Open Water	46.48	16.08
Developed, Open Space	32.47	11.23
Developed, Low Intensity	12.68	4.38
Developed, Medium Intensity	0.00	0.00
Barren Land	15.12	5.23
Deciduous Forest	21.79	7.54
Mixed Forest	12.45	4.31
Shrub/Scrub	2.00	0.69
Herbaceuous	2.45	0.85
Hay/Pasture	10.01	3.46
Cultivated Crops	121.21	41.92
Woody Wetlands	12.45	4.31

	Segment	Land Use	Area (Acres)	Percentage (%)
Whole_watershed	Tranquility	Barren Land	0.00	0.00
Whole Watershed	Tranquility	Cultivated Crops	5.34	2.15
Whole Watershed	Tranquility	Deciduous Forest	18.68	7.53
Whole Watershed	Tranquility	Developed, High Intensity	85.40	34.44
Whole Watershed	Tranquility	Developed, Low Intensity	45.59	18.39
Whole Watershed	Tranquility	Developed, Medium Intensity	41.59	16.77
Whole Watershed	Tranquility	Developed, Open Space	4.23	1.70
Whole Watershed	Tranquility	Emergent Herbaceuous Wetlands	4.00	1.61
Whole Watershed	Tranquility	Evergreen Forest	10.45	4.22
Whole Watershed	Tranquility	Hay/Pasture	11.12	4.48
Whole Watershed	Tranquility	Herbaceuous	16.23	6.55
Whole Watershed	Tranquility	Mixed Forest	5.34	2.15
Whole Watershed	Tranquility	Open Water	0.00	0.00
Whole Watershed	Tranquility	Shrub/Scrub	0.00	0.00
Whole Watershed	Tranquility	Woody Wetlands	0.00	0.00

	Segment	Land Use	Area (Acres)	Percentage (%)
Tranquility	UTW-1	Deciduous Forest	4.67	3.80
Tranquility	UTW-1	Developed, High Intensity	12.45	10.14
Tranquility	UTW-1	Developed, Low Intensity	40.70	33.15
Tranquility	UTW-1	Developed, Medium Intensity	22.91	18.66
Tranquility	UTW-1	Developed, Open Space	7.78	6.34
Tranquility	UTW-1	Emergent Herbaceuous Wetlands	1.11	0.91
Tranquility	UTW-1	Hay/Pasture	2.89	2.36
Tranquility	UTW-1	Herbaceuous	6.67	5.43
Tranquility	UTW-1	Mixed Forest	2.00	1.63
Tranquility	UTW-1	Open Water	16.23	13.22
Tranquility	UTW-1	Woody Wetlands	5.34	4.35
Tranquility	UTW-1		0.00	0.00
Tranquility	UTW-1		0.00	0.00
Tranquility	UTW-1		0.00	0.00
Tranquility	UTW-1		0.00	0.00

	Segment	Land Use	Area (Acres)	Percentage (%)
Tranquility	UTW-2	Cultivated Crops	0.67	0.53
Tranquility	UTW-2	Deciduous Forest	6.23	4.97
Tranquility	UTW-2	Developed, Low Intensity	44.70	35.70
Tranquility	UTW-2	Developed, Medium Intensity	22.68	18.12
Tranquility	UTW-2	Developed, Open Space	33.80	27.00
Tranquility	UTW-2	Emergent Herbaceuous Wetlands	3.11	2.49
Tranquility	UTW-2	Mixed Forest	1.11	0.89
Tranquility	UTW-2	Open Water	3.78	3.02
Tranquility	UTW-2	Woody Wetlands	9.12	7.28

Land Use	Area (Acres)	Percentage (%)
Open Water	70.94	10.28
Developed, Open Space	141.44	20.50
Developed, Low Intensity	88.96	12.89
Developed, Medium Intensity	28.47	4.13
Developed, High Intensity	12.45	1.81
Deciduous Forest	177.47	25.73
Mixed Forest	13.34	1.93
Shrub/Scrub	8.90	1.29
Herbaceuous	26.69	3.87
Hay/Pasture	12.01	1.74
Cultivated Crops	1.56	0.23
Woody Wetlands	93.41	13.54
Emergent Herbaceuous Wetlands	14.23	2.06

Segment	Land Use	Acres	Percentage (%)
Wooster Subbasin	Open Water	96.30	19.11
Wooster Subbasin	Developed, Open Space	79.17	15.71
Wooster Subbasin	Developed, Low Intensity	154.56	30.67
Wooster Subbasin	Developed, Medium Intensity	19.79	3.93
Wooster Subbasin	Developed, High Intensity	1.11	0.22
Wooster Subbasin	Barren Land	0.00	0.00
Wooster Subbasin	Deciduous Forest	81.40	16.15
Wooster Subbasin	Mixed Forest	6.67	1.32
Wooster Subbasin	Shrub/Scrub	3.78	0.75
Wooster Subbasin	Herbaceuous	15.35	3.05
Wooster Subbasin	Hay/Pasture	27.13	5.38
Wooster Subbasin	Cultivated Crops	0.00	0.00
Wooster Subbasin	Woody Wetlands	18.68	3.71
Wooster Subbasin	Emergent Herbaceuous Wetlands	0.00	0.00

Segment	Land Use	Acres	Percentage (%)
Wooster_All	Open Water	290.00	5.95
Wooster_All	Developed, Open Space	599.13	12.30
Wooster_All	Developed, Low Intensity	928.05	19.05
Wooster_All	Developed, Medium Intensity	327.81	6.73
Wooster_All	Developed, High Intensity	49.59	1.02
Wooster_All	Barren Land	2.89	0.06
Wooster_All	Deciduous Forest	561.10	11.51
Wooster_All	Mixed Forest	47.59	0.98
Wooster_All	Shrub/Scrub	22.46	0.46
Wooster_All	Herbaceuous	173.02	3.55
Wooster_All	Hay/Pasture	334.04	6.86
Wooster_All	Cultivated Crops	1355.27	27.81
Wooster_All	Woody Wetlands	110.53	2.27
Wooster_All	Emergent Herbaceuous Wetlands	71.39	1.47

Segment	Land Use	Acres	Percentage (%)
Fischer_All	Open Water	193.71	4.42
Fischer_All	Developed, Open Space	519.96	11.86
Fischer_All	Developed, Low Intensity	773.49	17.65
Fischer_All	Developed, Medium Intensity	308.02	7.03
Fischer_All	Developed, High Intensity	48.48	1.11
Fischer_All	Barren Land	2.89	0.07
Fischer_All	Deciduous Forest	479.70	10.94
Fischer_All	Mixed Forest	40.92	0.93
Fischer_All	Shrub/Scrub	18.68	0.43
Fischer_All	Herbaceuous	157.68	3.60
Fischer_All	Hay/Pasture	306.90	7.00
Fischer_All	Cultivated Crops	1369.51	31.24
Fischer_All	Woody Wetlands	91.85	2.10
Fischer_All	Emergent Herbaceuous Wetlands	71.39	1.63

Appendix E

SLAM Model Files

Land Use	Area (Acres)	Percentage (%)
Open Water	82.51	18.65
Developed, Open Space	48.93	11.06
Developed, Low Intensity	130.55	29.51
Developed, Medium Intensity	28.47	6.44
Developed, High Intensity	13.34	3.02
Deciduous Forest	37.14	8.40
Mixed Forest	3.56	0.80
Herbaceuous	11.34	2.56
Hay/Pasture	50.04	11.31
Cultivated Crops	31.36	7.09
Woody Wetlands	5.12	1.16

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface Area (%)	Mixing Length (ft)	Interface Width (ft)	Surface Area (Acres)
RTT-1	1	100%	NA	NA	87.88

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
193.04	0.53
Number of Days in POR	
7518	

fp P	
Lake fp P	**Inflow fp P**
0.687	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.084

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Antioch	0.691160	0.011

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	--	0.16	0.16	0.16	--	--	--	--
Cultivated Crops	31	0.66	0.92	0.94	20.7	28.8	29.5	0.152697612
Deciduous Forest	37	0.08	0.105	0.13	3.0	3.9	4.8	0.025011809
Developed, High Intensity	13	0.7	1.96	4.77	9.3	26.2	63.6	0.329727301
Developed, Low Intensity	131	0.04	0.47	1.43	5.2	60.7	186.7	0.967073353
Developed, Medium Intensity	28	0.46	1.38	4.77	13.1	39.3	135.8	0.703418242
Developed, Open Space	49	0.03	0.04	0.16	1.5	2.0	7.8	0.040553463
Emergent Herbaceuous Wetlands	--	0.22	0.22	0.22	--	--	--	--
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	11	0.5	0.5	0.5	5.7	5.7	5.7	0.029378219
Mixed Forest	4	0.08	0.105	0.13	0.3	0.4	0.5	0.002396341
Open Water	83	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	50	0.5	0.5	0.5	25.0	25.0	25.0	0.129609788
Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
Woody Wetlands	5	0.22	0.22	0.22	1.1	1.1	1.1	0.00582956
	442				Total:	193.0		

There are no active NPDES permits in the Antioch Watershed.

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	*Percent Subbasin as MS4 Area*
Antioch	441.7	146.5	33.2%
Lake Total	441.7	146.5	33.2%

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTT

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	1	0	0.78	31	24.3
Jun	3	0	2.35	30	70.6
Jul	3	0	2.35	31	72.9
Aug	3.5	0	2.74	31	85.1
Sep	3.5	0	2.74	30	82.3
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**335.2**

Zone	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources
RTT	335.2	193.0	0	120.7	96.5	0.0	64%	50%	0%
Total	**335.2**	**193.0**	**0**	**120.7**	**96.5**	**0.0**	**64%**	**50%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
RTT	Internal	0.331	0.000	0.298	0.033	0.918	64%
	External	0.264	0.079	0.159	0.026	0.529	50%
	Total	0.595	0.079	0.457	0.060	1.447	59%

Land Use	Area (Acres)	Percentage (%)
Open Water	89.40	12.91
Developed, Open Space	27.35	3.95
Developed, Low Intensity	106.97	15.44
Developed, Medium Intensity	17.57	2.54
Developed, High Intensity	0.22	0.03
Barren Land	0.00	0.00
Deciduous Forest	120.76	17.43
Evergreen Forest	0.00	0.00
Mixed Forest	13.12	1.89
Shrub/Scrub	0.00	0.00
Herbaceuous	44.92	6.48
Hay/Pasture	74.95	10.82
Cultivated Crops	171.69	24.78
Woody Wetlands	24.69	3.56
Emergent Herbaceuous Wetlands	1.11	0.16

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface Area (%)	Mixing Length (ft)	Surface Area (Acres)	Surface Area (m2)
Bluff	1	100%	NA	100.3	405,914

Calculating Daily Watershed Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
2514.4	6.89

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.095

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Marie	1.1	0.018

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads		
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)
Barren Land	-	0.16	0.16	0.16	0.0	0.0	0.0
Cultivated Crops	172	0.66	0.92	0.94	113.3	158.0	161.4
Deciduous Forest	121	0.08	0.105	0.13	9.7	12.7	15.7
Developed, High Intensity	0	0.7	1.96	4.77	0.2	0.4	1.1
Developed, Low Intensity	107	0.04	0.47	1.43	4.3	49.7	153.0
Developed, Medium Intensity	18	0.46	1.38	4.77	8.1	24.2	83.8
Developed, Open Space	27	0.03	0.04	0.16	0.8	1.1	4.4
Emergent Herbaceuous Wetlands	1	0.22	0.22	0.22	0.2	0.2	0.2
Evergreen Forest	-	0.08	0.105	0.13	0.0	0.0	0.0
Herbaceuous	45	0.5	0.5	0.5	22.5	22.5	22.5
Mixed Forest	13	0.08	0.105	0.13	1.0	1.4	1.7
Open Water	89	0	0	0	0.0	0.0	0.0
Hay/Pasture	75	0.5	0.5	0.5	37.5	37.5	37.5
Shrub/Scrub	-	0.08	0.105	0.13	0.0	0.0	0.0
Woody Wetlands	25	0.22	0.22	0.22	5.4	5.4	5.4
	693				Total:	313	
				LU plus Upper Lake outflow		2,514	

No NPDES permits in the Bluff Lake subbasin

No MS4s in the Bluff Lake subbasin

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTR

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	0	0	0.00	31	0.0
Jun	1	0	0.89	30	26.8
Jul	6	0	5.37	31	166.4
Aug	8	0	6.71	31	208.1
Sep	4	0	3.13	30	94.0
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**495.3**

Zone	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources
VTJ	495.3	2,514	0	421.0	629	0.0	15%	75%	0%
Total	**495.3**	**2,514**	**0**	**421.0**	**629**	**0.0**	**15%**	**75%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
VTJ	Internal	1.153	0.000	1.038	0.115	1.357	15%
	External	1.722	0.000	1.550	0.172	6.889	75%
	Total	2.876	0.000	2.588	0.288	8.246	65%

Segment	Land Use	Area (Acres)	Percentage (%)
ALL	Open Water	1337.93	10.77
ALL	Developed, Open Space	1534.30	12.35
ALL	Developed, Low Intensity	1616.81	13.01
ALL	Developed, Medium Intensity	231.51	1.86
ALL	Developed, High Intensity	57.38	0.46
ALL	Barren Land	4.00	0.03
ALL	Deciduous Forest	1498.72	12.06
ALL	Evergreen Forest	6.00	0.05
ALL	Mixed Forest	300.23	2.42
ALL	Shrub/Scrub	18.68	0.15
ALL	Herbaceuous	439.45	3.54
ALL	Hay/Pasture	725.45	5.84
ALL	Cultivated Crops	3208.71	25.83
ALL	Woody Wetlands	631.38	5.08
ALL	Emergent Herbaceuous Wetlands	813.74	6.55

Segment	Land Use	Area (Acres)	Percentage (%)
Catherine	Open Water	348.27	9.62
Catherine	Developed, Open Space	739.68	20.44
Catherine	Developed, Low Intensity	669.41	18.50
Catherine	Developed, Medium Intensity	105.64	2.92
Catherine	Developed, High Intensity	14.90	0.41
Catherine	Barren Land	0.22	0.01
Catherine	Deciduous Forest	346.27	9.57
Catherine	Evergreen Forest	0.00	0.00
Catherine	Mixed Forest	135.66	3.75
Catherine	Shrub/Scrub	12.68	0.35
Catherine	Herbaceuous	127.43	3.52
Catherine	Hay/Pasture	76.95	2.13
Catherine	Cultivated Crops	746.36	20.62
Catherine	Woody Wetlands	192.15	5.31
Catherine	Emergent Herbaceuous Wetlands	103.41	2.86

Segment	Land Use	Area (Acres)	Percentage (%)
Channel	Open Water	989.66	11.24
Channel	Developed, Open Space	794.62	9.02
Channel	Developed, Low Intensity	947.40	10.76
Channel	Developed, Medium Intensity	125.88	1.43
Channel	Developed, High Intensity	42.48	0.48
Channel	Barren Land	3.78	0.04
Channel	Deciduous Forest	1152.45	13.09
Channel	Evergreen Forest	6.00	0.07
Channel	Mixed Forest	164.57	1.87
Channel	Shrub/Scrub	6.00	0.07
Channel	Herbaceuous	312.02	3.54
Channel	Hay/Pasture	648.50	7.36
Channel	Cultivated Crops	2462.35	27.96
Channel	Woody Wetlands	439.23	4.99
Channel	Emergent Herbaceuous Wetlands	710.33	8.07

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used
Interface length and width calculate from google earth.

Length	NA
Width	NA

NameJR	Acres	Avg Depth	Volume	Surface area (%)
Catherine	147	16.7	2,881	30%
Channel	342	14.5	4,895	70%
Total	489	15.6	7,776	100%

Zone	Station_ID	Zone	Downstream Zone	Surface area (%)	Mixing length (ft)	Interface Width (ft)	Surface Area (Acres)	Surface Area (m2)
1	**Catherine**	1	2	30%	3000	1300	147	596,102
2	**Channel**	2	3	70%	8200	135	342	1,382,812
							489	

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
5289.65	14.49

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.615	0.72

Initial P Concentration	
0.050	Average TP

Catchment Area Calcs

Name	Catchment_area (mi^2)	Ratio
5527950	61.0	1
Catherine_Channel	19.4	0.32

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1- Catherine	27%	27%
2- Channel	73%	73%

Conversion	
Acres	**Mi Square**
1	0.0015625

	Watershed Information		Total Phosphorus Export			Phosphorus Loads			
Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
ALL	Barren Land	4	0.16	0.16	0.16	0.6	0.6	0.6	0.000450522
ALL	Cultivated Crops	3,209	0.66	0.92	0.94	2117.7	2952.0	3016.2	2.121568879
ALL	Deciduous Forest	1,499	0.08	0.105	0.13	119.9	157.4	194.8	0.137044609
ALL	Developed, High Intensity	57	0.7	1.96	4.77	40.2	112.5	273.7	0.19251352
ALL	Developed, Low Intensity	1,617	0.04	0.47	1.43	64.7	751.8	2312.0	1.626273545
ALL	Developed, Medium Intensity	232	0.46	1.38	4.77	106.5	319.5	1104.3	0.776769666
ALL	Developed, Open Space	1,534	0.03	0.04	0.16	46.0	61.4	245.5	0.172674925
ALL	Emergent Herbaceuous Wetlands	814	0.22	0.22	0.22	179.0	179.0	179.0	0.125923921
ALL	Evergreen Forest	6	0.08	0.105	0.13	0.5	0.6	0.8	0.000549073
ALL	Herbaceuous	439	0.5	0.5	0.5	219.7	219.7	219.7	0.154553944
ALL	Mixed Forest	300	0.08	0.105	0.13	24.0	31.5	39.0	0.027453661
ALL	Open Water	1,338	0	0	0	0.0	0.0	0.0	0
ALL	Hay/Pasture	725	0.5	0.5	0.5	362.7	362.7	362.7	0.255139153
ALL	Shrub/Scrub	19	0.08	0.105	0.13	1.5	2.0	2.4	0.001708228
ALL	Woody Wetlands	631	0.22	0.22	0.22	138.9	138.9	138.9	0.097703748
		12,424				**Total**	5,290		

	Watershed Information		Total Phosphorus Export			Phosphorus Loads			
Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Catherine	Barren Land	0	0.16	0.16	0.16	0.0	0.0	0.0	2.5029E-05
Catherine	Cultivated Crops	746	0.66	0.92	0.94	492.6	686.6	701.6	0.493483862
Catherine	Deciduous Forest	346	0.08	0.105	0.13	27.7	36.4	45.0	0.031663223
Catherine	Developed, High Intensity	15	0.7	1.96	4.77	10.4	29.2	71.1	0.049993821
Catherine	Developed, Low Intensity	669	0.04	0.47	1.43	26.8	311.3	957.3	0.673326461
Catherine	Developed, Medium Intensity	106	0.46	1.38	4.77	48.6	145.8	503.9	0.354433805
Catherine	Developed, Open Space	740	0.03	0.04	0.16	22.2	29.6	118.3	0.083246384
Catherine	Emergent Herbaceuous Wetlands	103	0.22	0.22	0.22	22.8	22.8	22.8	0.016002903
Catherine	Evergreen Forest	-	0.08	0.105	0.13	0.0	0.0	0.0	0
Catherine	Herbaceuous	127	0.5	0.5	0.5	63.7	63.7	63.7	0.044817515
Catherine	Mixed Forest	136	0.08	0.105	0.13	10.9	14.2	17.6	0.012404988
Catherine	Open Water	348	0	0	0	0.0	0.0	0.0	0
Catherine	Hay/Pasture	77	0.5	0.5	0.5	38.5	38.5	38.5	0.027062583
Catherine	Shrub/Scrub	13	0.08	0.105	0.13	1.0	1.3	1.6	0.001159155
Catherine	Woody Wetlands	192	0.22	0.22	0.22	42.3	42.3	42.3	0.029734427
		3,619				**Total**	1,422		

	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Segment	Barren Land	4	0.16	0.16	0.16	0.6	0.6	0.6	0.000425493
Channel	Cultivated Crops	2,462	0.66	0.92	0.94	1625.2	2265.4	2314.6	1.628085017
Channel	Deciduous Forest	1,152	0.08	0.105	0.13	92.2	121.0	149.8	0.105381387
Channel	Developed, High Intensity	42	0.7	1.96	4.77	29.7	83.3	202.6	0.142519699
Channel	Developed, Low Intensity	947	0.04	0.47	1.43	37.9	440.5	1354.8	0.952947084
Channel	Developed, Medium Intensity	126	0.46	1.38	4.77	57.9	173.7	600.4	0.422335861
Channel	Developed, Open Space	795	0.03	0.04	0.16	23.8	31.8	127.1	0.089428541
Channel	Emergent Herbaceuous Wetlands	710	0.22	0.22	0.22	156.3	156.3	156.3	0.109921018
Channel	Evergreen Forest	6	0.08	0.105	0.13	0.5	0.6	0.8	0.000549073
Channel	Herbaceuous	312	0.5	0.5	0.5	156.0	156.0	156.0	0.109736429
Channel	Mixed Forest	165	0.08	0.105	0.13	13.2	17.3	21.4	0.015048674
Channel	Open Water	990	0	0	0	0.0	0.0	0.0	0
Channel	Hay/Pasture	649	0.5	0.5	0.5	324.3	324.3	324.3	0.22807657
Channel	Shrub/Scrub	6	0.08	0.105	0.13	0.5	0.6	0.8	0.000549073
Channel	Woody Wetlands	439	0.22	0.22	0.22	96.6	96.6	96.6	0.067969321
Channel		8,805				**Total**	3,868		

No NPDES permits in the Channel Lake and Lake Catherine subbasin

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Catherine	3607.80	353.30	10%
Channel	8784.00	0.00	0%
Lake Total	12391.80	353.30	3%

Lake Sedimentation Parameters

Calibration Run

Zone 1 Catherine

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	0	0	0.00	31	0.0
Jun	2	0	2.63	30	78.9
Jul	4	0	5.26	31	163.0
Aug	4	0	5.26	31	163.0
Sep	2	0	2.63	30	78.9
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**483.6**

Zone 2 Channel

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	0	0	0.00	31	0.0
Jun	2	0	6.10	30	182.9
Jul	2.5	0	7.62	31	236.3
Aug	3	0	9.15	31	283.5
Sep	3.5	0	10.67	30	320.1
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**1022.8**

Zone	Station	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
		Internal	Watershed	Point Sources	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources
Zone 1	Catherine	484	1,422	-	484	1,280	-	0%	10%	0%
Zone 2	Channel	1,023	3,868	-	818	1,663	-	20%	57%	0%
	Total	**1,506**	**5,290**	**-**	**1,302**	**2,943**	**-**	**14%**	**44%**	**0%**

Zone	Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
Zone 1	Catherine	Internal	1.325	0.000	1.192	0.132	1.325	0%
		External	3.506	0.309	2.846	0.351	3.895	10%
		Total	4.830	0.309	4.038	0.483	5.220	7%
Zone 2	Channel	Internal	2.242	0.000	2.018	0.224	2.802	20%
		External	4.557	0.000	4.101	0.456	10.597	57%
		Total	6.799	0.000	6.119	0.680	13.399	49%
Lake Total		Internal	3.567	0.000	3.210	0.357	4.127	14%
		External	8.062	0.309	6.947	0.806	14.492	44%
		Total	11.629	0.309	10.157	1.163	18.619	38%

Segment	Land Use	Area (Acres)	Percentage (%)
Churchill Lakes	Open Water	56.04	8.70
Churchill Lakes	Developed, Open Space	60.05	9.33
Churchill Lakes	Developed, Low Intensi	167.91	26.08
Churchill Lakes	Developed, Medium Int	137.22	21.31
Churchill Lakes	Developed, High Intens	3.78	0.59
Churchill Lakes	Deciduous Forest	1.56	0.24
Churchill Lakes	Evergreen Forest	0.22	0.03
Churchill Lakes	Herbaceuous	26.91	4.18
Churchill Lakes	Cultivated Crops	185.48	28.81
Churchill Lakes	Woody Wetlands	3.34	0.52
Churchill Lakes	Emergent Herbaceuous	1.33	0.21

Segment	Land Use	Area (Acres)	Percentage (%)
South Churchill	Open Water	7.56	1.50
South Churchill	Developed, Open Space	50.71	10.09
South Churchill	Developed, Low Intensi	128.54	25.58
South Churchill	Developed, Medium Int	106.97	21.28
South Churchill	Developed, High Intens	4.45	0.88
South Churchill	Deciduous Forest	2.00	0.40
South Churchill	Herbaceuous	23.13	4.60
South Churchill	Cultivated Crops	177.47	35.31
South Churchill	Woody Wetlands	1.78	0.35

Segment	Land Use	Area (Acres)	Percentage (%)
North Churchill	Open Water	51.37	35.54
North Churchill	Developed, Open Space	8.90	6.15
North Churchill	Developed, Low Intensit	45.15	31.23
North Churchill	Developed, Medium Int	28.69	19.85
North Churchill	Herbaceuous	4.23	2.92
North Churchill	Cultivated Crops	3.34	2.31
North Churchill	Woody Wetlands	1.56	1.08
North Churchill	Emergent Herbaceuous	1.33	0.92

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Area	Acres
STS	24.82
STR	62.45
Sum	87.27

Volume	AF
STS	111.6
STR	343.2
Sum	454.8

Station_ID	Zone	Downstream Zone	Surface_area(%)	Mixing_length(ft)	Interface Width (ft)	Surface_area (acres)
STS	1	2	28%	1932	171	24.82
STR	2	None	72%	NA	NA	62.45

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
462.56	1.27

Zone	Flows move from:	
1	STS	South
	to	
2	STR	North

Number of Days in POR
7518

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Initial P Concentration
0.087

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
STR	1.01	0.016

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
STR	14%	14%
STS	85%	85%

Conversion	
Acres	**Mi Square**
1	0.0015625

	Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Churchill Lakes	Barren Land	--	0.16	0.16	0.16	--	--	--	--
Churchill Lakes	Cultivated Crops	185	0.66	0.92	0.94	122.4	170.6	174.3	0.442981576
Churchill Lakes	Deciduous Forest	2	0.08	0.105	0.13	0.1	0.2	0.2	0.000514201
Churchill Lakes	Developed, High Intensity	4	0.7	1.96	4.77	2.6	7.4	18.0	0.045820419
Churchill Lakes	Developed, Low Intensity	168	0.04	0.47	1.43	6.7	78.1	240.1	0.610063089
Churchill Lakes	Developed, Medium Intensity	137	0.46	1.38	4.77	63.1	189.4	654.5	1.663011694
Churchill Lakes	Developed, Open Space	60	0.03	0.04	0.16	1.8	2.4	9.6	0.024410434
Churchill Lakes	Emergent Herbaceuous Wetlands	1	0.22	0.22	0.22	0.3	0.3	0.3	0.000745874
Churchill Lakes	Evergreen Forest	0	0.08	0.105	0.13	0.0	0.0	0.0	7.34573E-05
Churchill Lakes	Herbaceuous	27	0.5	0.5	0.5	13.5	13.5	13.5	0.034185909
	Mixed Forest	--	0.08	0.105	0.13	--	--	--	--
	Open Water	56	0	0	0	0.0	0.0	0.0	0
	Hay/Pasture	--	0.5	0.5	0.5	--	--	--	--
	Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
	Woody Wetlands	3	0.22	0.22	0.22	0.7	0.7	0.7	0.001864686
		644				Total:	462.6		

	Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
South Churchill	Barren Land	--	0.16	0.16	0.16	--	--	--	--
South Churchill	Cultivated Crops	177	0.66	0.92	0.94	117.1	163.3	166.8	0.423860069
South Churchill	Deciduous Forest	2	0.08	0.105	0.13	0.2	0.2	0.3	0.000661116
South Churchill	Developed, High Intensity	4	0.7	1.96	4.77	3.1	8.7	21.2	0.053906376
South Churchill	Developed, Low Intensity	129	0.04	0.47	1.43	5.1	59.8	183.8	0.467041676
South Churchill	Developed, Medium Intensity	107	0.46	1.38	4.77	49.2	147.6	510.3	1.296448338
South Churchill	Developed, Open Space	51	0.03	0.04	0.16	1.5	2.0	8.1	0.020613256
South Churchill	Emergent Herbaceuous Wetlands	--	0.22	0.22	0.22	--	--	--	--
South Churchill	Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
	Herbaceuous	23	0.5	0.5	0.5	11.6	11.6	11.6	0.02938293
	Mixed Forest	--	0.08	0.105	0.13	--	--	--	--
	Open Water	8	0	0	0	0.0	0.0	0.0	0
	Hay/Pasture	--	0.5	0.5	0.5	--	--	--	--
	Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
	Woody Wetlands	2	0.22	0.22	0.22	0.4	0.4	0.4	0.000994499
		503				Total:	393.6		

Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
North Churchill	Barren Land	--	0.16	0.16	0.16	--	--	--	--
North Churchill	Cultivated Crops	3	0.66	0.92	0.94	2.2	3.1	3.1	0.007967295
North Churchill	Deciduous Forest	--	0.08	0.105	0.13	--	--	--	--
North Churchill	Developed, High Intensity	--	0.7	1.96	4.77	--	--	--	--
North Churchill	Developed, Low Intensity	45	0.04	0.47	1.43	1.8	21.0	64.6	0.164030208
North Churchill	Developed, Medium Intensity	29	0.46	1.38	4.77	13.2	39.6	136.8	0.347696124
North Churchill	Developed, Open Space	9	0.03	0.04	0.16	0.3	0.4	1.4	0.003616361
North Churchill	Emergent Herbaceuous Wetlands	1	0.22	0.22	0.22	0.3	0.3	0.3	0.000745874
	Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
	Herbaceuous	4	0.5	0.5	0.5	2.1	2.1	2.1	0.005368035
	Mixed Forest	--	0.08	0.105	0.13	--	--	--	--
	Open Water	51	0	0	0	0.0	0.0	0.0	0
	Hay/Pasture	--	0.5	0.5	0.5	--	--	--	--
	Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
	Woody Wetlands	2	0.22	0.22	0.22	0.3	0.3	0.3	0.000870187
		145				Total:	66.8		

There are no NPDES permits that discharge into the Churchill Lakes

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
N Churchill	135.90	135.90	100%
S Churchill	503.97	206.58	41%
Lake Total	639.87	342.48	54%

Lake Sedimentation Parameters

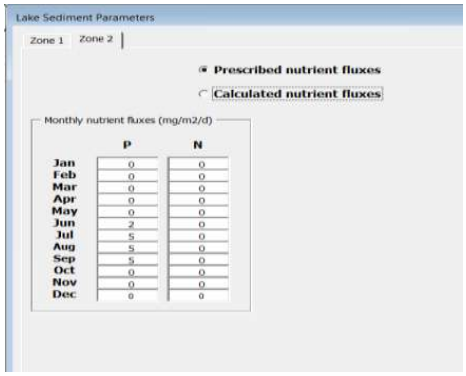
Calibration Run

Zone 1 South

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0.00	0	0.00	31	0.0
Feb	0.00	0	0.00	28	0.0
Mar	0.00	0	0.00	31	0.0
Apr	0.00	0	0.00	30	0.0
May	1.80	0	0.40	31	12.4
Jun	2.70	0	0.60	30	17.9
Jul	2.70	0	0.60	31	18.5
Aug	2.00	0	0.44	31	13.7
Sep	0.00	0	0.00	30	0.0
Oct	0.00	0	0.00	31	0.0
Nov	0.00	0	0.00	30	0.0
Dec	0.00	0	0.00	31	0.0
			Annual TP load (lbs)		**62.6**

Zone 2 North

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0.0	0	0.00	31	0.0
Feb	0.0	0	0.00	28	0.0
Mar	0.0	0	0.00	31	0.0
Apr	0.0	0	0.00	30	0.0
May	2.8	0	1.56	31	48.4
Jun	3.7	0	2.06	30	61.8
Jul	3.7	0	2.06	31	63.9
Aug	3.0	0	1.67	31	51.8
Sep	0.0	0	0.00	30	0.0
Oct	0.0	0	0.00	31	0.0
Nov	0.0	0	0.00	30	0.0
Dec	0.0	0	0.00	31	0.0
			Annual TP load (lbs)		**225.9**



	Actual Load (lbs/yr)		
Station	**Internal**	**Watershed**	**Point Sources**
South	62.6	393.6	0
North	225.9	66.8	0
Total	**288.5**	**460.3**	**0**

Allowable Load (lbs/yr)		
Internal	**Watershed**	**Point Sources**
30.0	157.4	0.0
108.4	33.4	0.0
138.5	**190.8**	**0.0**

Percent Reduction		
Internal	**Watershed**	**Point Sources**
52%	60%	0%
52%	50%	0%
52%	**59%**	**0%**

Zone	Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
		Internal	0.082	0.000	0.074	0.008	0.171	52%
		External	0.431	0.388	0.000	0.043	1.078	60%
Zone 1	South	Total	0.514	0.388	0.074	0.051	1.250	59%
		Internal	0.297	0.000	0.267	0.030	0.619	52%
		External	0.091	0.034	0.049	0.009	0.183	50%
Zone 2	North	Total	0.389	0.034	0.316	0.039	0.802	52%
		Internal	0.379	0.000	0.341	0.038	0.790	52%
		External	0.523	0.422	0.049	0.052	1.261	59%
Lake Total		Total	0.902	0.422	0.390	0.090	2.052	56%

Land Use	Area (Acres)	Percentage (%)
Open Water	67.39	15.22
Developed, Open Space	58.71	13.26
Developed, Low Intensity	39.59	8.94
Developed, Medium Intensity	3.78	0.85
Developed, High Intensity	1.33	0.30
Deciduous Forest	137.66	31.10
Mixed Forest	31.80	7.18
Shrub/Scrub	10.45	2.36
Hay/Pasture	69.39	15.67
Woody Wetlands	20.46	4.62
Emergent Herbaceuous Wetlands	1.11	0.25

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface Area (%)	Mixing Length (ft)	Interface Width (ft)	Surface Area (Acres)
Davis_1	1	100%	NA	NA	35.93

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
86.92	0.24
Number of Days in POR	
7518	

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.089

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Davis	0.690118	0.011

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	--	0.16	0.16	0.16	--	--	--	--
Cultivated Crops	--	0.66	0.92	0.94	--	--	--	--
Deciduous Forest	138	0.08	0.105	0.13	11.0	14.5	17.9	0.205893
Developed, High Intensity	1	0.7	1.96	4.77	0.9	2.6	6.4	0.073228
Developed, Low Intensity	40	0.04	0.47	1.43	1.6	18.4	56.6	0.651272
Developed, Medium Intensity	4	0.46	1.38	4.77	1.7	5.2	18.0	0.207479
Developed, Open Space	59	0.03	0.04	0.16	1.8	2.3	9.4	0.108076
Emergent Herbaceuous Wetlands	1	0.22	0.22	0.22	0.2	0.2	0.2	0.002814
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	--	0.5	0.5	0.5	--	--	--	--
Mixed Forest	32	0.08	0.105	0.13	2.5	3.3	4.1	0.047565
Open Water	67	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	69	0.5	0.5	0.5	34.7	34.7	34.7	0.399145
Shrub/Scrub	10	0.08	0.105	0.13	0.8	1.1	1.4	0.015633
Woody Wetlands	20	0.22	0.22	0.22	4.5	4.5	4.5	0.051787
	442				Total:	86.9		

There are no NPDES permits in the Davis Lake Watershed

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Davis	441.46	1.54	0%
Lake Total	441.46	1.54	0%

Lake Sedimentation Parameters

Calibration Run

Zone 1 STQ

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	1.5	0	0.48	30	14.4
May	13	0	4.17	31	129.2
Jun	16	0	5.13	30	153.9
Jul	17	0	5.45	31	168.9
Aug	17	0	5.45	31	168.9
Sep	2	0	0.64	30	19.2
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**654.6**

Zone	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources
STQ	654.6	86.9	0	65.5	43.5	0.0	90%	50%	0%
Total	**654.6**	**86.9**	**0**	**65.5**	**43.5**	**0.0**	**90%**	**50%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
STQ	Internal	0.179	0.000	0.161	0.018	1.793	90%
	External	0.119	0.000	0.107	0.012	0.238	50%
	Total	0.298	0.000	0.268	0.030	2.032	85%

Segment	Land Use	Area (Acres)	Percentage (%)
Duck Subbasin	Open Water	83.18	9.54
Duck Subbasin	Developed, Open Space	183.92	21.09
Duck Subbasin	Developed, Low Intensity	284.66	32.64
Duck Subbasin	Developed, Medium Intensity	60.05	6.88
Duck Subbasin	Developed, High Intensity	8.01	0.92
Duck Subbasin	Barren Land	0.00	0.00
Duck Subbasin	Deciduous Forest	100.74	11.55
Duck Subbasin	Mixed Forest	31.58	3.62
Duck Subbasin	Shrub/Scrub	0.00	0.00
Duck Subbasin	Herbaceuous	5.78	0.66
Duck Subbasin	Hay/Pasture	14.68	1.68
Duck Subbasin	Cultivated Crops	0.00	0.00
Duck Subbasin	Woody Wetlands	75.84	8.69
Duck Subbasin	Emergent Herbaceuous Wetlands	23.80	2.73

Segment	Land Use	Area (Acres)	Percentage (%)
Duck All	Open Water	373.18	6.50
Duck All	Developed, Open Space	783.05	13.63
Duck All	Developed, Low Intensity	1212.72	21.11
Duck All	Developed, Medium Intensity	387.86	6.75
Duck All	Developed, High Intensity	57.60	1.00
Duck All	Barren Land	2.45	0.04
Duck All	Deciduous Forest	661.85	11.52
Duck All	Mixed Forest	79.17	1.38
Duck All	Shrub/Scrub	22.24	0.39
Duck All	Herbaceuous	178.81	3.11
Duck All	Hay/Pasture	348.71	6.07
Duck All	Cultivated Crops	1354.83	23.59
Duck All	Woody Wetlands	186.37	3.24
Duck All	Emergent Herbaceuous Wetlands	95.18	1.66

Segment	Land Use	Area (Acres)	Percentage (%)
Wooster_All	Open Water	290.00	5.95
Wooster_All	Developed, Open Space	599.13	12.30
Wooster_All	Developed, Low Intensity	928.05	19.05
Wooster_All	Developed, Medium Intensity	327.81	6.73
Wooster_All	Developed, High Intensity	49.59	1.02
Wooster_All	Barren Land	2.89	0.06
Wooster_All	Deciduous Forest	561.10	11.51
Wooster_All	Mixed Forest	47.59	0.98
Wooster_All	Shrub/Scrub	22.46	0.46
Wooster_All	Herbaceuous	173.02	3.55
Wooster_All	Hay/Pasture	334.04	6.86
Wooster_All	Cultivated Crops	1355.27	27.81
Wooster_All	Woody Wetlands	110.53	2.27
Wooster_All	Emergent Herbaceuous Wetlands	71.39	1.47

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface area (%)	Mixing Length (ft)	Interface Width (ft)	Surface Area (Acres)
Duck	1	100%	NA	NA	110.43

Calculating Daily Load from Subbasin	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
284.3	0.78

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.775	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.053

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Duck	1.362861	0.022

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	-	0.16	0.16	0.16	0.0	0.0	0.0	0
Cultivated Crops	-	0.66	0.92	0.94	0.0	0.0	0.0	0
Deciduous Forest	101	0.08	0.105	0.13	8.1	10.6	13.1	0.046062692
Developed, High Intensity	8	0.7	1.96	4.77	5.6	15.7	38.2	0.134316275
Developed, Low Intensity	285	0.04	0.47	1.43	11.4	132.4	407.1	1.431705743
Developed, Medium Intensity	60	0.46	1.38	4.77	27.6	82.9	286.4	1.007372064
Developed, Open Space	184	0.03	0.04	0.16	5.5	7.4	29.4	0.103498309
Emergent Herbaceuous Wetlands	24	0.22	0.22	0.22	5.2	5.2	5.2	0.018412562
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	6	0.5	0.5	0.5	2.9	2.9	2.9	0.010168365
Mixed Forest	32	0.08	0.105	0.13	2.5	3.3	4.1	0.014439078
Open Water	83	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	15	0.5	0.5	0.5	7.3	7.3	7.3	0.025812003
Shrub/Scrub	-	0.08	0.105	0.13	0.0	0.0	0.0	0
Woody Wetlands	76	0.22	0.22	0.22	16.7	16.7	16.7	0.058679286
	872				Total:	284.3		

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Duck	5477.33	549.69	10%
Lake Total	5477.33	549.69	10%

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTZG

Month	P (mg/m2/d)	N (mg/m2/d)
Jan	0	0
Feb	0	0
Mar	0	0
Apr	0	0
May	0	0
Jun	1	0
Jul	2	0
Aug	1	0
Sep	0	0
Oct	0	0
Nov	0	0
Dec	0	0

P load (lbs/day)	Days	P load (lbs/month)
0.00	31	0.0
0.00	28	0.0
0.00	31	0.0
0.00	30	0.0
0.00	31	0.0
0.49	30	14.8
1.97	31	61.1
0.49	31	15.3
0.20	30	5.9
0.00	31	0.0
0.00	30	0.0
0.00	31	0.0
Annual TP load (lbs)		**97.0**

	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
Zone	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**
RTZG	97.0	1165.7	0	97.0	990.8	0.0	0%	15%	0%
Total	**97.0**	**1165.7**	**0**	**97.0**	**990.8**	**0.0**	**35%**	**15%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
RTZG	Internal	0.266	0.000	0.239	0.027	0.266	0%
	External	2.715	0.060	2.383	0.271	3.194	15%
	Total	2.980	0.060	2.623	0.298	3.460	14%

Land Use	Area (Acres)	Percentage (%)
Open Water	58.93	14.16
Developed, Open Space	107.86	25.92
Developed, Low Intensity	87.62	21.06
Developed, Medium Intensity	33.80	8.12
Developed, High Intensity	4.67	1.12
Deciduous Forest	60.94	14.64
Mixed Forest	17.12	4.12
Herbaceuous	8.45	2.03
Hay/Pasture	0.67	0.16
Woody Wetlands	27.58	6.63
Emergent Herbaceuous Wetlands	8.45	2.03

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface Area (%)	Mixing Length (ft)	Interface Width (ft)	Surface Area (Acres)
Dunn's	1	100%	NA	NA	67.61

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
121.54	0.33
Number of Days in POR	
7518	

fp P	
Lake fp P	**Inflow fp P**
0.831	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.074

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Hidden	0.650156	0.011

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	--	0.16	0.16	0.16	--	--	--	--
Cultivated Crops	--	0.66	0.92	0.94	--	--	--	--
Deciduous Forest	61	0.08	0.105	0.13	4.9	6.4	7.9	0.065175427
Developed, High Intensity	5	0.7	1.96	4.77	3.3	9.2	22.3	0.183285303
Developed, Low Intensity	88	0.04	0.47	1.43	3.5	40.7	125.3	1.030913499
Developed, Medium Intensity	34	0.46	1.38	4.77	15.5	46.6	161.2	1.326636476
Developed, Open Space	108	0.03	0.04	0.16	3.2	4.3	17.3	0.141988015
Emergent Herbaceuous Wetlands	8	0.22	0.22	0.22	1.9	1.9	1.9	0.015296647
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	8	0.5	0.5	0.5	4.2	4.2	4.2	0.034765107
Mixed Forest	17	0.08	0.105	0.13	1.4	1.8	2.2	0.018315722
Open Water	59	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	1	0.5	0.5	0.5	0.3	0.3	0.3	0.002744614
Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
Woody Wetlands	28	0.22	0.22	0.22	6.1	6.1	6.1	0.049915374
	416				Total:	121.5		

NPDES_ID	Facility_N	Address	City	State	ZIP_Code	County	Latitude	Longitude	Permit_Iss	Permit_Exp
ILL045144	FOX LAKE TALL OAKS STP	700 GRASS LAKE ROAD	FOX LAKE	IL	60020-1050	LAKE	42.4233	-88.195	JAN-01-2011	DEC-31-2015

This WWTP discharges into a trib of Dunns lake. The daily average flow is 0.151 mgd, based on 2007 -2015 DMR data.

MS4 Areas from GIS

Segment	**Subbasin Area (acres)**	**Municipal MS4 Area (acres)**	**Percent Subbasin as MS4 Area**
Dunns	454.90	328.66	72%
Lake Total	454.90	328.66	72%

Lake Sedimentation Parameters

Calibration Run

Zone 1 VTH

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	0.5	0	0.30	31	9.3
Jun	1.5	0	0.90	30	27.1
Jul	4.5	0	2.71	31	84.1
Aug	1	0	0.60	31	18.7
Sep	0	0	0.00	30	0.0
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**139.3**

Actual Load (lbs/yr)		
Internal	Watershed	Point Sources
139.3	121.5	229.8
139.3	**121.5**	**229.8**

Allowable Load (lbs/yr)		
Internal	Watershed	Point Sources
8.8	51.1	229.8
8.8	**51.1**	**229.8**

Percent Reduction		
Internal	Watershed	Point Sources
94%	20%	0%
94%	**58%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
Segment	Internal	0.02	-		0.022	0.002	0.38	0.36	94%
	External	0.77	0.048	0.63	0.011	0.077	0.96	0.19	20%
	Total	0.79	0.048	0.63	0.034	0.079	1.34	0.55	41%

Segment	Land Use	Area (Acres)	Percentage (%)
Fischer-Subbasin	Open Water	34.69	2.98
Fischer-Subbasin	Developed, Open Space	225.06	19.34
Fischer-Subbasin	Developed, Low Intensity	300.23	25.79
Fischer-Subbasin	Developed, Medium Intensity	91.18	7.83
Fischer-Subbasin	Developed, High Intensity	15.35	1.32
Fischer-Subbasin	Barren Land	2.89	0.25
Fischer-Subbasin	Deciduous Forest	155.68	13.37
Fischer-Subbasin	Mixed Forest	20.91	1.80
Fischer-Subbasin	Shrub/Scrub	12.45	1.07
Fischer-Subbasin	Herbaceuous	54.04	4.64
Fischer-Subbasin	Hay/Pasture	116.53	10.01
Fischer-Subbasin	Cultivated Crops	118.98	10.22
Fischer-Subbasin	Woody Wetlands	16.01	1.38
Fischer-Subbasin	Emergent Herbaceuous Wetlands	0.00	0.00

Segment	Land Use	Area (Acres)	Percentage (%)
Fischer_All	Open Water	193.71	4.42
Fischer_All	Developed, Open Space	519.96	11.86
Fischer_All	Developed, Low Intensity	773.49	17.65
Fischer_All	Developed, Medium Intensity	308.02	7.03
Fischer_All	Developed, High Intensity	48.48	1.11
Fischer_All	Barren Land	2.89	0.07
Fischer_All	Deciduous Forest	479.70	10.94
Fischer_All	Mixed Forest	40.92	0.93
Fischer_All	Shrub/Scrub	18.68	0.43
Fischer_All	Herbaceuous	157.68	3.60
Fischer_All	Hay/Pasture	306.90	7.00
Fischer_All	Cultivated Crops	1369.51	31.24
Fischer_All	Woody Wetlands	91.85	2.10
Fischer_All	Emergent Herbaceuous Wetlands	71.39	1.63

Segment	Land Use	Area (Acres)	Percentage (%)
Fish-Duncan	Open Water	159.01	4.94
Fish-Duncan	Developed, Open Space	294.90	9.16
Fish-Duncan	Developed, Low Intensity	473.26	14.70
Fish-Duncan	Developed, Medium Intensity	216.83	6.74
Fish-Duncan	Developed, High Intensity	33.14	1.03
Fish-Duncan	Barren Land	0.00	0.00
Fish-Duncan	Deciduous Forest	324.03	10.07
Fish-Duncan	Mixed Forest	20.02	0.62
Fish-Duncan	Shrub/Scrub	6.23	0.19
Fish-Duncan	Herbaceuous	103.64	3.22
Fish-Duncan	Hay/Pasture	190.37	5.91
Fish-Duncan	Cultivated Crops	1250.52	38.85
Fish-Duncan	Woody Wetlands	75.84	2.36
Fish-Duncan	Emergent Herbaceuous Wetlands	71.39	2.22

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface Area (%)	Mixing Length (ft)	Interface Width (ft)	Surface Area (Acres)
Fischer	1	100%	NA	NA	23.37

Calculating Daily Watershed Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
523.1	1.43

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.188

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Fischer	1.818770	0.030

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	3	0.16	0.16	0.16	0.5	0.5	0.5	0.000884301
Cultivated Crops	119	0.66	0.92	0.94	78.5	109.5	111.8	0.213805301
Deciduous Forest	156	0.08	0.105	0.13	12.5	16.3	20.2	0.038688173
Developed, High Intensity	15	0.7	1.96	4.77	10.7	30.1	73.2	0.139927895
Developed, Low Intensity	300	0.04	0.47	1.43	12.0	139.6	429.3	0.820741963
Developed, Medium Intensity	91	0.46	1.38	4.77	41.9	125.8	434.9	0.831455611
Developed, Open Space	225	0.03	0.04	0.16	6.8	9.0	36.0	0.06883944
Emergent Herbaceuous Wetlands	-	0.22	0.22	0.22	0.0	0.0	0.0	0
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	54	0.5	0.5	0.5	27.0	27.0	27.0	0.051655089
Mixed Forest	21	0.08	0.105	0.13	1.7	2.2	2.7	0.005195269
Open Water	35	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	117	0.5	0.5	0.5	58.3	58.3	58.3	0.111387928
Shrub/Scrub	12	0.08	0.105	0.13	1.0	1.3	1.6	0.003095054
Woody Wetlands	16	0.22	0.22	0.22	3.5	3.5	3.5	0.006734293
	1,164				Total:	523.1		

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Fischer	1149.50	558.80	49%
Lake Total	1149.50	558.80	49%

Lake Sedimentation Parameters

Calibration Run

Zone 1 VTT

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	0	0	0.00	31	0.0
Jun	10	0	2.09	30	62.6
Jul	11	0	2.29	31	71.1
Aug	11	0	2.29	31	71.1
Sep	2	0	0.42	30	12.5
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**217.3**

Zone	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources
VTT	217.3	1685.0	0	56.5	387.5	0.0	74%	77%	0%
Total	**217.3**	**1685.0**	**0**	**56.5**	**387.5**	**0.0**	**74%**	**77%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
VTT	Internal	0.155	0.000	0.139	0.015	0.595	74%
	External	1.062	0.144	0.811	0.106	4.616	77%
	Total	1.217	0.144	0.951	0.122	5.212	77%

Land Use	Area (Acres)	Percentage (%)
Open Water	159.01	4.94
Developed, Open Space	294.90	9.16
Developed, Low Intensity	473.26	14.70
Developed, Medium Intensity	216.83	6.74
Developed, High Intensity	33.14	1.03
Deciduous Forest	324.03	10.07
Mixed Forest	20.02	0.62
Shrub/Scrub	6.23	0.19
Herbaceuous	103.64	3.22
Hay/Pasture	190.37	5.91
Cultivated Crops	1250.52	38.85
Woody Wetlands	75.84	2.36
Emergent Herbaceuous Wetlands	71.39	2.22

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Interface Width (ft)	Surface_area (acres)
Fish-Duncan	1	100%	NA	NA	95.6

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
1962.69	5.38
Number of Days in POR	
7518	

fp P	
Lake fp P	**Inflow fp P**
0.624	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.157

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Fish-Duncan	5.029938	0.082

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	--	0.16	0.16	0.16	--	--	--	--
Cultivated Crops	1,251	0.66	0.92	0.94	825.3	1150.5	1175.5	0.598918447
Deciduous Forest	324	0.08	0.105	0.13	25.9	34.0	42.1	0.021462221
Developed, High I	33	0.7	1.96	4.77	23.2	64.9	158.1	0.080533468
Developed, Low I	473	0.04	0.47	1.43	18.9	220.1	676.8	0.344809652
Developed, Mediu	217	0.46	1.38	4.77	99.7	299.2	1034.3	0.526980746
Developed, Open	295	0.03	0.04	0.16	8.8	11.8	47.2	0.024040044
Emergent Herbac	71	0.22	0.22	0.22	15.7	15.7	15.7	0.008002017
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	104	0.5	0.5	0.5	51.8	51.8	51.8	0.026401444
Mixed Forest	20	0.08	0.105	0.13	1.6	2.1	2.6	0.001325738
Open Water	159	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	190	0.5	0.5	0.5	95.2	95.2	95.2	0.048497072
Shrub/Scrub	6	0.08	0.105	0.13	0.5	0.7	0.8	0.000412452
Woody Wetlands	76	0.22	0.22	0.22	16.7	16.7	16.7	0.008500585
	3,219				Total:	1962.7		

There are no NPDES permits that discharge in the Fish-Duncan Lake subbasin.

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Fish	3186.44	1650.02	52%
Lake Total	3186.44	1650.02	52%

Lake Sedimentation Parameters

Calibration Run

Zone 1 VTK

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	6	0	5.12	31	158.6
Jun	9	0	7.68	30	230.3
Jul	9	0	7.68	31	238.0
Aug	0	0	0.00	31	0.0
Sep	0	0	0.00	30	0.0
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**626.9**

	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
Zone	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**
VTK	626.9	1962.7	0	156.7	490.7	0.0	75%	75%	0%
Total	**626.9**	**1962.7**	**0**	**156.7**	**490.7**	**0.0**	**75%**	**75%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
VTK	Internal	0.429	0.000	0.386	0.043	1.718	75%
	External	1.344	0.627	0.583	0.134	5.377	75%
	Total	1.774	0.627	0.970	0.177	7.095	75%

Segment	Land Use	Area (Acres)	Percentage (%)
ALL	Open Water	2357.16	35.06
ALL	Developed, Open Space	693.65	10.32
ALL	Developed, Low Intensity	1326.81	19.74
ALL	Developed, Medium Intensity	359.61	5.35
ALL	Developed, High Intensity	98.52	1.47
ALL	Barren Land	0.00	0.00
ALL	Deciduous Forest	688.31	10.24
ALL	Evergreen Forest	2.67	0.04
ALL	Mixed Forest	116.31	1.73
ALL	Shrub/Scrub	89.85	1.34
ALL	Herbaceuous	120.54	1.79
ALL	Hay/Pasture	64.05	0.95
ALL	Cultivated Crops	97.85	1.46
ALL	Woody Wetlands	411.43	6.12
ALL	Emergent Herbaceuous Wetlands	295.56	4.40

Segment	Land Use	Area (Acres)	Percentage (%)
Fox Subbasin only	Open Water	1878.79	33.16
Fox Subbasin only	Developed, Open Space	546.87	9.65
Fox Subbasin only	Developed, Low Intensity	1200.71	21.19
Fox Subbasin only	Developed, Medium Intensity	322.92	5.70
Fox Subbasin only	Developed, High Intensity	91.63	1.62
Fox Subbasin only	Barren Land	0.00	0.00
Fox Subbasin only	Deciduous Forest	634.05	11.19
Fox Subbasin only	Evergreen Forest	2.67	0.05
Fox Subbasin only	Mixed Forest	95.85	1.69
Fox Subbasin only	Shrub/Scrub	89.85	1.59
Fox Subbasin only	Herbaceuous	109.86	1.94
Fox Subbasin only	Hay/Pasture	56.93	1.00
Fox Subbasin only	Cultivated Crops	97.85	1.73
Fox Subbasin only	Woody Wetlands	330.70	5.84
Fox Subbasin only	Emergent Herbaceuous Wetlands	207.72	3.67

Segment	Land Use	Area (Acres)	Percentage (%)
Nippersink Subbasin only	Open Water	478.37	45.30
Nippersink Subbasin only	Developed, Open Space	146.78	13.90
Nippersink Subbasin only	Developed, Low Intensity	126.10	11.94
Nippersink Subbasin only	Developed, Medium Intensity	36.70	3.48
Nippersink Subbasin only	Developed, High Intensity	6.89	0.65
Nippersink Subbasin only	Barren Land	0.00	0.00
Nippersink Subbasin only	Deciduous Forest	54.26	5.14
Nippersink Subbasin only	Evergreen Forest	0.00	0.00
Nippersink Subbasin only	Mixed Forest	20.46	1.94
Nippersink Subbasin only	Shrub/Scrub	0.00	0.00
Nippersink Subbasin only	Herbaceuous	10.67	1.01
Nippersink Subbasin only	Hay/Pasture	7.12	0.67
Nippersink Subbasin only	Cultivated Crops	0.00	0.00
Nippersink Subbasin only	Woody Wetlands	80.73	7.65
Nippersink Subbasin only	Emergent Herbaceuous Wetlands	87.85	8.32

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

NameJR	Acres	Avg Depth	Volume	Surface area (%)
Fox	1,856	5.6	10,392	78%
Nippersink	526	5.1	2,681	22%
Total	2,381	5.4	13,073	100%

Zone	Station_ID	Zone	Downstream Zone	Surface area (%)	Mixing length (ft)	Interface Width (ft)	Surface_area (acres)	Surface_area (m2)
1	**Fox**	1	2	78%	5000	1500	1,856	7,509,888
2	**Nippersink**	2	3	22%			526	2,127,194
							2,381	

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
1766	4.84

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.615	0.72

Initial P Concentration	
0.143	Average TP

Catchment Area Calcs

Name	Catchment_area (mi^2)	Ratio
5527950	61.0	1
Fox Nippersink	10.5	0.17

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1- Fox	40%	40%
2- Nippersink	60%	60%

Conversion	
Acres	**Mi Square**
1	0.0015625

	Watershed Information		Total Phosphorus Export			Phosphorus Loads			
Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
ALL	Barren Land	-	0.16	0.16	0.16	0.0	0.0	0.0	0
ALL	Cultivated Crops	98	0.66	0.92	0.94	64.6	90.0	92.0	0.058082668
ALL	Deciduous Forest	688	0.08	0.105	0.13	55.1	72.3	89.5	0.056502808
ALL	Developed, High Intensity	99	0.7	1.96	4.77	69.0	193.1	469.9	0.296748227
ALL	Developed, Low Intensity	1,327	0.04	0.47	1.43	53.1	617.0	1897.3	1.19807861
ALL	Developed, Medium Intensity	360	0.46	1.38	4.77	165.4	496.3	1715.3	1.083164522
ALL	Developed, Open Space	694	0.03	0.04	0.16	20.8	27.7	111.0	0.070081177
ALL	Emergent Herbaceuous Wetlands	296	0.22	0.22	0.22	65.0	65.0	65.0	0.041059503
ALL	Evergreen Forest	3	0.08	0.105	0.13	0.2	0.3	0.3	0.000219074
ALL	Herbaceuous	121	0.5	0.5	0.5	60.3	60.3	60.3	0.038057067
ALL	Mixed Forest	116	0.08	0.105	0.13	9.3	12.2	15.1	0.009547971
ALL	Open Water	2,357	0	0	0	0.0	0.0	0.0	0
ALL	Hay/Pasture	64	0.5	0.5	0.5	32.0	32.0	32.0	0.020222206
ALL	Shrub/Scrub	90	0.08	0.105	0.13	7.2	9.4	11.7	0.007375488
ALL	Woody Wetlands	411	0.22	0.22	0.22	90.5	90.5	90.5	0.057155817
		6,722			**Total Subbasin Watersheds**		1,766		
					Total with modeled upstream inflows		148,391		
							1.2%		

	Watershed Information		tal Phosphorus Export Coefficie			Phosphorus Loads			
Segment	Land Use	ea (acre	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr	edian (lbs/y	igh (lbs/y	Proportion of whole
Fox Subbasin only	Barren Land	-	0.16	0.16	0.16	0.0	0.0	0.0	0
Fox Subbasin only	Cultivated Crops	98	0.66	0.92	0.94	64.6	90.0	92.0	0.058082668
Fox Subbasin only	Deciduous Forest	634	0.08	0.105	0.13	50.7	66.6	82.4	0.052048306
Fox Subbasin only	Developed, High Intensity	92	0.7	1.96	4.77	64.1	179.6	437.1	0.27598255
Fox Subbasin only	Developed, Low Intensity	1,201	0.04	0.47	1.43	48.0	558.3	1717.0	1.084214954
Fox Subbasin only	Developed, Medium Intensity	323	0.46	1.38	4.77	148.5	445.6	1540.3	0.97263753
Fox Subbasin only	Developed, Open Space	547	0.03	0.04	0.16	16.4	21.9	87.5	0.055251559
Fox Subbasin only	Emergent Herbaceuous Wetlands	208	0.22	0.22	0.22	45.7	45.7	45.7	0.028855964
Fox Subbasin only	Evergreen Forest	3	0.08	0.105	0.13	0.2	0.3	0.3	0.000219074
Fox Subbasin only	Herbaceuous	110	0.5	0.5	0.5	54.9	54.9	54.9	0.0346867
Fox Subbasin only	Mixed Forest	96	0.08	0.105	0.13	7.7	10.1	12.5	0.007868404
Fox Subbasin only	Open Water	1,879	0	0	0	0.0	0.0	0.0	0
Fox Subbasin only	Hay/Pasture	57	0.5	0.5	0.5	28.5	28.5	28.5	0.017975294
Fox Subbasin only	Shrub/Scrub	90	0.08	0.105	0.13	7.2	9.4	11.7	0.007375488
Fox Subbasin only	Woody Wetlands	331	0.22	0.22	0.22	72.8	72.8	72.8	0.045940919
		5,666				**Total**	1,584		
					Total with modeled upstream inflows		59,569	40%	

	Land Use	ea (acre	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	ow (lbs/y	edian (lbs/y	igh (lbs/y	Proportion of whole
Segment	Barren Land	-	0.16	0.16	0.16	0.0	0.0	0.0	0
Nippersink Subbasin only	Cultivated Crops	-	0.66	0.92	0.94	0.0	0.0	0.0	0
Nippersink Subbasin only	Deciduous Forest	54	0.08	0.105	0.13	4.3	5.7	7.1	0.004454502
Nippersink Subbasin only	Developed, High Intensity	7	0.7	1.96	4.77	4.8	13.5	32.9	0.020765677
Nippersink Subbasin only	Developed, Low Intensity	126	0.04	0.47	1.43	5.0	58.6	180.3	0.113863656
Nippersink Subbasin only	Developed, Medium Intensity	37	0.46	1.38	4.77	16.9	50.6	175.0	0.110526992
Nippersink Subbasin only	Developed, Open Space	147	0.03	0.04	0.16	4.4	5.9	23.5	0.014829617
Nippersink Subbasin only	Emergent Herbaceuous Wetlands	88	0.22	0.22	0.22	19.3	19.3	19.3	0.012203539
Nippersink Subbasin only	Evergreen Forest	-	0.08	0.105	0.13	0.0	0.0	0.0	0
Nippersink Subbasin only	Herbaceuous	11	0.5	0.5	0.5	5.3	5.3	5.3	0.003370368
Nippersink Subbasin only	Mixed Forest	20	0.08	0.105	0.13	1.6	2.1	2.7	0.001679567
Nippersink Subbasin only	Open Water	478	0	0	0	0.0	0.0	0.0	0
Nippersink Subbasin only	Hay/Pasture	7	0.5	0.5	0.5	3.6	3.6	3.6	0.002246912
Nippersink Subbasin only	Shrub/Scrub	-	0.08	0.105	0.13	0.0	0.0	0.0	0
Nippersink Subbasin only	Woody Wetlands	81	0.22	0.22	0.22	17.8	17.8	17.8	0.011214898
Nippersink Subbasin only		1,056				**Total**	182		
					Total with modeled upstream inflows		88,823	60%	

MS4 Areas from GIS

Segment	**Subbasin Area (acres)**	**Municipal MS4 Area (acres)**	**Percent Subbasin as MS4 Area**
Fox Lake	######	1320.66	24%
Nippersink Lake	######	433.03	27%
Lake Total	######	1753.69	24%

Lake Sedimentation Parameters

Calibration Run

Zone 1 Fox

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	1	0	16.56	31	513.3
Jun	3	0	49.67	30	1490.1
Jul	3	0	49.67	31	1539.8
Aug	4	0	66.23	31	2053.0
Sep	3	0	49.67	30	1490.1
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**7086.2**

Zone 2 Nippersink

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	4	0	18.76	30	562.8
May	11	0	51.59	31	1599.2
Jun	14	0	65.66	30	1969.7
Jul	14	0	65.66	31	2035.3
Aug	14	0	65.66	31	2035.3
Sep	7	0	32.83	30	984.8
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**9187.1**

		Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
Zone	**Station**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**
Zone 1	Fox	7,086	59,569	-	4,960	14,892	-	30%	75%	0%
Zone 2	Nippersink	9,187	88,823	-	4,594	13,323	-	50%	85%	0%
	Total	**16,273**	**148,391**	**-**	**9,554**	**28,216**	**-**	**41%**	**81%**	**0%**

88,823
148,391

Zone	Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
		Internal	13.590	0.000	12.231	1.359	19.414	30%
		External	40.800	0.230	36.491	4.080	163.202	75%
Zone 1	Fox	Total	54.390	0.230	48.722	5.439	182.616	70%
		Internal	12.585	0.000	11.327	1.259	25.170	50%
		External	36.503	0.011	32.841	3.650	243.350	85%
Zone 2	Nippersink	Total	49.088	0.011	44.168	4.909	268.520	82%
		Internal	26.175	0.000	23.557	2.617	44.584	41%
		External	77.303	0.240	69.332	7.730	406.552	81%
Lake Total		Total	103.478	0.240	92.890	10.348	451.136	77%

Land Use	Area (Acres)	Percentage (%)
Open Water	1899.69	26.94
Developed, Open Space	409.65	5.81
Developed, Low Intensity	453.02	6.43
Developed, Medium Intensity	132.77	1.88
Developed, High Intensity	7.12	0.10
Barren Land	188.37	2.67
Deciduous Forest	1028.13	14.58
Evergreen Forest	3.34	0.05
Mixed Forest	132.77	1.88
Shrub/Scrub	18.01	0.26
Herbaceuous	235.96	3.35
Hay/Pasture	95.18	1.35
Cultivated Crops	398.98	5.66
Woody Wetlands	532.19	7.55
Emergent Herbaceuous Wetlands	1515.17	21.49

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Surface_area (acres)	Surface_area (m2)
Grass	1	100%	NA	1,444.2	5,844,637

Calculating Daily Watershed Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
3833.6	10.50

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.095

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Grass Subbasin below DT-35	11.0	0.181

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads		
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)
Barren Land	188	0.16	0.16	0.16	30.1	30.1	30.1
Cultivated Crops	399	0.66	0.92	0.94	263.3	367.1	375.0
Deciduous Forest	1,028	0.08	0.105	0.13	82.3	108.0	133.7
Developed, High Intensity	7	0.7	1.96	4.77	5.0	13.9	33.9
Developed, Low Intensity	453	0.04	0.47	1.43	18.1	210.7	647.8
Developed, Medium Intensity	133	0.46	1.38	4.77	61.1	183.2	633.3
Developed, Open Space	410	0.03	0.04	0.16	12.3	16.4	65.5
Emergent Herbaceuous Wetlands	1,515	0.22	0.22	0.22	333.3	333.3	333.3
Evergreen Forest	3	0.08	0.105	0.13	0.3	0.4	0.4
Herbaceuous	236	0.5	0.5	0.5	118.0	118.0	118.0
Mixed Forest	133	0.08	0.105	0.13	10.6	13.9	17.3
Open Water	1,900	0	0	0	0.0	0.0	0.0
Hay/Pasture	95	0.5	0.5	0.5	47.6	47.6	47.6
Shrub/Scrub	18	0.08	0.105	0.13	1.4	1.9	2.3
Woody Wetlands	532	0.22	0.22	0.22	117.1	117.1	117.1
	7,050				Total:	1,562	
					Subbasin LU plus Lake Marie outflow	3,834	
					Subbasin LU plus DT-35 Load	144,107	

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTQ

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	3	0	38.66	31	1198.3
Jun	5	0	64.43	30	1932.8
Jul	7	0	83.75	31	2596.4
Aug	7	0	83.75	31	2596.4
Sep	4	0	51.54	30	1546.2
Oct	2	0	28.35	31	878.8
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**10748.9**

Zone	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources	Internal	Watershed	Point Sources
RTQ	10,749	144,107	0	8,062	28,821	0.0	25%	80%	0%
Total	**10,749**	**144,107**	**0**	**8,062**	**28,821**	**0.0**	**25%**	**80%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
RTQ	Internal	22.087	0.000	19.878	2.209	29.449	25%
	External	78.963	0.002	71.064	7.896	394.813	80%
	Total	101.049	0.002	90.942	10.105	424.262	76%

Land Use	Area (Acres)	Percentage (%)
Open Water	27.13	18.60
Developed, Open Space	22.91	15.70
Developed, Low Intensity	45.15	30.95
Developed, Medium Intensity	32.02	21.95
Developed, High Intensity	6.89	4.73
Barren Land	1.78	1.22
Deciduous Forest	6.67	4.57
Cultivated Crops	3.34	2.29

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Interface Width (ft)	Surface_area (acres)
Hidden	1	100%	NA	NA	19.25

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
83.67	0.23

Number of Days in POR
7518

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.23

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Hidden	0.227954	0.004

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	2	0.16	0.16	0.16	0.3	0.3	0.3	0.003402219
Cultivated Crops	3	0.66	0.92	0.94	2.2	3.1	3.1	0.037477573
Deciduous Forest	7	0.08	0.105	0.13	0.5	0.7	0.9	0.010366137
Developed, High Intensity	7	0.7	1.96	4.77	4.8	13.5	32.9	0.393036082
Developed, Low Intensity	45	0.04	0.47	1.43	1.8	21.0	64.6	0.771586152
Developed, Medium Intensity	32	0.46	1.38	4.77	14.7	44.2	152.8	1.825715994
Developed, Open Space	23	0.03	0.04	0.16	0.7	0.9	3.7	0.043803575
Emergent Herbaceuous Wetlands	--	0.22	0.22	0.22	--	--	--	--
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	--	0.5	0.5	0.5	--	--	--	--
Mixed Forest	--	0.08	0.105	0.13	--	--	--	--
Open Water	27	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	--	0.5	0.5	0.5	--	--	--	--
Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
Woody Wetlands	--	0.22	0.22	0.22	--	--	--	--
	146				Total:	83.7		

There are no NPDES permit limits or allocations for Hidden Lake.

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Hidden	139.99	137.74	98%
Lake Total	139.99	137.74	98%

Lake Sedimentation Parameters

Calibration Run

Zone 1 UTM

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	2	0	0.34	31	10.6
Apr	3	0	0.52	30	15.5
May	3	0	0.52	31	16.0
Jun	4	0	0.69	30	20.6
Jul	4	0	0.69	31	21.3
Aug	2	0	0.34	31	10.6
Sep	0	0	0.00	30	0.0
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**94.6**

	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
Zone	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**
UTM	94.6	83.7	0	17.0	20.9	0.0	82%	75%	0%
Total	**94.6**	**83.7**	**0**	**17.0**	**20.9**	**0.0**	**82%**	**75%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
	Internal	0.047	0.000	0.042	0.005	0.259	82%
	External	0.057	0.051	0.001	0.006	0.229	75%
UTM	Total	0.104	0.051	0.043	0.010	0.488	79%

	Segment	Land Use	Area (Acres)	Percentage (%)
Whole_watershed	Long	Open Water	1379.74	5.51
Whole Watershed	Long	Developed, Open Space	3596.79	14.37
Whole Watershed	Long	Developed, Low Intensity	6793.04	27.13
Whole Watershed	Long	Developed, Medium Intensity	2113.41	8.44
Whole Watershed	Long	Developed, High Intensity	446.57	1.78
Whole Watershed	Long	Barren Land	98.97	0.40
Whole Watershed	Long	Deciduous Forest	1958.63	7.82
Whole Watershed	Long	Evergreen Forest	14.68	0.06
Whole Watershed	Long	Mixed Forest	308.91	1.23
Whole Watershed	Long	Shrub/Scrub	154.12	0.62
Whole Watershed	Long	Herbaceuous	1084.84	4.33
Whole Watershed	Long	Hay/Pasture	1596.13	6.37
Whole Watershed	Long	Cultivated Crops	4452.56	17.78
Whole Watershed	Long	Woody Wetlands	628.93	2.51
Whole Watershed	Long	Emergent Herbaceuous Wetlands	410.54	1.64

	Segment	Land Use	Area (Acres)	Percentage (%)
Long	RTJ_1	Open Water	222.17	7.04
Long	RTJ_1	Developed, Open Space	570.22	18.06
Long	RTJ_1	Developed, Low Intensity	941.40	29.81
Long	RTJ_1	Developed, Medium Intensity	242.41	7.68
Long	RTJ_1	Developed, High Intensity	54.49	1.73
Long	RTJ_1	Barren Land	7.78	0.25
Long	RTJ_1	Deciduous Forest	308.02	9.75
Long	RTJ_1	Evergreen Forest	7.12	0.23
Long	RTJ_1	Mixed Forest	40.48	1.28
Long	RTJ_1	Shrub/Scrub	40.70	1.29
Long	RTJ_1	Herbaceuous	120.76	3.82
Long	RTJ_1	Hay/Pasture	182.81	5.79
Long	RTJ_1	Cultivated Crops	273.55	8.66
Long	RTJ_1	Woody Wetlands	101.63	3.22
Long	RTJ_1	Emergent Herbaceuous Wetlands	44.03	1.39

	Segment	Land Use	Area (Acres)	Percentage (%)
Long	RTJ_2	Open Water	98.97	42.22
Long	RTJ_2	Developed, Open Space	40.03	17.08
Long	RTJ_2	Developed, Low Intensity	73.61	31.40
Long	RTJ_2	Developed, Medium Intensity	9.56	4.08
Long	RTJ_2	Developed, High Intensity	2.67	1.14
Long	RTJ_2	Deciduous Forest	2.45	1.04
Long	RTJ_2	Mixed Forest	3.11	1.33
Long	RTJ_2	Hay/Pasture	0.44	0.19
Long	RTJ_2	Woody Wetlands	3.56	1.52

	Segment	Land Use	Area (Acres)	Percentage (%)
Long	RT1_3	Open Water	1058.60	4.89
Long	RT1_3	Developed, Open Space	2986.54	13.80
Long	RT1_3	Developed, Low Intensity	5778.03	26.69
Long	RT1_3	Developed, Medium Intensity	1861.44	8.60
Long	RT1_3	Developed, High Intensity	389.41	1.80
Long	RT1_3	Barren Land	88.74	0.41
Long	RT1_3	Deciduous Forest	1647.50	7.61
Long	RT1_3	Evergreen Forest	7.12	0.03
Long	RT1_3	Mixed Forest	264.87	1.22
Long	RT1_3	Shrub/Scrub	113.42	0.52
Long	RT1_3	Herbaceuous	964.08	4.45
Long	RT1_3	Hay/Pasture	1413.32	6.53
Long	RT1_3	Cultivated Crops	4179.02	19.31
Long	RT1_3	Woody Wetlands	527.30	2.44
Long	RT1_3	Emergent Herbaceuous Wetlands	366.51	1.69

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station	Acres	Depth	Volume	
RTJ_1	152.9	13.1	2,004	2
RTJ_2	100.1	13.1	1,312	3
RTJ_3	130.0	13.1	1,703	1
Total	**383.0**	**13.1**	**5,018**	

Station_ID	Zone	Downstream Zone	Surface area(%)	Mixing length(ft)	Interface Width (ft)	Surface_area (acres)	Surface_area (m2)
RTJ_1	2	3	40%	2200	2075	153	618,927
RTJ_2	3	NA	26%	NA	NA	100	405,224
RTJ_3	1	2	34%	1800	2250	130	525,983
Lake Total						**383**	**1,550,134**

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
10309	28

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.491	0.72

Lake Zone Loading Factors			
Zone	**% P Load**	**% N Load**	

Initial P Concentration
0.175

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Long	38.757801	0.635

Conversion	
Acres	**Mi Square**
1	0.0015625

Segment	Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Long	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Long	Barren Land	99	0.16	0.16	0.16	16	16	16	0.1%
Long	Cultivated Crops	4,453	0.66	0.92	0.94	2939	4096	4185	31.4%
Long	Deciduous Forest	1,959	0.08	0.105	0.13	157	206	255	1.6%
Long	Developed, High Intensity	447	0.7	1.96	4.77	313	875	2130	6.7%
Long	Developed, Low Intensity	6,793	0.04	0.47	1.43	272	3159	9714	24.2%
Long	Developed, Medium Intensity	2,113	0.46	1.38	4.77	972	2917	10081	22.4%
Long	Developed, Open Space	3,597	0.03	0.04	0.16	108	144	575	1.1%
Long	Emergent Herbaceuous Wetlands	411	0.22	0.22	0.22	90	90	90	0.7%
Long	Evergreen Forest	15	0.08	0.105	0.13	1	2	2	0.0%
Long	Herbaceuous	1,085	0.5	0.5	0.5	542	542	542	4.2%
Long	Mixed Forest	309	0.08	0.105	0.13	25	32	40	0.2%
Long	Open Water	1,380	0	0	0	0	0	0	0.0%
Long	Hay/Pasture	1,596	0.5	0.5	0.5	798	798	798	6.1%
Long	Shrub/Scrub	154	0.08	0.105	0.13	12	16	20	0.1%
	Woody Wetlands	629	0.22	0.22	0.22	138	138	138	1.1%
		25,038				Total:	13,032		
						With empirical data correction	10,309		

Whole watershed

	Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
RTJ_1	Barren Land	8	0.16	0.16	0.16	1.2	1.2	1.2	0.1%
RTJ_1	Cultivated Crops	274	0.66	0.92	0.94	180.5	251.7	257.1	18.2%
RTJ_1	Deciduous Forest	308	0.08	0.105	0.13	24.6	32.3	40.0	2.3%
RTJ_1	Developed, High Intensity	54	0.7	1.96	4.77	38.1	106.8	259.9	7.7%
RTJ_1	Developed, Low Intensity	941	0.04	0.47	1.43	37.7	437.7	1346.2	31.7%
RTJ_1	Developed, Medium Intensity	242	0.46	1.38	4.77	111.5	334.5	1156.3	24.2%
RTJ_1	Developed, Open Space	570	0.03	0.04	0.16	17.1	22.8	91.2	1.7%
RTJ_1	Emergent Herbaceuous Wetlands	44	0.22	0.22	0.22	9.7	9.7	9.7	0.7%
RTJ_1	Evergreen Forest	7	0.08	0.105	0.13	0.6	0.7	0.9	0.1%
RTJ_1	Herbaceuous	121	0.5	0.5	0.5	60.4	60.4	60.4	4.4%
RTJ_1	Mixed Forest	40	0.08	0.105	0.13	3.2	4.2	5.3	0.3%
RTJ_1	Open Water	222	0	0	0	0.0	0.0	0.0	0.0%
RTJ_1	Hay/Pasture	183	0.5	0.5	0.5	91.4	91.4	91.4	6.6%
RTJ_1	Shrub/Scrub	41	0.08	0.105	0.13	3.3	4.3	5.3	0.3%
RTJ_1	Woody Wetlands	102	0.22	0.22	0.22	22.4	22.4	22.4	1.6%
		3,158				Total:	1,380.2		
						With empirical data correction	2,488.39		

11%

Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
RTJ_2	Barren Land	--	0.16	0.16	0.16	--	--	--	--
RTJ_2	Cultivated Crops	--	0.66	0.92	0.94	--	--	--	--
RTJ_2	Deciduous Forest	2	0.08	0.105	0.13	0.2	0.3	0.3	0.5%
RTJ_2	Developed, High Intensity	3	0.7	1.96	4.77	1.9	5.2	12.7	9.4%
RTJ_2	Developed, Low Intensity	74	0.04	0.47	1.43	2.9	34.2	105.3	61.3%
RTJ_2	Developed, Medium Intensity	10	0.46	1.38	4.77	4.4	13.2	45.6	23.6%
RTJ_2	Developed, Open Space	40	0.03	0.04	0.16	1.2	1.6	6.4	2.9%
RTJ_2	Emergent Herbaceuous Wetlands	--	0.22	0.22	0.22	--	--	--	--
RTJ_2	Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
RTJ_2	Herbaceuous	--	0.5	0.5	0.5	--	--	--	--
RTJ_2	Mixed Forest	3	0.08	0.105	0.13	0.2	0.3	0.4	0.6%
RTJ_2	Open Water	99	0	0	0	0.0	0.0	0.0	0.0%
RTJ_2	Hay/Pasture	0	0.5	0.5	0.5	0.2	0.2	0.2	0.4%
RTJ_2	Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
RTJ_2	Woody Wetlands	4	0.22	0.22	0.22	0.8	0.8	0.8	1.4%
		234				Total:	56		0.4%
						With empirical data correction	56		

Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
RT1_3	Barren Land	89	0.16	0.16	0.16	14.2	14.2	14.2	0.1%
RT1_3	Cultivated Crops	4,179	0.66	0.92	0.94	2758.1	3844.7	3928.3	33.2%
RT1_3	Deciduous Forest	1,647	0.08	0.105	0.13	131.8	173.0	214.2	1.5%
RT1_3	Developed, High Intensity	389	0.7	1.96	4.77	272.6	763.2	1857.5	6.6%
RT1_3	Developed, Low Intensity	5,778	0.04	0.47	1.43	231.1	2686.8	8262.6	23.2%
RT1_3	Developed, Medium Intensity	1,861	0.46	1.38	4.77	856.3	2568.8	8879.1	22.2%
RT1_3	Developed, Open Space	2,987	0.03	0.04	0.16	89.6	119.5	477.8	1.0%
RT1_3	Emergent Herbaceuous Wetlands	367	0.22	0.22	0.22	80.6	80.6	80.6	0.7%
RT1_3	Evergreen Forest	7	0.08	0.105	0.13	0.6	0.7	0.9	0.0%
RT1_3	Herbaceuous	964	0.5	0.5	0.5	482.0	482.0	482.0	4.2%
RT1_3	Mixed Forest	265	0.08	0.105	0.13	21.2	27.8	34.4	0.2%
RT1_3	Open Water	1,059	0	0	0	0.0	0.0	0.0	0.0%
RT1_3	Hay/Pasture	1,413	0.5	0.5	0.5	706.7	706.7	706.7	6.1%
RT1_3	Shrub/Scrub	113	0.08	0.105	0.13	9.1	11.9	14.7	0.1%
RT1_3	Woody Wetlands	527	0.22	0.22	0.22	116.0	116.0	116.0	1.0%
		21,646				Total:	11,596		89.0%
						With empirical data correction	7,765		
								1436.1	

Permit	Name	Actual Average (MGD)	Actual Average P (mg/L)	DAF (MGD)	DMF (MGD)	TP limit (mg/L)	TP Load (Avg flow) lbs/day	TP Load (DAF) lbs/day
IL0024074	BAXTER HEALTHCARE CORP	0.389	0.103	0.5	0.75	0	-	-
IL0034746	FREMONT SCHOOL-DIST# 79	0.005		0.01	0.04	5	0.211	0.42
IL0046043	CAMP HICKORY	0.014		0.014	0.035	5	0.584	0.58
IL0050661	Dayspring	0.009		0.03	0.075	5	0.378	1.25
		0.416832		0.6	0.9		1.173	2.25

MS4 Areas from GIS

Name	ID	Area	*Percent of Subbasin*
Grayslake Village	ILR400202	862.8	3.7%
Hainesville Village	ILR400205	1,160	5.0%
Hawthorn Woods Village	ILR400209	437.6	1.9%
Lake Villa Village	ILR400369	1,413	6.0%
Mundelein Village	ILR400395	403.6	1.7%
Round Lake Beach Village	ILR400439	2,941	12.6%
Round Lake Heights Village	ILR400241	390.4	1.7%
Round Lake Park Village	ILR400242	927.1	4.0%
Round Lake Village	ILR400243	3,557	15.2%
Volo Village	ILR400657	9.5	0.04%
Wauconda Village	ILR400501	224.8	1.0%

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTJ

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.0	31	0.0
Feb	0	0	0.0	28	0.0
Mar	0	0	0.0	31	0.0
Apr	0	0	0.0	30	0.0
May	0	0	0.0	31	0.0
Jun	2	0	6.8	30	205.0
Jul	10	0	34.2	31	1059.4
Aug	14	0	47.8	31	1483.2
Sep	10	0	34.2	30	1025.2
Oct	0	0	0.0	31	0.0
Nov	0	0	0.0	30	0.0
Dec	0	0	0.0	31	0.0
			Annual TP load (lbs)		**3772.9**

	Actual Load (lbs/yr)		
Zone	**Internal**	**Watershed**	**Point Sources**
RTJ	3,773	9,487	822
Total	**3,773**	**9,487**	**822**

Allowable Load (lbs/yr)		
Internal	**Watershed**	**Point Sources**
1,132	2,846	822
1,132	**2,846**	**822**

Percent Reduction		
Internal	**Watershed**	**Point Sources**
70%	70%	0%
70%	**70%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
RTJ	Internal	3.101	-	-	2.791	0.310	10.337	70%
	External	10.300	3.699	2.253	3.318	1.030	28.244	64%
	Total	13.401	3.699	2.253	6.109	1.340	38.581	65%

Land Use	Area (Acres)	Percentage (%)
Open Water	1510.95	16.09
Developed, Open Space	1028.57	10.95
Developed, Low Intensity	1726.23	18.38
Developed, Medium Intensity	682.31	7.26
Developed, High Intensity	289.78	3.08
Barren Land	3.34	0.04
Deciduous Forest	1090.18	11.61
Evergreen Forest	9.79	0.10
Mixed Forest	182.81	1.95
Shrub/Scrub	14.01	0.15
Herbaceuous	404.31	4.30
Hay/Pasture	366.51	3.90
Cultivated Crops	1117.31	11.89
Woody Wetlands	408.76	4.35
Emergent Herbaceuous Wetlands	558.65	5.95

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Surface_area (acres)	Surface_area (m2)
Marie	1	100%	NA	526.9	2,132,283

Calculating Daily Watershed Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
6540.4	17.92

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.095

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Marie	14.7	0.241

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads		
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)
Barren Land	3	0.16	0.16	0.16	0.5	0.5	0.5
Cultivated Crops	1,117	0.66	0.92	0.94	737.4	1027.9	1050.3
Deciduous Forest	1,090	0.08	0.105	0.13	87.2	114.5	141.7
Developed, High Intensity	290	0.7	1.96	4.77	202.8	568.0	1382.3
Developed, Low Intensity	1,726	0.04	0.47	1.43	69.0	802.7	2468.5
Developed, Medium Intensity	682	0.46	1.38	4.77	313.9	941.6	3254.6
Developed, Open Space	1,029	0.03	0.04	0.16	30.9	41.1	164.6
Emergent Herbaceuous Wetlands	559	0.22	0.22	0.22	122.9	122.9	122.9
Evergreen Forest	10	0.08	0.105	0.13	0.8	1.0	1.3
Herbaceuous	404	0.5	0.5	0.5	202.2	202.2	202.2
Mixed Forest	183	0.08	0.105	0.13	14.6	19.2	23.8
Open Water	1,511	0	0	0	0.0	0.0	0.0
Hay/Pasture	367	0.5	0.5	0.5	183.3	183.3	183.3
Shrub/Scrub	14	0.08	0.105	0.13	1.1	1.5	1.8
Woody Wetlands	409	0.22	0.22	0.22	89.9	89.9	89.9
	9,393				Total:	4,116	
				LU plus Upper Lake outflow		6,540	

Permit	Name	DMR Actual Avg (MGD)	DAF (mgd)	DMF (mgd)	TP Limit (mg/L)	Load (lbs/day)	DMR Actual Avg TP (mg/L)	Actual Load (lbs/day)
IL0020354	ANTIOCH WW	1.316	2	9.2	1	16.68089245	0.75211475	8.255232
	CFS	2.036153	3.094457	14.23450346				

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Marie	9244.76	5041.48	55%
Lake Total	9244.76	5041.48	55%

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTR

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	0	0	0.00	31	0.0
Jun	0	0	0.00	30	0.0
Jul	5	0	23.50	31	728.6
Aug	10	0	47.01	31	1457.2
Sep	1.5	0	7.05	30	211.5
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**2397.4**

	Actual Load (lbs/yr)		
Zone	**Internal**	**Watershed**	**Point Sources**
RTR	2397.4	6,540	3,013
Total	**2397.4**	**6,540**	**3013**

Allowable Load (lbs/yr)		
Internal	**Watershed**	**Point Sources**
383.6	719	3013.2
383.6	**719**	**3013.2**

Percent Reduction		
Internal	**Watershed**	**Point Sources**
84%	89%	0%
84%	**89%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (lbs/day)	Reduction Needed (Percent)
	Internal	1.05			0.95	0.11	6.57	5.52	84%
	External	10.2	0.33	8.26	0.63	1.02	26.2	15.9	61%
RTR	Total	11.3	0.33	8.26	1.58	1.13	32.7	21.4	66%

Land Use	Area (Acres)	Percentage (%)
Open Water	26.91	19.27
Developed, Open Space	7.12	5.10
Developed, Low Intensity	3.11	2.23
Deciduous Forest	23.57	16.88
Mixed Forest	1.56	1.11
Herbaceuous	11.56	8.28
Hay/Pasture	42.48	30.41
Cultivated Crops	23.35	16.72

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Interface Width (ft)	Surface_area (acres)
McGreal	1	100%	NA	NA	24.31

Calculating Daily Load

Annual_P_load (lbs/year)	Daily_avg_P_load (lbs/day)
52.88	0.14

Number of Days in POR
7518

fp P	
Lake fp P	Inflow fp P
0.599	0.72

Lake Zone Loading Factors		
Zone	% P Load	% N Load
1	100	0

Initial P Concentration
0.163

Catchment Area Calcs		
Name	Catchment_area (mi^2)	Ratio
5527950	61	1
McGreal	0.218225	0.004

Conversion	
Acres	Mi Square
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	--	0.16	0.16	0.16	--	--	--	--
Cultivated Crops	23	0.66	0.92	0.94	15.4	21.5	22.0	0.415133225
Deciduous Forest	24	0.08	0.105	0.13	1.9	2.5	3.1	0.057958823
Developed, High Intensity	--	0.7	1.96	4.77	--	--	--	--
Developed, Low Intensity	3	0.04	0.47	1.43	0.1	1.4	4.5	0.084204328
Developed, Medium Intensity	--	0.46	1.38	4.77	--	--	--	--
Developed, Open Space	7	0.03	0.04	0.16	0.2	0.3	1.1	0.021534773
Emergent Herbaceuous Wetlands	--	0.22	0.22	0.22	--	--	--	--
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	12	0.5	0.5	0.5	5.8	5.8	5.8	0.10935627
Mixed Forest	2	0.08	0.105	0.13	0.1	0.2	0.2	0.003827469
Open Water	27	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	42	0.5	0.5	0.5	21.2	21.2	21.2	0.401673992
Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
Woody Wetlands	--	0.22	0.22	0.22	--	--	--	--
	140				Total:	52.9		
					w/geese	###############		

There are no NPDES permits with limits or allocations for McGreal Lake.

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
McGreal	135.47	2.05	2%
Lake Total	135.47	2.05	2%

Lake Sedimentation Parameters

Calibration Run

Zone 1 UTX

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	5	0	1.08	31	33.6
Jun	15	0	3.25	30	97.6
Jul	15	0	3.25	31	100.9
Aug	6	0	1.30	31	40.3
Sep	0	0	0.00	30	0.0
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**272.4**

	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
Zone	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**
UTX	272.4	52.9	0	51.8	18.5	0.0	81%	65%	0%
Total	**272.4**	**52.9**	**0**	**51.8**	**18.5**	**0.0**	**81%**	**65%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
UTX	Internal	0.142	0.000	0.128	0.014	0.746	81%
	External	0.051	0.001	0.045	0.005	0.145	65%
	Total	0.193	0.001	0.173	0.019	0.891	78%

Land Use	Area (Acres)	Percentage (%)
Open Water	201.49	13.19
Developed, Open Space	156.57	10.25
Developed, Low Intensity	239.96	15.71
Developed, Medium Intensity	22.91	1.50
Developed, High Intensity	0.67	0.04
Barren Land	0.00	0.00
Deciduous Forest	374.96	24.55
Evergreen Forest	3.56	0.23
Mixed Forest	89.62	5.87
Shrub/Scrub	5.78	0.38
Herbaceuous	82.29	5.39
Hay/Pasture	67.39	4.41
Cultivated Crops	127.65	8.36
Woody Wetlands	122.54	8.02
Emergent Herbaceuous Wetlands	32.25	2.11

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used
Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Surface_area (acres)	Surface_area (m2)
Petite	1	100%	NA	195.0	789,165

Calculating Daily Watershed Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
3938.2	10.79

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.095

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Spring	2.4	0.039

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads		
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)
Barren Land	-	0.16	0.16	0.16	0.0	0.0	0.0
Cultivated Crops	128	0.66	0.92	0.94	84.3	117.4	120.0
Deciduous Forest	375	0.08	0.105	0.13	30.0	39.4	48.7
Developed, High Intensity	1	0.7	1.96	4.77	0.5	1.3	3.2
Developed, Low Intensity	240	0.04	0.47	1.43	9.6	111.6	343.1
Developed, Medium Intensity	23	0.46	1.38	4.77	10.5	31.6	109.3
Developed, Open Space	157	0.03	0.04	0.16	4.7	6.3	25.1
Emergent Herbaceuous Wetlands	32	0.22	0.22	0.22	7.1	7.1	7.1
Evergreen Forest	4	0.08	0.105	0.13	0.3	0.4	0.5
Herbaceuous	82	0.5	0.5	0.5	41.1	41.1	41.1
Mixed Forest	90	0.08	0.105	0.13	7.2	9.4	11.7
Open Water	201	0	0	0	0.0	0.0	0.0
Hay/Pasture	67	0.5	0.5	0.5	33.7	33.7	33.7
Shrub/Scrub	6	0.08	0.105	0.13	0.5	0.6	0.8
Woody Wetlands	123	0.22	0.22	0.22	27.0	27.0	27.0
	1,528				Total:	427	
				LU plus Upper Lake outflow		3,938	

There are no NPDES permits in the Petite Lake watershed

There are no MS4s in the Petite Lake watershed

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTR

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	2	0	3.48	31	107.9
Jun	7	0	12.18	30	365.4
Jul	9	0	15.66	31	485.4
Aug	9	0	15.66	31	485.4
Sep	5	0	8.70	30	261.0
Oct	1	0	1.74	31	53.9
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**1759.0**

	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
Zone	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**
VTJ	1759.0	3,938	0	1055.4	669	0.0	40%	83%	0%
Total	**1759.0**	**3,938**	**0**	**1055.4**	**669**	**0.0**	**40%**	**83%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
VTJ	Internal	2.891	--	2.602	0.289	4.819	40%
	External	1.834	--	1.651	0.183	10.790	83%
	Total	4.726	--	4.253	0.473	15.609	70%

Segment	Land Use	Area (Acres)	Percentage (%)
ALL	Open Water	4974.52	3.50
ALL	Developed, Open Space	11401.05	8.03
ALL	Developed, Low Intensity	10875.31	7.66
ALL	Developed, Medium Intensity	1880.12	1.32
ALL	Developed, High Intensity	690.76	0.49
ALL	Barren Land	1129.99	0.80
ALL	Deciduous Forest	13502.01	9.51
ALL	Evergreen Forest	44.48	0.03
ALL	Mixed Forest	2003.11	1.41
ALL	Shrub/Scrub	167.91	0.12
ALL	Herbaceuous	1970.64	1.39
ALL	Hay/Pasture	15875.19	11.18
ALL	Cultivated Crops	72823.75	51.28
ALL	Woody Wetlands	4012.89	2.83
ALL	Emergent Herbaceuous Wetlands	650.06	0.46

Segment	Land Use	Area (Acres)	Percentage (%)
RTU-3 Subbasin	Open Water	4322.01	3.17
RTU-3 Subbasin	Developed, Open Space	10578.64	7.77
RTU-3 Subbasin	Developed, Low Intensity	9834.28	7.22
RTU-3 Subbasin	Developed, Medium Intensity	1633.93	1.20
RTU-3 Subbasin	Developed, High Intensity	618.03	0.45
RTU-3 Subbasin	Barren Land	1044.81	0.77
RTU-3 Subbasin	Deciduous Forest	12670.26	9.31
RTU-3 Subbasin	Evergreen Forest	44.03	0.03
RTU-3 Subbasin	Mixed Forest	1820.97	1.34
RTU-3 Subbasin	Shrub/Scrub	122.76	0.09
RTU-3 Subbasin	Herbaceuous	1464.02	1.08
RTU-3 Subbasin	Hay/Pasture	15506.90	11.39
RTU-3 Subbasin	Cultivated Crops	72328.03	53.13
RTU-3 Subbasin	Woody Wetlands	3651.72	2.68
RTU-3 Subbasin	Emergent Herbaceuous Wetlands	490.60	0.36

Segment	Land Use	Area (Acres)	Percentage (%)
RTU-1 Subbasin	Open Water	652.51	11.11
RTU-1 Subbasin	Developed, Open Space	822.41	14.01
RTU-1 Subbasin	Developed, Low Intensity	1041.03	17.73
RTU-1 Subbasin	Developed, Medium Intensity	246.19	4.19
RTU-1 Subbasin	Developed, High Intensity	72.72	1.24
RTU-1 Subbasin	Barren Land	85.18	1.45
RTU-1 Subbasin	Deciduous Forest	831.76	14.17
RTU-1 Subbasin	Evergreen Forest	0.44	0.01
RTU-1 Subbasin	Mixed Forest	182.14	3.10
RTU-1 Subbasin	Shrub/Scrub	45.15	0.77
RTU-1 Subbasin	Herbaceuous	506.61	8.63
RTU-1 Subbasin	Hay/Pasture	368.29	6.27
RTU-1 Subbasin	Cultivated Crops	495.72	8.44
RTU-1 Subbasin	Woody Wetlands	361.17	6.15
RTU-1 Subbasin	Emergent Herbaceuous Wetlands	159.46	2.72

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

NameJR	Acres	Avg Depth	Volume	Surface area (%)
RTU-1	254	5.2	1,323	16%
RTU-3	1,358	5.2	7,062	84%
Total	1,613	5.2	8,385	100%

Zone	Station_ID	Zone	Downstream Zone	Surface area (%)	Mixing length (ft)	Interface Width (ft)	Surface_area (acres)	Surface_area (m2)
1	**RTU-1**	1	2	16%	9000	2100	254	1,029,804
2	**RTU-3**	2	3	84%			1,358	5,495,879
							1,613	

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
88239	241.75

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.615	0.72

Initial P Concentration	
0.148	Average TP

Catchment Area Calcs

Name	Catchment_area (mi^2)	Ratio
5548280	192.0	1
Pistakee	221.9	1.16

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
2- RTU3	99%	99%
1- RTU1	1%	1%

Conversion	
Acres	**Mi Square**
1	0.0015625

	Watershed Information		Total Phosphorus Export			Phosphorus Loads			
Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
ALL	Barren Land	1,130	0.16	0.16	0.16	180.8	180.8	180.8	0.002099686
ALL	Cultivated Crops	72,824	0.66	0.92	0.94	48063.7	66997.8	68454.3	0.7949906
ALL	Deciduous Forest	13,502	0.08	0.105	0.13	1080.2	1417.7	1755.3	0.020384641
ALL	Developed, High Intensity	691	0.7	1.96	4.77	483.5	1353.9	3294.9	0.038265289
ALL	Developed, Low Intensity	10,875	0.04	0.47	1.43	435.0	5057.0	15551.7	0.180608815
ALL	Developed, Medium Intensity	1,880	0.46	1.38	4.77	864.9	2594.6	8968.2	0.104151562
ALL	Developed, Open Space	11,401	0.03	0.04	0.16	342.0	456.0	1824.2	0.021184885
ALL	Emergent Herbaceuous Wetlands	650	0.22	0.22	0.22	143.0	143.0	143.0	0.001660874
ALL	Evergreen Forest	44	0.08	0.105	0.13	3.6	4.7	5.8	6.71519E-05
ALL	Herbaceuous	1,971	0.5	0.5	0.5	985.3	985.3	985.3	0.011442948
ALL	Mixed Forest	2,003	0.08	0.105	0.13	160.2	210.3	260.4	0.003024187
ALL	Open Water	4,975	0	0	0	0.0	0.0	0.0	0
ALL	Hay/Pasture	15,875	0.5	0.5	0.5	7937.6	7937.6	7937.6	0.092182815
ALL	Shrub/Scrub	168	0.08	0.105	0.13	13.4	17.6	21.8	0.000253499
ALL	Woody Wetlands	4,013	0.22	0.22	0.22	882.8	882.8	882.8	0.010252757
		######				**Total Subbasin Watersheds**	88,239		
						Total with modeled upstream inflows	232,075		

	Watershed Information		Total Phosphorus Export			Phosphorus Loads			
Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
RTU-3 Subbasin	Barren Land	1,045	0.16	0.16	0.16	167.2	167.2	167.2	0.001941414
RTU-3 Subbasin	Cultivated Crops	72,328	0.66	0.92	0.94	47736.5	66541.8	67988.3	0.789579033
RTU-3 Subbasin	Deciduous Forest	12,670	0.08	0.105	0.13	1013.6	1330.4	1647.1	0.019128899
RTU-3 Subbasin	Developed, High Intensity	618	0.7	1.96	4.77	432.6	1211.3	2948.0	0.034236715
RTU-3 Subbasin	Developed, Low Intensity	9,834	0.04	0.47	1.43	393.4	4572.9	14063.0	0.163320215
RTU-3 Subbasin	Developed, Medium Intensity	1,634	0.46	1.38	4.77	751.6	2254.8	7793.9	0.090513547
RTU-3 Subbasin	Developed, Open Space	10,579	0.03	0.04	0.16	317.4	423.1	1692.6	0.019656714
RTU-3 Subbasin	Emergent Herbaceuous Wetlands	491	0.22	0.22	0.22	107.9	107.9	107.9	0.001253468
RTU-3 Subbasin	Evergreen Forest	44	0.08	0.105	0.13	3.5	4.6	5.7	6.64804E-05
RTU-3 Subbasin	Herbaceuous	1,464	0.5	0.5	0.5	732.0	732.0	732.0	0.008501176
RTU-3 Subbasin	Mixed Forest	1,821	0.08	0.105	0.13	145.7	191.2	236.7	0.0027492
RTU-3 Subbasin	Open Water	4,322	0	0	0	0.0	0.0	0.0	0
RTU-3 Subbasin	Hay/Pasture	15,507	0.5	0.5	0.5	7753.5	7753.5	7753.5	0.090044284
RTU-3 Subbasin	Shrub/Scrub	123	0.08	0.105	0.13	9.8	12.9	16.0	0.000185339
RTU-3 Subbasin	Woody Wetlands	3,652	0.22	0.22	0.22	803.4	803.4	803.4	0.009329986
		######				**Total**	86,107		
						Total with modeled upstream inflows	229,755	99%	

	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Segment	Barren Land	85	0.16	0.16	0.16	13.6	13.6	13.6	0.000158272
RTU-1 Subbasin	Cultivated Crops	496	0.66	0.92	0.94	327.2	456.1	466.0	0.005411568
RTU-1 Subbasin	Deciduous Forest	832	0.08	0.105	0.13	66.5	87.3	108.1	0.001255741
RTU-1 Subbasin	Developed, High Intensity	73	0.7	1.96	4.77	50.9	142.5	346.9	0.004028574
RTU-1 Subbasin	Developed, Low Intensity	1,041	0.04	0.47	1.43	41.6	484.1	1488.7	0.017288601
RTU-1 Subbasin	Developed, Medium Intensity	246	0.46	1.38	4.77	113.2	339.7	1174.3	0.013638015
RTU-1 Subbasin	Developed, Open Space	822	0.03	0.04	0.16	24.7	32.9	131.6	0.001528171
RTU-1 Subbasin	Emergent Herbaceuous Wetlands	159	0.22	0.22	0.22	35.1	35.1	35.1	0.000407406
RTU-1 Subbasin	Evergreen Forest	0	0.08	0.105	0.13	0.0	0.0	0.1	6.71519E-07
RTU-1 Subbasin	Herbaceuous	507	0.5	0.5	0.5	253.3	253.3	253.3	0.002941771
RTU-1 Subbasin	Mixed Forest	182	0.08	0.105	0.13	14.6	19.1	23.7	0.000274987
RTU-1 Subbasin	Open Water	653	0	0	0	0.0	0.0	0.0	0
RTU-1 Subbasin	Hay/Pasture	368	0.5	0.5	0.5	184.1	184.1	184.1	0.002138531
RTU-1 Subbasin	Shrub/Scrub	45	0.08	0.105	0.13	3.6	4.7	5.9	6.81592E-05
RTU-1 Subbasin	Woody Wetlands	361	0.22	0.22	0.22	79.5	79.5	79.5	0.000922771
RTU-1 Subbasin		5,871				**Total**	2,132		
						Total with modeled upstream inflows	2,321	1%	

NPDES_ID	Facility_N	Latitude	Longitude	Shed	DAF (MGD)	DMF (MGD)	Limits TP (mg/L)	Measured Flow (MGD)	Measured TP (mg/L)	TP Measured Load (lbs/day)	TP Load (DAF) lbs/day	Notes
IL0020958 (Outfall 2)	FOX LAKE NW REGIONAL WRF, VILLAGE OF	42.3905	-88.1767	Pistakee	8	8				1.101	67.0	Outfall 2- emergency discharge 2-6 days per year at high flows - added per public comments
IL0026093	RICHMOND STP, VILLAGE OF	42.47265	-88.30483	Pistakee	0.5	1.625	1	0.311	0.586	1.517	4.17	
IL0026433	HEBRON WWTP, VILLAGE OF	42.48326	-88.4325	Pistakee	0.33	1	1	0.078	0.502	0.328	2.75	
IL0031861	WOODSTOCK - NORTH STP, CITY OF	42.33771	-88.44802	Pistakee	3.5	10.5	1	2.175	0.578	10.482	29.2	
IL0059145	SPRING GROVE HOLDINGS, LLC (Intermatic)	42.43798	-88.25336	Pistakee						0.000	0.000	no reasonable potential to discharge P
IL0070645	LEICA BIOSYSTEMS RICHMOND, INC	42.44935	-88.29769	Pistakee			none		no monitoring			no reasonable potential to discharge P
IL0074985	SPRING GROVE STP	42.43702	-88.25411	Pistakee	0.075	0.1875	5	0.043	no monitoring	1.777	3.13	Treatment consists of screening, grit removal, primary settling, trickling filtration, final settling, UV disinfection, aerobic digestion, and the transport of sludge to Wisconsin for final handling and disposal
IL0077909	SCOT FORGE COMPANY	42.44238	-88.24979	Pistakee	0.05	0.05	none		no monitoring			no reasonable potential to discharge P

Conversions			
MGD to CFS	L/cubic foot	sec/day	mg/lb
1.547	28.3	86,400	453,592

Lake Sedimentation Parameters

Calibration Run

Zone 1

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	1	0	2.27	31	70.4
Jun	6	0	13.62	30	408.7
Jul	8	0	18.16	31	563.0
Aug	8	0	18.16	31	563.0
Sep	6	0	13.62	30	408.7
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**2013.8**

Actual Load (lbs/yr)		
Internal	Watershed	Point Sources
2,014	232,075	38,777
-		
2,014	**232,075**	**38,777**

Allowable Load (lbs/yr)		
Internal	Watershed	Point Sources
121	13,925	38,777
-	-	-
121	**13,925**	**38,777**

Percent Reduction		
Internal	Watershed	Point Sources
94%	94%	0%
94%	**94%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA-MS4s (lbs/day)	WLA-Facilities (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
RTU	Internal	0.33			0.30	0.03	5.52	94%
	External	156.1	2.08	106.2	32.3	15.5	742.1	79%
	Total	156.4	2.08	106.2	32.6	15.5	747.6	79%

Land Use	Area (Acres)	Percentage (%)
Open Water	114.31	9.51
Developed, Open Space	101.41	8.44
Developed, Low Intensity	197.26	16.41
Developed, Medium Intensity	47.15	3.92
Developed, High Intensity	21.79	1.81
Deciduous Forest	235.07	19.55
Evergreen Forest	1.56	0.13
Mixed Forest	59.16	4.92
Shrub/Scrub	18.24	1.52
Herbaceuous	39.81	3.31
Hay/Pasture	84.29	7.01
Cultivated Crops	30.69	2.55
Woody Wetlands	222.62	18.52
Emergent Herbaceuous Wetlands	28.91	2.40

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Interface Width (ft)	Surface_area (acres)
Redhead	1	100%	NA	NA	51.32

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
382.16	1.05
Number of Days in POR	
7518	

fp P	
Lake fp P	**Inflow fp P**
0.090	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.065

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Redhead	1.878539	0.031

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	--	0.16	0.16	0.16	--	--	--	--
Cultivated Crops	31	0.66	0.92	0.94	20.3	28.2	28.8	0.075489925
Deciduous Forest	235	0.08	0.105	0.13	18.8	24.7	30.6	0.079965083
Developed, High Intensity	22	0.7	1.96	4.77	15.3	42.7	104.0	0.272036081
Developed, Low Intensity	197	0.04	0.47	1.43	7.9	91.7	282.1	0.73814505
Developed, Medium Intensity	47	0.46	1.38	4.77	21.7	65.1	224.9	0.588486215
Developed, Open Space	101	0.03	0.04	0.16	3.0	4.1	16.2	0.042458718
Emergent Herbaceuous Wetlands	29	0.22	0.22	0.22	6.4	6.4	6.4	0.016643631
Evergreen Forest	2	0.08	0.105	0.13	0.1	0.2	0.2	0.00052957
Herbaceuous	40	0.5	0.5	0.5	19.9	19.9	19.9	0.052084091
Mixed Forest	59	0.08	0.105	0.13	4.7	6.2	7.7	0.020123663
Open Water	114	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	84	0.5	0.5	0.5	42.1	42.1	42.1	0.110278606
Shrub/Scrub	18	0.08	0.105	0.13	1.5	1.9	2.4	0.006203535
Woody Wetlands	223	0.22	0.22	0.22	49.0	49.0	49.0	0.128155961
	1,202				Total:	382.2		

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Redhead	798.16	147.91	19%
Lake Total	798.16	147.91	19%

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTV

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	2.5	0	1.14	31	35.5
Jun	2.7	0	1.24	30	37.1
Jul	2.7	0	1.24	31	38.3
Aug	1	0	0.46	31	14.2
Sep	0	0	0.00	30	0.0
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**125.1**

	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
Zone	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**
RTV	125.1	382.2	0	81.3	114.6	0.0	35%	70%	0%
Total	**125.1**	**382.2**	**0**	**81.3**	**114.6**	**0.0**	**35%**	**70%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
RTV	Internal	0.223	--	0.200	0.022	0.343	35%
	External	0.314	0.052	0.230	0.031	1.047	70%
	Total	0.537	0.052	0.431	0.054	1.390	61%

Land Use	Area (Acres)	Percentage (%)
Open Water	32.02	4.41
Developed, Open Space	144.11	19.85
Developed, Low Intensity	163.90	22.57
Developed, Medium Intensity	60.05	8.27
Developed, High Intensity	1.33	0.18
Barren Land	0.00	0.00
Deciduous Forest	73.83	10.17
Evergreen Forest	0.00	0.00
Mixed Forest	38.25	5.27
Shrub/Scrub	6.23	0.86
Herbaceuous	54.04	7.44
Hay/Pasture	37.58	5.18
Cultivated Crops	82.29	11.33
Woody Wetlands	31.36	4.32
Emergent Herbaceuous Wetlands	1.11	0.15

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Surface_area (acres)	Surface_area (m2)
Spring	1	100%	NA	43.0	174,021

Calculating Daily Watershed Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
3077.1	8.43

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.086

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Spring	1.1	0.019

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads		
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)
Barren Land	-	0.16	0.16	0.16	0.0	0.0	0.0
Cultivated Crops	82	0.66	0.92	0.94	54.3	75.7	77.3
Deciduous Forest	74	0.08	0.105	0.13	5.9	7.8	9.6
Developed, High Intensity	1	0.7	1.96	4.77	0.9	2.6	6.4
Developed, Low Intensity	164	0.04	0.47	1.43	6.6	76.2	234.4
Developed, Medium Intensity	60	0.46	1.38	4.77	27.6	82.9	286.4
Developed, Open Space	144	0.03	0.04	0.16	4.3	5.8	23.1
Emergent Herbaceuous Wetlands	1	0.22	0.22	0.22	0.2	0.2	0.2
Evergreen Forest	-	0.08	0.105	0.13	0.0	0.0	0.0
Herbaceuous	54	0.5	0.5	0.5	27.0	27.0	27.0
Mixed Forest	38	0.08	0.105	0.13	3.1	4.0	5.0
Open Water	32	0	0	0	0.0	0.0	0.0
Hay/Pasture	38	0.5	0.5	0.5	18.8	18.8	18.8
Shrub/Scrub	6	0.08	0.105	0.13	0.5	0.7	0.8
Woody Wetlands	31	0.22	0.22	0.22	6.9	6.9	6.9
	726				Total:	309	
				LU plus Upper Lake outflow		3,077	

No NPDES permits in the Spring Lake watershed

No MS4s in the Spring Lake watershed

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTR

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	0	0	0.00	31	0.0
Jun	2	0	0.77	30	23.0
Jul	5	0	1.92	31	59.5
Aug	10	0	3.84	31	118.9
Sep	9	0	3.45	30	103.6
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**305.0**

	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
Zone	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**
VTJ	305.0	3,077	0	259.3	369	0.0	15%	88%	0%
Total	**305.0**	**3,077**	**0**	**259.3**	**369**	**0.0**	**15%**	**88%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
VTJ	Internal	0.710	--	0.639	0.071	0.836	15%
	External	1.012	--	0.910	0.101	8.430	88%
	Total	1.722	--	1.550	0.172	9.266	81%

Land Use	Area (Acres)	Percentage (%)
Open Water	46.48	16.08
Developed, Open Space	32.47	11.23
Developed, Low Intensity	12.68	4.38
Developed, Medium Intensity	0.00	0.00
Barren Land	15.12	5.23
Deciduous Forest	21.79	7.54
Mixed Forest	12.45	4.31
Shrub/Scrub	2.00	0.69
Herbaceuous	2.45	0.85
Hay/Pasture	10.01	3.46
Cultivated Crops	121.21	41.92
Woody Wetlands	12.45	4.31

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Interface Width (ft)	Surface_area (acres)
Summerhill Estate	1	100%	NA	NA	54

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
133.89	0.37

Number of Days in POR
7518

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.169

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	
Summerhill	0.45	0.00741

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	15	0.16	0.16	0.16	2.4	2.4	2.4	0.018071289
Cultivated Crops	121	0.66	0.92	0.94	80.0	111.5	113.9	0.85
Deciduous Forest	22	0.08	0.105	0.13	1.7	2.3	2.8	0.02
Developed, High Intensity	--	0.7	1.96	4.77	--	--	--	--
Developed, Low Intensity	13	0.04	0.47	1.43	0.5	5.9	18.1	0.14
Developed, Medium Intensity	-	0.46	1.38	4.77	0.0	0.0	0.0	0.00
Developed, Open Space	32	0.03	0.04	0.16	1.0	1.3	5.2	0.04
Emergent Herbaceous Wetlands	--	0.22	0.22	0.22	--	--	--	--
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	2	0.5	0.5	0.5	1.2	1.2	1.2	0.009135302
Mixed Forest	12	0.08	0.105	0.13	1.0	1.3	1.6	0.012
Open Water	46	0	0	0	0.0	0.0	0.0	0.000
Hay/Pasture	10	0.5	0.5	0.5	5.0	5.0	5.0	0.037371691
Shrub/Scrub	2	0.08	0.105	0.13	0.2	0.2	0.3	0.001943328
Woody Wetlands	12	0.22	0.22	0.22	2.7	2.7	2.7	0.020463077
	289				Total:	133.9		

No NPDES permits in the Summerhill Estates Lake watershed

No MS4s in the Summerhill Estates Lake watershed

Lake Sedimentation Parameters

Calibration Run

Zone 1 WTA

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	0	0	0.00	30	0.0
May	5.5	0	2.65	31	82.1
Jun	6	0	2.89	30	86.7
Jul	4.5	0	2.17	31	67.2
Aug	0	0	0.00	31	0.0
Sep	0	0	0.00	30	0.0
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**236.1**

	Actual Load (lbs/yr)			Allowable Load (lbs/yr)			Percent Reduction		
Zone	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**	**Internal**	**Watershed**	**Point Sources**
WTA	236.1	133.9	0	40.1	33.5	0.0	83%	75%	0%
Total	**236.1**	**133.9**	**0**	**40.1**	**33.5**	**0.0**	**83%**	**75%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
WTA	Internal	0.110	--	0.099	0.011	0.647	83%
	External	0.092	--	0.083	0.009	0.367	75%
	Total	0.202	--	0.181	0.020	1.014	80%

	Segment	Land Use	Area (Acres)	Percentage (%)
Whole_watershed	Tranquility	Barren Land	0.00	0.00
Whole Watershed	Tranquility	Cultivated Crops	5.34	2.15
Whole Watershed	Tranquility	Deciduous Forest	18.68	7.53
Whole Watershed	Tranquility	Developed, High Intensity	85.40	34.44
Whole Watershed	Tranquility	Developed, Low Intensity	45.59	18.39
Whole Watershed	Tranquility	Developed, Medium Intensity	41.59	16.77
Whole Watershed	Tranquility	Developed, Open Space	4.23	1.70
Whole Watershed	Tranquility	Emergent Herbaceuous Wetlands	4.00	1.61
Whole Watershed	Tranquility	Evergreen Forest	10.45	4.22
Whole Watershed	Tranquility	Hay/Pasture	11.12	4.48
Whole Watershed	Tranquility	Herbaceuous	16.23	6.55
Whole Watershed	Tranquility	Mixed Forest	5.34	2.15
Whole Watershed	Tranquility	Open Water	0.00	0.00
Whole Watershed	Tranquility	Shrub/Scrub	0.00	0.00
Whole Watershed	Tranquility	Woody Wetlands	0.00	0.00

	Segment	Land Use	Area (Acres)	Percentage (%)
Tranquility	UTW-1	Deciduous Forest	4.67	3.80
Tranquility	UTW-1	Developed, High Intensity	12.45	10.14
Tranquility	UTW-1	Developed, Low Intensity	40.70	33.15
Tranquility	UTW-1	Developed, Medium Intensity	22.91	18.66
Tranquility	UTW-1	Developed, Open Space	7.78	6.34
Tranquility	UTW-1	Emergent Herbaceuous Wetlands	1.11	0.91
Tranquility	UTW-1	Hay/Pasture	2.89	2.36
Tranquility	UTW-1	Herbaceuous	6.67	5.43
Tranquility	UTW-1	Mixed Forest	2.00	1.63
Tranquility	UTW-1	Open Water	16.23	13.22
Tranquility	UTW-1	Woody Wetlands	5.34	4.35
Tranquility	UTW-1		0.00	0.00
Tranquility	UTW-1		0.00	0.00
Tranquility	UTW-1		0.00	0.00
Tranquility	UTW-1		0.00	0.00

	Segment	Land Use	Area (Acres)	Percentage (%)
Tranquility	UTW-2	Cultivated Crops	0.67	0.53
Tranquility	UTW-2	Deciduous Forest	6.23	4.97
Tranquility	UTW-2	Developed, Low Intensity	44.70	35.70
Tranquility	UTW-2	Developed, Medium Intensity	22.68	18.12
Tranquility	UTW-2	Developed, Open Space	33.80	27.00
Tranquility	UTW-2	Emergent Herbaceuous Wetlands	3.11	2.49
Tranquility	UTW-2	Mixed Forest	1.11	0.89
Tranquility	UTW-2	Open Water	3.78	3.02
Tranquility	UTW-2	Woody Wetlands	9.12	7.28

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Acres	Depth	Volume	
UTW-1	17.19	5.5	94.545	1
UTW-2	8.54	5.5	46.97	2
Total	25.73	13.1	141.515	

Station_ID	Zone	Downstream Zone	Surface area(%)	Mixing length(ft)	Width (ft)
UTW-2	2	1	33%	1680	210
UTW-1	1	NA	67%	NA	NA

Interface Width (ft)	Surface area (acres)
2075	17.19
NA	8.54
2250	0

Calculating Daily Watershed Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
139.68	0.38

	Flows move from:	Zone	Flow
Tranquility	UTW-1	1	↑
Tranquility	UTW-2	2	
FLOW GOES FROM UTW-2 to UTW-1			

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.599	0.72

Lake Zone Loading Factors *(with Antioch L. contribution in Zone 1)*			
Zone	**% P Load**	**% N Load**	
1	72%	72%	UTW-1
2	28%	28%	UTW-2

Initial P Concentration
0.071

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Tranquility	0.387453	0.006

Conversion	
Acres	**Mi Square**
1	0.0015625

Segment	Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Tranquility	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Tranquility	Barren Land	-	0.16	0.16	0.16	0.0	0.0	0.0	0
Tranquility	Cultivated Crops	1	0.66	0.92	0.94	0.4	0.6	0.6	0.007633484
Tranquility	Deciduous Forest	11	0.08	0.105	0.13	0.9	1.1	1.4	0.017243013
Tranquility	Developed, High Intensity	12	0.7	1.96	4.77	8.7	24.4	59.4	0.723069635
Tranquility	Developed, Low Intensity	85	0.04	0.47	1.43	3.4	39.7	122.1	1.486418082
Tranquility	Developed, Medium Intensity	46	0.46	1.38	4.77	21.0	62.9	217.5	2.646951343
Tranquility	Developed, Open Space	42	0.03	0.04	0.16	1.2	1.7	6.7	0.080990729
Tranquility	Emergent Herbaceuous Wetlands	4	0.22	0.22	0.22	0.9	0.9	0.9	0.011314881
Tranquility	Evergreen Forest	-	0.08	0.105	0.13	0.0	0.0	0.0	0
Tranquility	Herbaceuous	7	0.5	0.5	0.5	3.3	3.3	3.3	0.040603641
Tranquility	Mixed Forest	3	0.08	0.105	0.13	0.2	0.3	0.4	0.004926575
Tranquility	Open Water	20	0	0	0	0.0	0.0	0.0	0
Tranquility	Hay/Pasture	3	0.5	0.5	0.5	1.4	1.4	1.4	0.017594911
Tranquility	Shrub/Scrub	-	0.08	0.105	0.13	0.0	0.0	0.0	0
	Woody Wetlands	14	0.22	0.22	0.22	3.2	3.2	3.2	0.038708804
		248			Watershed Total:		139.7		
					Antioch Lake Load		64.5		
					Total		204.1		

	Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
UTW-1	Barren Land	--	0.16	0.16	0.16	--	--	--	--
UTW-1	Cultivated Crops	--	0.66	0.92	0.94	--	--	--	--
UTW-1	Deciduous Forest	5	0.08	0.105	0.13	0.4	0.5	0.6	0.007389863
UTW-1	Developed, High Intensity	12	0.7	1.96	4.77	8.7	24.4	59.4	0.723069635
UTW-1	Developed, Low Intensity	41	0.04	0.47	1.43	1.6	18.9	58.2	0.708371117
UTW-1	Developed, Medium Intensity	23	0.46	1.38	4.77	10.5	31.6	109.3	1.329931651
UTW-1	Developed, Open Space	8	0.03	0.04	0.16	0.2	0.3	1.2	0.015158693
UTW-1	Emergent Herbaceuous Wetlands	1	0.22	0.22	0.22	0.2	0.2	0.2	0.0029776
UTW-1	Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
UTW-1	Herbaceuous	7	0.5	0.5	0.5	3.3	3.3	3.3	0.040603641
UTW-1	Mixed Forest	2	0.08	0.105	0.13	0.2	0.2	0.3	0.003167084
UTW-1	Open Water	16	0	0	0	0.0	0.0	0.0	0
UTW-1	Hay/Pasture	3	0.5	0.5	0.5	1.4	1.4	1.4	0.017594911
UTW-1	Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
UTW-1	Woody Wetlands	5	0.22	0.22	0.22	1.2	1.2	1.2	0.014292482
		123			UTW-1 Watershed Total:		82.2		
					Antioch Lake Load		64.5		

Total 146.6

Segment	Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
UTW-2	Barren Land	--	0.16	0.16	0.16	--	--	--	--
UTW-2	Cultivated Crops	1	0.66	0.92	0.94	0.4	0.6	0.6	0.007633484
UTW-2	Deciduous Forest	6	0.08	0.105	0.13	0.5	0.7	0.8	0.00985315
UTW-2	Developed, High Intensity	--	0.7	1.96	4.77	--	--	--	--
UTW-2	Developed, Low Intensity	45	0.04	0.47	1.43	1.8	20.8	63.9	0.778046965
UTW-2	Developed, Medium Intensity	23	0.46	1.38	4.77	10.4	31.3	108.2	1.317019693
UTW-2	Developed, Open Space	34	0.03	0.04	0.16	1.0	1.4	5.4	0.065832036
UTW-2	Emergent Herbaceuous Wetlands	3	0.22	0.22	0.22	0.7	0.7	0.7	0.008337281
UTW-2	Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
UTW-2	Herbaceuous	--	0.5	0.5	0.5	--	--	--	--
UTW-2	Mixed Forest	1	0.08	0.105	0.13	0.1	0.1	0.1	0.001759491
UTW-2	Open Water	4	0	0	0	0.0	0.0	0.0	0
UTW-2	Hay/Pasture	--	0.5	0.5	0.5	--	--	--	--
UTW-2	Shrub/Scrub	--	0.08	0.105	0.13	--	--	--	--
UTW-2	Woody Wetlands	9	0.22	0.22	0.22	2.0	2.0	2.0	0.024416323
		125			UTW-2 Watershed Total:		57.5		

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
UTW1	123.57	123.50	100%
UTW2	125.85	96.35	77%
	249.42	219.84	88%

Lake Sedimentation Parameters

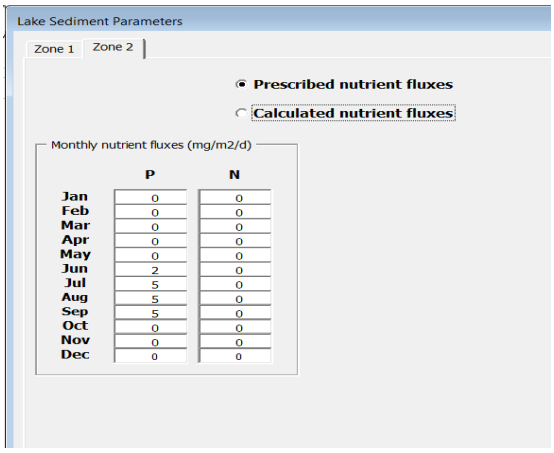
Calibration Run

Zone 1 UTW-1

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0.00	0	0.00	31	0.0
Feb	0.00	0	0.00	28	0.0
Mar	0.00	0	0.00	31	0.0
Apr	0.00	0	0.00	30	0.0
May	0.00	0	0.00	31	0.0
Jun	0.50	0	0.08	30	2.3
Jul	2.10	0	0.32	31	10.0
Aug	3.20	0	0.49	31	15.2
Sep	0.00	0	0.00	30	0.0
Oct	0.00	0	0.00	31	0.0
Nov	0.00	0	0.00	30	0.0
Dec	0.00	0	0.00	31	0.0
			Annual TP load (lbs)		**27.5**

Zone 2 UTW-2

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0.00	0	0.00	31	0.0
Feb	0.00	0	0.00	28	0.0
Mar	0.00	0	0.00	31	0.0
Apr	1.00	0	0.08	30	2.3
May	1.00	0	0.08	31	2.4
Jun	2.00	0	0.15	30	4.6
Jul	2.80	0	0.21	31	6.6
Aug	4.20	0	0.32	31	9.9
Sep	2.50	0	0.19	30	5.7
Oct	0.00	0	0.00	31	0.0
Nov	0.00	0	0.00	30	0.0
Dec	0.00	0	0.00	31	0.0
			Annual TP load (lbs)		**31.5**



	Actual Load (lbs/yr)		
Station	**Internal**	**Watershed**	**Point Sources**
UTW-1	27.5	146.6	0
UTW-2	31.5	57.5	0
Total	**59.0**	**204.1**	**0**

Allowable Load (lbs/yr)		
Internal	**Watershed**	**Point Sources**
22.0	73.3	0.0
25.2	28.8	0.0
47.2	**102.1**	**0.0**

Percent Reduction		
Internal	**Watershed**	**Point Sources**
20%	50%	0%
20%	50%	0%
20%	**50%**	**0%**

Zone	Segment	Loading Source	LC (lbs/day)	WLA (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
		Internal	0.060	0.000	0.054	0.006	0.075	20%
		External	0.201	0.101	0.080	0.020	0.402	50%
Zone 1	UTW-1	Total	0.261	0.101	0.134	0.026	0.477	45%
		Internal	0.069	0.000	0.062	0.007	0.086	20%
		External	0.079	0.054	0.017	0.008	0.158	50%
Zone 2	UTW-2	Total	0.148	0.054	0.079	0.015	0.244	39%
		Internal	0.129	0.000	0.116	0.013	0.162	20%
		External	0.280	0.156	0.096	0.028	0.559	50%
Lake Total		Total	0.409	0.156	0.212	0.041	0.721	43%

Land Use	Area (Acres)	Percentage (%)
Open Water	70.94	10.28
Developed, Open Space	141.44	20.50
Developed, Low Intensity	88.96	12.89
Developed, Medium Intensity	28.47	4.13
Developed, High Intensity	12.45	1.81
Deciduous Forest	177.47	25.73
Mixed Forest	13.34	1.93
Shrub/Scrub	8.90	1.29
Herbaceuous	26.69	3.87
Hay/Pasture	12.01	1.74
Cultivated Crops	1.56	0.23
Woody Wetlands	93.41	13.54
Emergent Herbaceuous Wetlands	14.23	2.06

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Interface Width (ft)	Surface_area (acres)
Turner	1	100%	NA	NA	43.244

Calculating Daily Load	
Annual_P_load (lbs/year)	**Daily_avg_P_load (lbs/day)**
176.15	0.48
Number of Days in POR	
8324	

fp P	
Lake fp P	**Inflow fp P**
0.508	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.046

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Turner	1.077918	0.018

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	--	0.16	0.16	0.16	--	--	--	--
Cultivated Crops	2	0.66	0.92	0.94	1.0	1.4	1.5	0.008307556
Deciduous Forest	177	0.08	0.105	0.13	14.2	18.6	23.1	0.13097658
Developed, High Intensity	12	0.7	1.96	4.77	8.7	24.4	59.4	0.337251436
Developed, Low Intensity	89	0.04	0.47	1.43	3.6	41.4	127.2	0.72217663
Developed, Medium Intensity	28	0.46	1.38	4.77	13.1	39.3	135.8	0.770860425
Developed, Open Space	141	0.03	0.04	0.16	4.2	5.7	22.6	0.128476738
Emergent Herbaceuous Wetlands	14	0.22	0.22	0.22	3.1	3.1	3.1	0.017776656
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	27	0.5	0.5	0.5	13.3	13.3	13.3	0.075752793
Mixed Forest	13	0.08	0.105	0.13	1.1	1.4	1.7	0.009847863
Open Water	71	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	12	0.5	0.5	0.5	6.0	6.0	6.0	0.034088757
Shrub/Scrub	9	0.08	0.105	0.13	0.7	0.9	1.2	0.006565242
Woody Wetlands	93	0.22	0.22	0.22	20.5	20.5	20.5	0.116659302
	690				Total:	176.1		

There are no NPDES permits in the Turner Lake watershed

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Turner	575.97	307.64	53%
Lake Total	575.97	307.64	53%

Lake Sedimentation Parameters

Calibration Run

Zone 1 VTZA

Month	P (mg/m2/d)	N (mg/m2/d)	P load (lbs/day)	Days	P load (lbs/month)
Jan	0	0	0.00	31	0.0
Feb	0	0	0.00	28	0.0
Mar	0	0	0.00	31	0.0
Apr	1	0	0.39	30	11.6
May	2	0	0.58	31	17.9
Jun	2	0	0.66	30	19.7
Jul	2	0	0.66	31	20.3
Aug	2	0	0.66	31	20.3
Sep	1	0	0.39	30	11.6
Oct	0	0	0.00	31	0.0
Nov	0	0	0.00	30	0.0
Dec	0	0	0.00	31	0.0
			Annual TP load (lbs)		**101.4**

	Actual Load (lbs/yr)		
Zone	**Internal**	**Watershed**	**Point Sources**
VTZA	101.4	176.1	0
Total	**101.4**	**176.1**	**0**

	Allowable Load (lbs/yr)		
	Internal	**Watershed**	**Point Sources**
VTZA	101.4	118.0	0.0
Total	**101.4**	**118.0**	**0.0**

	Percent Reduction		
	Internal	**Watershed**	**Point Sources**
VTZA	0%	33%	0%
Total	**0%**	**33%**	**0%**

Segment	**Loading Source**	**LC (lbs/day)**	**WLA (lbs/day)**	**LA (lbs/day)**	**MOS (10% ofLC)**	**Current Load (lbs/day)**	**Reduction Needed (Percent)**
VTZA	Internal	0.278	0.000	0.250	0.028	0.278	0%
	External	0.323	0.155	0.136	0.032	0.483	33%
	Total	0.601	0.155	0.386	0.060	0.760	21%

Segment	Land Use	Acres	Percentage (%)
Wooster Subbasin	Open Water	96.30	19.11
Wooster Subbasin	Developed, Open Space	79.17	15.71
Wooster Subbasin	Developed, Low Intensity	154.56	30.67
Wooster Subbasin	Developed, Medium Intensity	19.79	3.93
Wooster Subbasin	Developed, High Intensity	1.11	0.22
Wooster Subbasin	Barren Land	0.00	0.00
Wooster Subbasin	Deciduous Forest	81.40	16.15
Wooster Subbasin	Mixed Forest	6.67	1.32
Wooster Subbasin	Shrub/Scrub	3.78	0.75
Wooster Subbasin	Herbaceuous	15.35	3.05
Wooster Subbasin	Hay/Pasture	27.13	5.38
Wooster Subbasin	Cultivated Crops	0.00	0.00
Wooster Subbasin	Woody Wetlands	18.68	3.71
Wooster Subbasin	Emergent Herbaceuous Wetlands	0.00	0.00

Segment	Land Use	Acres	Percentage (%)
Wooster_All	Open Water	290.00	5.95
Wooster_All	Developed, Open Space	599.13	12.30
Wooster_All	Developed, Low Intensity	928.05	19.05
Wooster_All	Developed, Medium Intensity	327.81	6.73
Wooster_All	Developed, High Intensity	49.59	1.02
Wooster_All	Barren Land	2.89	0.06
Wooster_All	Deciduous Forest	561.10	11.51
Wooster_All	Mixed Forest	47.59	0.98
Wooster_All	Shrub/Scrub	22.46	0.46
Wooster_All	Herbaceuous	173.02	3.55
Wooster_All	Hay/Pasture	334.04	6.86
Wooster_All	Cultivated Crops	1355.27	27.81
Wooster_All	Woody Wetlands	110.53	2.27
Wooster_All	Emergent Herbaceuous Wetlands	71.39	1.47

Segment	Land Use	Acres	Percentage (%)
Fischer_All	Open Water	193.71	4.42
Fischer_All	Developed, Open Space	519.96	11.86
Fischer_All	Developed, Low Intensity	773.49	17.65
Fischer_All	Developed, Medium Intensity	308.02	7.03
Fischer_All	Developed, High Intensity	48.48	1.11
Fischer_All	Barren Land	2.89	0.07
Fischer_All	Deciduous Forest	479.70	10.94
Fischer_All	Mixed Forest	40.92	0.93
Fischer_All	Shrub/Scrub	18.68	0.43
Fischer_All	Herbaceuous	157.68	3.60
Fischer_All	Hay/Pasture	306.90	7.00
Fischer_All	Cultivated Crops	1369.51	31.24
Fischer_All	Woody Wetlands	91.85	2.10
Fischer_All	Emergent Herbaceuous Wetlands	71.39	1.63

	Prescribed	Calculated
Hydraulics	X	

Based on typical data availability, prescribed hydraulics will likely be used

Interface length and width calculate from google earth.

Length	NA
Width	NA

Station_ID	Zone	Surface_area(%)	Mixing_length(ft)	Interface Width (ft)	Surface_area (acres)
RTZH	1	100%	NA	NA	98.5

Calculating Daily Load	
Annual_P_load (lbs/year)	Daily_avg_P_load (lbs/day)
139.53	0.38

Number of Days in POR
6057

fp P	
Lake fp P	**Inflow fp P**
0.505	0.72

Lake Zone Loading Factors		
Zone	**% P Load**	**% N Load**
1	100	0

Initial P Concentration
0.055

Catchment Area Calcs		
Name	**Catchment_area (mi^2)**	**Ratio**
5527950	61	1
Wooster	0.787416	0.013

Conversion	
Acres	**Mi Square**
1	0.0015625

Watershed Information		Total Phosphorus Export Coefficients			Phosphorus Loads			
Land Use	Area (acres)	Low (lb/ac/yr)	Median (lb/ac/yr)	High (lb/ac/yr)	Low (lbs/yr)	Median (lbs/yr)	High (lbs/yr)	Proportion of whole
Barren Land	-	0.16	0.16	0.16	0.0	0.0	0.0	0
Cultivated Crops	-	0.66	0.92	0.94	0.0	0.0	0.0	0
Deciduous Forest	81	0.08	0.105	0.13	6.5	8.5	10.6	0.075839204
Developed, High Intensity	1	0.7	1.96	4.77	0.8	2.2	5.3	0.038015238
Developed, Low Intensity	155	0.04	0.47	1.43	6.2	71.9	221.0	1.584127642
Developed, Medium Intensity	20	0.46	1.38	4.77	9.1	27.3	94.4	0.676671236
Developed, Open Space	79	0.03	0.04	0.16	2.4	3.2	12.7	0.090790271
Emergent Herbaceuous Wetlands	-	0.22	0.22	0.22	0.0	0.0	0.0	0
Evergreen Forest	--	0.08	0.105	0.13	--	--	--	--
Herbaceuous	15	0.5	0.5	0.5	7.7	7.7	7.7	0.054990596
Mixed Forest	7	0.08	0.105	0.13	0.5	0.7	0.9	0.006216328
Open Water	96	0	0	0	0.0	0.0	0.0	0
Hay/Pasture	27	0.5	0.5	0.5	13.6	13.6	13.6	0.097229749
Shrub/Scrub	4	0.08	0.105	0.13	0.3	0.4	0.5	0.003522586
Woody Wetlands	19	0.22	0.22	0.22	4.1	4.1	4.1	0.029455832
	504				Total:	139.5		

Permit	Name	Actual Average (MGD)	Actual Average P (mg/L)	DAF (MGD)	DMF (MGD)	TP limit (mg/L)	TP Load (Avg flow) lbs/day	TP Load (DAF) lbs/day
IL0054615	CAMP HENRY HO	0.001	3.872	0.014	0.035	3.872	0.030	0.45
							-	-
							-	-
							-	-
		0.0014435		0.0140	0.035		0.030	0.4521

MS4 Areas from GIS

Segment	Subbasin Area (acres)	Municipal MS4 Area (acres)	Percent Subbasin as MS4 Area
Wooster	527.33	216.89	41%
Lake Total	527.33	216.89	41%

Lake Sedimentation Parameters

Calibration Run

Zone 1 RTZH

Month	P (mg/m2/d)	N (mg/m2/d)
Jan	0	0
Feb	0	0
Mar	0	0
Apr	2	0
May	2	0
Jun	3	0
Jul	3	0
Aug	4	0
Sep	3	0
Oct	0	0
Nov	0	0
Dec	0	0

P load (lbs/day)	Days	P load (lbs/month)
0.00	31	0.0
0.00	28	0.0
0.00	31	0.0
1.76	30	52.7
1.76	31	54.5
2.64	30	79.1
2.64	31	81.7
3.08	31	95.3
2.64	30	79.1
0.00	31	0.0
0.00	30	0.0
0.00	31	0.0
Annual TP load (lbs)		**442**

	Actual Load (lbs/yr)		
Zone	**Internal**	**Watershed**	**Point Sources**
RTZH	442.5	1627.4	165.0
Total	**442.5**	**1627.4**	**165.0**

Allowable Load (lbs/yr)		
Internal	**Watershed**	**Point Sources**
287.6	895.1	165.0
287.6	**895.1**	**165.0**

Percent Reduction		
Internal	**Watershed**	**Point Sources**
35%	45%	0%
35%	**45%**	**0%**

Segment	Loading Source	LC (lbs/day)	WLA- MS4s (lbs/day)	WLA- Facilities (lbs/day)	LA (lbs/day)	MOS (10% ofLC)	Current Load (lbs/day)	Reduction Needed (Percent)
RTZH	Internal	0.79	0.00	0.00	0.71	0.08	1.21	35%
	External	2.90	0.08	0.45	2.13	0.29	4.91	41%
	Total	3.69	0.08	0.45	2.84	0.37	6.12	40%

Appendix F
DMR Data - Total Phosphorus in Effluent

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	01/31/2020	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.7	4	lb/d		.1	.2	mg/L	N	N	2/10/2020		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.2	5.8	lb/d		.2	.4	mg/L	N	N	1/9/2020		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.7	10.9	lb/d		.3	.5	mg/L	N	N	12/6/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		12.7	19.6	lb/d		.5	.7	mg/L	N	N	11/8/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8	16	lb/d		.4	.8	mg/L	N	N	10/4/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		16	24	lb/d		1	1.4	mg/L	N	N	9/10/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.8	12.7	lb/d		.3	1	mg/L	N	N	8/13/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.3	14.8	lb/d		.3	.5	mg/L	N	N	7/15/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.7	7.4	lb/d		.3	.4	mg/L	N	N	6/11/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		9.2	11.8	lb/d		.6	.7	mg/L	N	N	5/7/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.3	14.5	lb/d		.5	.7	mg/L	N	N	4/8/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		9	17	lb/d		.3	.5	mg/L	N	N	3/8/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.7	6	lb/d		.3	.4	mg/L	N	N	2/11/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.3	11.4	lb/d		.2	.3	mg/L	N	N	1/8/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3	4	lb/d		.2	.3	mg/L	N	N	12/12/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.3	7.8	lb/d		.1	.2	mg/L	N	N	11/7/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		9.4	27	lb/d		.4	.7	mg/L	N	N	10/3/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3	4	lb/d		.3	.4	mg/L	N	N	9/17/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3	8	lb/d		.2	.3	mg/L	N	N	8/14/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		11	19	lb/d		.6	1.4	mg/L	N	N	7/10/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		16	19	lb/d		.8	1	mg/L	N	N	6/13/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.8	7.5	lb/d		.3	.5	mg/L	N	N	5/7/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.9	4.7	lb/d		.3	.3	mg/L	N	N	4/9/2018		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.3	11.6	lb/d		.5	.9	mg/L	N	N	3/14/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.4	12.1	lb/d		.6	.9	mg/L	N	N	2/13/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8	13.5	lb/d		.7	1.1	mg/L	N	N	1/5/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		12.7	13.3	lb/d		.9	1.1	mg/L	N	N	12/14/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		12.6	19.5	lb/d		.8	1.1	mg/L	N	N	11/9/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10	13	lb/d		.9	1.1	mg/L	N	N	10/10/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		11.8	24.1	lb/d		1	1.5	mg/L	N	N	9/12/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		17.5	63	lb/d		.8	1	mg/L	N	N	8/16/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		11	16	lb/d		1	1.3	mg/L	N	N	7/17/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		13.6	19.4	lb/d		.7	1.1	mg/L	N	N	6/12/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		13.7	21.1	lb/d		.6	.7	mg/L	N	N	5/9/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		15.5	24.8	lb/d		.9	1.1	mg/L	N	N	4/11/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10	14	lb/d		.7	1	mg/L	N	N	3/8/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8	12.9	lb/d		.5	.7	mg/L	N	N	2/14/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10.8	19.8	lb/d		.6	.7	mg/L	N	N	1/10/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.8	11	lb/d		.7	.8	mg/L	N	N	12/14/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10.4	17.2	lb/d		.7	1	mg/L	N	N	11/16/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		11.2	11.5	lb/d		.9	1	mg/L	N	N	10/14/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10.5	12.5	lb/d		1	1.2	mg/L	N	N	9/13/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		12.3	21.9	lb/d		1	1.3	mg/L	N	N	8/10/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		12.1	13.7	lb/d		1	1.1	mg/L	N	N	7/11/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		16.3	17.9	lb/d		1	1.1	mg/L	N	N	6/7/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10	11.2	lb/d		.6	.8	mg/L	N	N	5/11/2016		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.2	8.8	lb/d		.8	1.1	mg/L	N	N	4/11/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.1	7.9	lb/d		.9	1	mg/L	N	N	3/8/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.9	10	lb/d		.9	1.1	mg/L	N	N	2/12/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.5	7.1	lb/d		.5	.7	mg/L	N	N	1/12/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.6	10.3	lb/d		.8	1.6	mg/L	N	N	12/14/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4	4.4	lb/d		.7	.7	mg/L	N	N	11/13/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.6	6.3	lb/d		.7	1	mg/L	N	N	10/14/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.7	6.7	lb/d		.7	1.1	mg/L	N	N	9/22/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.5	11.1	lb/d		.7	1.2	mg/L	N	N	8/11/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		9.4	11.3	lb/d		.9	1.1	mg/L	N	N	7/9/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.3	10.8	lb/d		.9	1.4	mg/L	N	N	6/17/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.3	10.2	lb/d		.7	1.5	mg/L	N	N	5/18/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.2	5.7	lb/d		.6	.8	mg/L	N	N	4/9/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5	7.8	lb/d		.7	1.1	mg/L	N	N	3/4/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.1	7.2	lb/d		.7	1.2	mg/L	N	N	2/18/2015		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2019	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete		6.27	250.8	lb/d					N	N	11/8/2019		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2018	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete		8	420	lb/d					N	N	11/7/2018		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2017	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete		12.28	896.15	lb/d					N	N	11/9/2017		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2016	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete		9.63	635.4	lb/d					N	N	11/16/2016		BAS	ENF
IL0020354	ANTIOCH, VILLAGE OF	847 MAIN ST ANTIOCH, IL 60002	ANTIOCH STP, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-SEQUOIT CREEK-FOX RIVER-IL RIVER	42.482222	-88.099167	10/31/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete		6.03	440.4	lb/d					N	N	11/13/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		51		lb/d		.69		mg/L	N	N	1/23/2020		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		57		lb/d		.72		mg/L	N	N	12/25/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		63		lb/d		.64		mg/L	N	N	11/24/2019		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		58		lb/d		.59		mg/L	N	N	10/24/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		43		lb/d		.69		mg/L	N	N	9/23/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		50		lb/d		.69		mg/L	N	N	8/13/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		54		lb/d		.71		mg/L	N	N	7/23/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		60		lb/d		.58		mg/L	N	N	6/20/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		58		lb/d		.7		mg/L	N	N	5/23/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		57		lb/d		.68		mg/L	N	N	4/11/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		48		lb/d		.49		mg/L	N	N	3/21/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		50		lb/d		.68		mg/L	N	N	2/14/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		50		lb/d		.62		mg/L	N	N	1/25/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		47		lb/d		.61		mg/L	N	N	12/23/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		53		lb/d		.61		mg/L	N	N	11/25/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		50		lb/d		.6		mg/L	N	N	10/26/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		45		lb/d		.71		mg/L	N	N	9/24/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		44		lb/d		.73		mg/L	N	N	8/25/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		58		lb/d		.67		mg/L	N	N	7/24/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		55		lb/d		.65		mg/L	N	N	6/29/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		46		lb/d		.61		mg/L	N	N	5/25/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		43		lb/d		.67		mg/L	N	N	4/24/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		39		lb/d		.55		mg/L	N	N	3/18/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		35		lb/d		.57		mg/L	N	N	2/19/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		39		lb/d		.73		mg/L	N	N	1/25/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		46		lb/d		.68		mg/L	N	N	12/25/2017		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI **E**		lb/d		NODI **E**		mg/L	N	Y	11/21/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		39		lb/d		.74		mg/L	N	N	10/19/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		47		lb/d		.74		mg/L	N	N	9/25/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		58		lb/d		.51		mg/L	N	N	8/23/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		46		lb/d		.73		mg/L	N	N	7/18/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		55		lb/d		.69		mg/L	N	N	6/8/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		47		lb/d		.47		mg/L	N	N	5/18/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		29		lb/d		.34		mg/L	N	N	4/21/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		29		lb/d		.45		mg/L	N	N	3/29/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		36		lb/d		.48		mg/L	N	N	2/9/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		33		lb/d		.51		mg/L	N	N	1/23/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		29		lb/d		.46		mg/L	N	N	12/13/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		39		lb/d		.67		mg/L	N	N	11/23/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		26		lb/d		.48		mg/L	N	N	10/25/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		31		lb/d		.59		mg/L	N	N	9/14/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		39		lb/d		.72		mg/L	N	N	8/10/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		46		lb/d		.79		mg/L	N	N	7/19/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		44		lb/d		.59		mg/L	N	N	6/27/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		49		lb/d		.64		mg/L	N	N	5/28/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		52		lb/d		.63		mg/L	N	N	4/19/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		44		lb/d		.55		mg/L	N	N	3/16/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		39		lb/d		.56		mg/L	N	N	2/3/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		28		lb/d		.3		mg/L	N	N	1/25/2016		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		42		lb/d		.57		mg/L	N	N	12/23/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		38		lb/d		.72		mg/L	N	N	11/17/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		41		lb/d		.65		mg/L	N	N	10/14/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		43		lb/d		.78		mg/L	N	N	9/17/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		45		lb/d		.67		mg/L	N	N	8/24/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		46		lb/d		.64		mg/L	N	N	7/13/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		56		lb/d		.8		mg/L	N	N	6/16/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		51		lb/d		.68		mg/L	N	N	5/13/2015		PML	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		39		lb/d		.54		mg/L	N	N	4/13/2015		PML	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		32		lb/d		.57		mg/L	N	N	3/12/2015		PML	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		33		lb/d		.57		mg/L	N	N	2/17/2015		PML	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/23/2020		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	12/25/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	11/24/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1		lb/d		.39		mg/L	N	N	10/24/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/23/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	8/13/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	7/23/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7		lb/d		.66		mg/L	N	N	6/20/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	5/23/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/11/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/28/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/21/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/14/2019		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/25/2019		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	12/23/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	11/25/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5		lb/d		.41		mg/L	N	N	10/26/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/24/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	8/25/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10		lb/d		.62		mg/L	N	N	7/24/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7		lb/d		.71		mg/L	N	N	6/29/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	5/25/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/24/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/28/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/18/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/19/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/25/2018		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	12/25/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI **E**		lb/d		NODI **E**		mg/L	N	Y	11/15/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	10/19/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/25/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		16		lb/d		.37		mg/L	N	N	8/23/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	7/18/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	6/8/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	5/18/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/21/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/28/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/29/2017		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/9/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/23/2017		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	12/13/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	11/23/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	10/25/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/25/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	8/10/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	7/19/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	6/27/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	5/28/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/19/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/29/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/16/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/3/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	12/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/25/2016		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	11/30/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	12/23/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	10/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	11/17/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	09/30/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	10/14/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	08/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/17/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	07/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI **E**		lb/d		NODI **E**		mg/L	N	Y	8/24/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	06/30/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	7/13/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Effective	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	05/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	6/16/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	04/30/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.11		lb/d		.8		mg/L	N	N	5/13/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	03/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/13/2015		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	02/28/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/12/2015		BAS	ENF
IL0020958	FOX LAKE, VILLAGE OF	200 INDUSTRIAL DRIVE FOX LAKE, IL 60020	FOX LAKE NW REGIONAL WRF, VILLAGE OF	Lake	Major	NPDES Individual Permit	Admin Continued	Y	4952		07120006-FOX RIVER	42.397333	-88.200194	01/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/17/2015		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							11	mg/L	N	N	1/22/2020		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.2	mg/L	N	N	12/25/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.9	mg/L	N	N	11/25/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	10/23/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							6	mg/L	N	N	9/25/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	8/20/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	7/17/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.73	mg/L	N	N	6/3/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	5/2/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.58	mg/L	N	N	4/4/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	3/6/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.75	mg/L	N	N	2/8/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.53	mg/L	N	N	1/2/2019		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.52	mg/L	N	N	12/6/2018		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.4	mg/L	N	N	11/9/2018		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.68	mg/L	N	N	10/15/2018		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.5	mg/L	N	N	9/13/2018		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.93	mg/L	N	N	8/8/2018		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.15	mg/L	N	N	7/16/2018		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.29	mg/L	N	N	6/4/2018		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.39	mg/L	N	N	5/9/2018		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.039	mg/L	N	N	4/13/2018		BAS	ENF
IL0024716	NORTH BARRINGTON ELEMENTARY SCHOOL	616 W MAIN ST BARRINGTON, IL 60010	NORTH BARRINGTON ELEMENTARY SCHOOL STP	Cook	Minor	NPDES Individual Permit	Effective	N	8211		07120006-UNNAMED TRIB TO FLINT CREEK	42.211667	-88.136667	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.039	mg/L	N	N	3/15/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.14		lb/d		.58		mg/L	N	N	1/29/2020		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.41		lb/d		.4		mg/L	N	N	1/2/2020		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.25		lb/d		.61		mg/L	N	N	11/25/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.73		lb/d		.56		mg/L	N	N	11/1/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.7		lb/d		.99		mg/L	N	N	9/23/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.43		lb/d		.74		mg/L	N	N	9/3/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.57		lb/d		.65		mg/L	N	N	7/30/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.21		lb/d		.71		mg/L	N	N	7/3/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.39		lb/d		.74		mg/L	N	N	5/21/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.1		lb/d		.6		mg/L	N	N	4/29/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.19		lb/d		.8		mg/L	N	N	3/25/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.95		lb/d		.95		mg/L	N	N	3/5/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.74		lb/d		.96		mg/L	N	N	1/24/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.43		lb/d		.8		mg/L	N	N	12/19/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.26		lb/d		.39		mg/L	N	N	11/29/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.42		lb/d		.17		mg/L	N	N	10/8/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7		lb/d		.33		mg/L	N	N	9/6/2018		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.64		lb/d		.3		mg/L	N	N	8/2/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.56		lb/d		.56		mg/L	N	N	7/5/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.36		lb/d		.62		mg/L	N	N	6/5/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.5		lb/d		.66		mg/L	N	N	5/1/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.53		lb/d		.7		mg/L	N	N	4/6/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.65		lb/d		.27		mg/L	N	N	3/7/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.43		lb/d		.25		mg/L	N	N	2/21/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.78		lb/d		.46		mg/L	N	N	1/17/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.05		lb/d		.39		mg/L	N	N	12/18/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.12		lb/d		.89		mg/L	N	N	11/21/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.17		lb/d		.54		mg/L	N	N	10/6/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.57		lb/d		.7		mg/L	N	N	9/19/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.04		lb/d		.42		mg/L	N	N	8/2/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.7		lb/d		.5		mg/L	N	N	7/17/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.91		lb/d		.21		mg/L	N	N	6/22/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.03		lb/d		.46		mg/L	N	N	5/9/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.8		lb/d		.72		mg/L	N	N	4/25/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.99		lb/d		.56		mg/L	N	N	3/6/2017		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.33		lb/d		.69		mg/L	N	N	2/24/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.15		lb/d		.63		mg/L	N	N	1/4/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.73		lb/d		.83		mg/L	N	N	12/20/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.12		lb/d		.67		mg/L	N	N	11/9/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.82		lb/d		.5		mg/L	N	N	10/10/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.26		lb/d		.73		mg/L	N	N	9/13/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.1		lb/d		.56		mg/L	N	N	8/22/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.55		lb/d		.59		mg/L	N	N	7/12/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.08		lb/d		.62		mg/L	N	N	6/21/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.58		lb/d		.39		mg/L	N	N	5/6/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.12		lb/d		.62		mg/L	N	N	4/18/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.45		lb/d		.82		mg/L	N	N	3/14/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.36		lb/d		.75		mg/L	N	N	2/8/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.11		lb/d		.58		mg/L	N	N	1/6/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.79		lb/d		.75		mg/L	N	N	12/8/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.36		lb/d		.79		mg/L	N	N	11/25/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.64		lb/d		.74		mg/L	N	N	10/1/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.67		lb/d		.97		mg/L	N	N	9/16/2015		BAS	ENF

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IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.97		lb/d		.83		mg/L	N	N	8/20/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.3		lb/d		.54		mg/L	N	N	7/7/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.31		lb/d		.68		mg/L	N	N	6/9/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.49		lb/d		.67		mg/L	N	N	5/11/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.96		lb/d		.49		mg/L	N	N	4/17/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.96		lb/d		.7		mg/L	N	N	3/24/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	5600 HUNTER DRIVE RICHMOND, IL 60071	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	Y	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.75		lb/d		.54		mg/L	N	N	2/24/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	01/31/2020	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.4		mg/L	N	N	2/6/2020		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7		lb/d		.6		mg/L	N	N	1/2/2020		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.4		mg/L	N	N	12/2/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7		lb/d		.3		mg/L	N	N	11/4/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.3		mg/L	N	N	10/2/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1		lb/d		.2		mg/L	N	N	9/3/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.2		mg/L	N	N	8/6/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.2		mg/L	N	N	7/2/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1		lb/d		.1		mg/L	N	N	6/4/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.2		mg/L	N	N	5/2/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1		lb/d		.2		mg/L	N	N	4/3/2019		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.5		mg/L	N	N	3/5/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.2		mg/L	N	N	2/5/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.1		mg/L	N	N	1/7/2019		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1		lb/d		.1		mg/L	N	N	12/3/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1		lb/d		.1		mg/L	N	N	11/2/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1		lb/d		.1		mg/L	N	N	10/9/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.4		mg/L	N	N	9/4/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.3		mg/L	N	N	8/14/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.5		mg/L	N	N	7/3/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.5		mg/L	N	N	6/7/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.3		mg/L	N	N	5/4/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.3		mg/L	N	N	4/4/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.4		mg/L	N	N	3/6/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.3		mg/L	N	N	2/21/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.3		mg/L	N	N	1/23/2018		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1		lb/d		.12		mg/L	N	N	12/20/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.4		mg/L	N	N	11/17/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.8		mg/L	N	N	10/13/2017		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.6		mg/L	N	N	9/19/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.6		lb/d		.6		mg/L	N	N	8/15/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.7		mg/L	N	N	7/19/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.6		mg/L	N	N	6/2/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.6		mg/L	N	N	5/15/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.6		lb/d		.7		mg/L	N	N	4/20/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.5		mg/L	N	N	3/16/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.6		mg/L	N	N	2/16/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.8		mg/L	N	N	1/19/2017		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.5		mg/L	N	N	12/22/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.5		mg/L	N	N	11/16/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.6		mg/L	N	N	10/14/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.6		lb/d		.8		mg/L	N	N	9/8/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.7		mg/L	N	N	8/17/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.8		mg/L	N	N	7/19/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.7		mg/L	N	N	6/22/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.8		mg/L	N	N	5/25/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7		lb/d		.7		mg/L	N	N	4/19/2016		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.7		mg/L	N	N	3/15/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.7		mg/L	N	N	2/11/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.7		mg/L	N	N	1/20/2016		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.8		mg/L	N	N	12/8/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.6		mg/L	N	N	11/23/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.7		mg/L	N	N	10/22/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.7		mg/L	N	N	9/4/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.6		mg/L	N	N	8/14/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.6		mg/L	N	N	7/22/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5		lb/d		.7		mg/L	N	N	6/19/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.6		mg/L	N	N	5/22/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.7		mg/L	N	N	4/22/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4		lb/d		.6		mg/L	N	N	3/19/2015		BAS	ENF
IL0026433	HEBRON, VILLAGE OF	PO BOX 372 HEBRON, IL 60034	HEBRON WWTP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNMD TRIB-N BRNCH OF NIPPERSINK CK	42.471667	-88.433333	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.9		lb/d		.6		mg/L	N	N	2/18/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		9.78	29.46	lb/d		.52	.86	mg/L	N	N	1/13/2020		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.07	15.37	lb/d		.33	.48	mg/L	N	N	12/18/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.81	29.55	lb/d		.3	.5	mg/L	N	N	11/15/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		9.53	43.26	lb/d		.36	.58	mg/L	N	N	10/15/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.91	15.78	lb/d		.42	.6	mg/L	N	N	9/17/2019		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.94	19.72	lb/d		.42	.6	mg/L	N	N	8/14/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.33	15.24	lb/d		.35	.5	mg/L	N	N	7/15/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		9.88	26.61	lb/d		.32	.53	mg/L	N	N	6/11/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		13.16	36.1	lb/d		.59	.8	mg/L	N	N	5/22/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		13.62	57.25	lb/d		.59	1.1	mg/L	N	N	4/19/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		17.07	64.14	lb/d		.69	1.41	mg/L	N	N	3/18/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		11.86	33.31	lb/d		.63	1.04	mg/L	N	N	2/19/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		11.72	54.5	lb/d		.54	1.06	mg/L	N	N	1/2/2019		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		14.02	40.49	lb/d		.77	1.51	mg/L	N	N	12/7/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		12.17	54.88	lb/d		.45	.69	mg/L	N	N	11/19/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.78	60.2	lb/d		.33	.5	mg/L	N	N	10/22/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.04	11.97	lb/d		.37	.45	mg/L	N	N	9/12/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		9.47	22.46	lb/d		.58	.82	mg/L	N	N	8/22/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		25.97	120.55	lb/d		.81	1.57	mg/L	N	N	7/20/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10.92	49.32	lb/d		.48	1.04	mg/L	N	N	6/15/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.35	22.15	lb/d		.36	.51	mg/L	N	N	5/21/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.91	16.94	lb/d		.31	.49	mg/L	N	N	4/19/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.91	72.25	lb/d		.35	1.16	mg/L	N	N	3/13/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.03	24.43	lb/d		.42	.96	mg/L	N	N	2/14/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.51	14.81	lb/d		.49	.96	mg/L	N	N	1/22/2018		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.44	15.36	lb/d		.36	.55	mg/L	N	N	12/18/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		13.31	30	lb/d		.54	.68	mg/L	N	N	11/16/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		17.8	33.3	lb/d		.85	1.36	mg/L	N	N	10/16/2017		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		13.07	28.52	lb/d		.52	.98	mg/L	N	N	9/15/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		21.95	83.21	lb/d		.49	.77	mg/L	N	N	8/16/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		17.97	48.4	lb/d		.63	.8	mg/L	N	N	7/21/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		15.21	39.27	lb/d		.44	.53	mg/L	N	N	6/15/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		15.02	45.13	lb/d		.38	.57	mg/L	N	N	5/10/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.05	64.05	lb/d		.32	.7	mg/L	N	N	4/19/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.19	41.02	lb/d		.4	1.17	mg/L	N	N	3/20/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.14	63.88	lb/d		.31	.68	mg/L	N	N	2/16/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.23	22.93	lb/d		.55	.92	mg/L	N	N	1/9/2017		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10.02	22.33	lb/d		.71	.99	mg/L	N	N	12/20/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.7	15.49	lb/d		.55	.76	mg/L	N	N	11/18/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.19	21.31	lb/d		.67	1.36	mg/L	N	N	10/19/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.46	18.76	lb/d		.58	1.24	mg/L	N	N	9/14/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.59	13.18	lb/d		.48	.53	mg/L	N	N	8/22/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.54	16.87	lb/d		.45	.8	mg/L	N	N	7/18/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.81	19.76	lb/d		.49	.7	mg/L	N	N	6/20/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.56	28.96	lb/d		.35	.61	mg/L	N	N	5/17/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.69	21.06	lb/d		.41	.58	mg/L	N	N	4/15/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		11.8	44.73	lb/d		.65	1.33	mg/L	N	N	3/14/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.2	17.36	lb/d		.43	.69	mg/L	N	N	2/15/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		11.25	25.91	lb/d		.43	.55	mg/L	N	N	1/11/2016		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.39	37.81	lb/d		.37	.54	mg/L	N	N	12/16/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.49	10.4	lb/d		.51	.67	mg/L	N	N	11/17/2015		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.65	17.49	lb/d		.38	.58	mg/L	N	N	10/15/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.56	13.2	lb/d		.56	.73	mg/L	N	N	9/25/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		19.26	73.37	lb/d		.92	1.29	mg/L	N	N	8/24/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		13.75	40.02	lb/d		.73	1.17	mg/L	N	N	7/20/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.36	24.28	lb/d		.43	.64	mg/L	N	N	6/17/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.4	33.82	lb/d		.33	.46	mg/L	N	N	5/14/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.35	6.77	lb/d		.21	.32	mg/L	N	N	4/15/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.01	7.67	lb/d		.24	.5	mg/L	N	N	3/10/2015		BAS	ENF
IL0031861	WOODSTOCK, CITY OF	121 WEST CALHOUN ST WOODSTOCK, IL 60098	WOODSTOCK - NORTH STP, CITY OF	McHenry	Major	NPDES Individual Permit	Admin Continued	N	4952		07120006-SILVER CREEK	42.3375	-88.448889	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.03	34	lb/d		.41	.79	mg/L	N	N	2/9/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	01/31/2020	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.44	.58	lb/d		.4	.49	mg/L	N	N	2/6/2020		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.46	.58	lb/d		.4	.45	mg/L	N	N	1/7/2020		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.49	.61	lb/d		.41	.48	mg/L	N	N	12/5/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.6	.81	lb/d		.49	.58	mg/L	N	N	11/7/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.84	.99	lb/d		.67	.74	mg/L	N	N	10/8/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.53	.74	lb/d		.49	.65	mg/L	N	N	9/7/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.18	.31	lb/d		.16	.25	mg/L	N	N	8/14/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.57	1.04	lb/d		.46	.57	mg/L	N	N	7/9/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.45	.65	lb/d		.34	.4	mg/L	N	N	6/14/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.33	.46	lb/d		.27	.34	mg/L	N	N	5/10/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.56	lb/d		.34	.48	mg/L	N	N	4/13/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.38	.46	lb/d		.31	.43	mg/L	N	N	3/13/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.56	lb/d		.36	.51	mg/L	N	N	2/5/2019		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.44	.92	lb/d		.36	.55	mg/L	N	N	1/4/2019		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.39	.62	lb/d		.4	.49	mg/L	N	N	12/6/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Effective	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.49	.77	lb/d		.41	.58	mg/L	N	N	11/7/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.71	1.13	lb/d		.52	.55	mg/L	N	N	10/8/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.63	.69	lb/d		.52	.56	mg/L	N	N	9/5/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.61	.67	lb/d		.51	.58	mg/L	N	N	8/8/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.73	1.01	lb/d		.51	.68	mg/L	N	N	7/12/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.57	.78	lb/d		.43	.55	mg/L	N	N	6/7/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.38	.46	lb/d		.33	.43	mg/L	N	N	5/8/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.44	.54	lb/d		.4	.45	mg/L	N	N	4/4/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.83	lb/d		.32	.45	mg/L	N	N	3/9/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.43	.61	lb/d		.37	.5	mg/L	N	N	2/19/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.43	.64	lb/d		.4	.6	mg/L	N	N	1/5/2018		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.46	.59	lb/d		.41	.51	mg/L	N	N	12/25/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.65	.74	lb/d		.55	.62	mg/L	N	N	11/15/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.73	.91	lb/d		.64	.75	mg/L	N	N	10/24/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.51	.59	lb/d		.42	.49	mg/L	N	N	9/12/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.75	1.1	lb/d		.5	.67	mg/L	N	N	8/11/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.6	.74	lb/d		.48	.56	mg/L	N	N	7/7/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.45	.57	lb/d		.34	.43	mg/L	N	N	6/7/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.49	.59	lb/d		.37	.41	mg/L	N	N	5/9/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.43	.58	lb/d		.37	.43	mg/L	N	N	4/13/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.43	.57	lb/d		.41	.52	mg/L	N	N	3/9/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.38	.44	lb/d		.34	.41	mg/L	N	N	2/7/2017		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3	.5	lb/d		.3	.4	mg/L	N	N	1/6/2017		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.36	.43	lb/d		.4	.4	mg/L	N	N	12/9/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.51	.6	lb/d		.5	.6	mg/L	N	N	11/10/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.45	.49	lb/d		.4	.5	mg/L	N	N	10/4/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.5	lb/d		.4	.5	mg/L	N	N	9/8/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5	.6	lb/d		.4	.5	mg/L	N	N	8/4/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5	.6	lb/d		.5	.5	mg/L	N	N	7/13/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3	.5	lb/d		.3	.4	mg/L	N	N	6/8/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.29	.36	lb/d		.3	.3	mg/L	N	N	5/5/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.72	lb/d		.3	.5	mg/L	N	N	4/7/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.32	.45	lb/d		.3	.4	mg/L	N	N	3/8/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.34	.68	lb/d		.3	.5	mg/L	N	N	2/3/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.52	.85	lb/d		.4	.5	mg/L	N	N	1/11/2016		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.46	.54	lb/d		.4	.5	mg/L	N	N	12/7/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.34	.56	lb/d		.3	.5	mg/L	N	N	11/12/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.34	.44	lb/d		.3	.4	mg/L	N	N	10/6/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5	.9	lb/d		.5	.7	mg/L	N	N	9/14/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.5	lb/d		.3	.4	mg/L	N	N	8/4/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.6	1	lb/d		.5	.7	mg/L	N	N	7/7/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.49	.62	lb/d		.4	.5	mg/L	N	N	6/3/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5	.6	lb/d		.4	.5	mg/L	N	N	5/5/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.47	.59	lb/d		.4	.5	mg/L	N	N	4/8/2015		BAS	ENF
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.38	.54	lb/d		.3	.4	mg/L	N	N	3/3/2015		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0045144	FOX LAKE, VILLAGE OF	100 INDUSTRIAL DR FOX LAKE, IL 60020	FOX LAKE-TALL OAKS STP, VILLAGE OF	Lake	Minor	NPDES Individual Permit	Admin Continued	N	4952		07120006-UNNAMED TRIB TO DUNNS LAKE	42.423333	-88.195	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.39	.65	lb/d		.3	.5	mg/L	N	N	2/10/2015		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	12/31/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.09	mg/L	N	N	1/25/2020		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	11/30/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.11	mg/L	N	N	12/24/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	10/31/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.31	mg/L	N	N	11/25/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	09/30/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.69	mg/L	N	N	10/23/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	08/31/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.14	mg/L	N	N	9/23/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	07/31/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	8/25/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	06/30/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.29	mg/L	N	N	7/24/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	05/31/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.18	mg/L	N	N	6/24/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	04/30/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.52	mg/L	N	N	5/24/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	03/31/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.2	mg/L	N	N	4/24/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	02/28/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	3/25/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	01/31/2019	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.14	mg/L	N	N	2/25/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	12/31/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.18	mg/L	N	N	1/2/2019		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	11/30/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.43	mg/L	N	N	12/25/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	10/31/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.29	mg/L	N	N	11/25/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	09/30/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.38	mg/L	N	N	10/25/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	08/31/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.33	mg/L	N	N	9/23/2018		BAS	ENF

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IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	07/31/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.65	mg/L	N	N	8/25/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	06/30/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.52	mg/L	N	N	7/24/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	05/31/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.48	mg/L	N	N	6/25/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	04/30/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	5/25/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	03/31/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.53	mg/L	N	N	4/24/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	02/28/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.16	mg/L	N	N	3/25/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	01/31/2018	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							1.2	mg/L	N	N	2/25/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	12/31/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.31	mg/L	N	N	1/22/2018		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	11/30/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.64	mg/L	N	N	12/23/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	10/31/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.68	mg/L	N	N	11/25/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	09/30/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.9	mg/L	N	N	10/24/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	08/31/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	9/24/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	07/31/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.43	mg/L	N	N	8/24/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	06/30/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.51	mg/L	N	N	7/24/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	05/31/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							2.3	mg/L	N	N	6/25/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	04/30/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							2.1	mg/L	N	N	5/23/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	03/31/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							3.03	mg/L	N	N	4/24/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	02/28/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							4	mg/L	N	N	3/26/2017		BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	01/31/2017	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							.538	mg/L	N	N	2/22/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	12/31/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							5.48	mg/L	N	N	1/24/2017		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	11/30/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							5.9	mg/L	N	N	12/24/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	10/31/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							6.14	mg/L	N	N	11/22/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	09/30/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							6.62	mg/L	N	N	10/24/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	08/31/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							9.9	mg/L	N	N	9/25/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	07/31/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							9.5	mg/L	N	N	8/23/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	06/30/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							5.96	mg/L	N	N	7/24/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	05/31/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							2.83	mg/L	N	N	6/24/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	04/30/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							2.19	mg/L	N	N	5/25/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	03/31/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							2.72	mg/L	N	N	4/24/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	02/29/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							2.62	mg/L	N	N	3/23/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	01/31/2016	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							3.37	mg/L	N	N	2/23/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	12/31/2015	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							4.27	mg/L	N	N	1/25/2016		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	11/30/2015	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							1.18	mg/L	N	N	12/25/2015		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	10/31/2015	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							7.38	mg/L	N	N	11/24/2015		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	09/30/2015	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross							5.93	mg/L	N	N	10/25/2015		BAS	ENF
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	08/31/2015	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross								mg/L	N	Y			BAS	ENF

NPDES ID	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0054615	CAMP HENRY HORNER	26710 WEST NIPPERSINK ROAD INGLESIDE, IL 60041	CAMP HENRY HORNER STP	Lake	Minor	NPDES Individual Permit	Effective	N	7032		07120006-WOOSTER LAKE	42.363333	-88.148333	07/31/2015	001-0	00665-1-1	Phosphorus, total [as P]	Effluent Gross								mg/L	N	Y			BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	1/22/2020		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.87	mg/L	N	N	12/25/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	11/26/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.9	mg/L	N	N	10/23/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	9/24/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.8	mg/L	N	N	8/24/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI **E**	mg/L	N	Y	7/12/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.3	mg/L	N	N	6/6/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	5/7/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	4/5/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.15	mg/L	N	N	3/12/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	2/12/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.89	mg/L	N	N	1/11/2019		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.89	mg/L	N	N	12/20/2018		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.59	mg/L	N	N	11/21/2018		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.46	mg/L	N	N	10/24/2018		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	9/21/2018		BAS	ENF
IL0074985	SPRING GROVE, VILLAGE OF	7401 MEYER RD SPRING GROVE, IL 60081	SPRING GROVE STP	McHenry	Minor	NPDES Individual Permit	Effective	N	4952		07120006-NIPPERSINK CREEK	42.444	-88.235	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.16	mg/L	N	N	8/20/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.545	.734	lb/d		.46	.62	mg/L	N	N	1/21/2020		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.679	1.631	lb/d		.536	1.2	mg/L	N	N	12/20/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.852	2.144	lb/d		.737	1.89	mg/L	N	N	11/20/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.581	1.602	lb/d		.585	1.7	mg/L	N	N	10/17/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.578	1.241	lb/d		.551	1.2	mg/L	N	N	9/19/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.666	1.658	lb/d		.559	1.4	mg/L	N	N	8/21/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.087	.263	lb/d		.071	.21	mg/L	N	N	7/23/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.15	.193	lb/d		.099	.31	mg/L	N	N	6/17/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.416	2.715	lb/d		.963	1.86	mg/L	N	N	5/14/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.321	1.623	lb/d		.283	1.52	mg/L	N	N	4/20/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.053	.089	lb/d		.04	.07	mg/L	N	N	3/21/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.057	.131	lb/d		.047	.11	mg/L	N	N	2/19/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.042	.068	lb/d		.034	.05	mg/L	N	N	1/17/2019		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.218	1.394	lb/d		.166	.95	mg/L	N	N	12/14/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.035	.052	lb/d		.034	.05	mg/L	N	N	11/15/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.085	.152	lb/d		.08	.13	mg/L	N	N	10/19/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.151	.527	lb/d		.145	.54	mg/L	N	N	9/20/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.253	.618	lb/d		.246	.57	mg/L	N	N	8/17/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.129	.283	lb/d		.121	.28	mg/L	N	N	7/19/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.337	.508	lb/d		.224	.3	mg/L	N	N	6/22/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.319	.572	lb/d		.273	.52	mg/L	N	N	5/22/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.518	1.036	lb/d		.394	.78	mg/L	N	N	4/24/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.434	.99	lb/d		.349	.92	mg/L	N	N	3/14/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.754	1.647	lb/d		.662	1.58	mg/L	N	N	2/22/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.664	1.182	lb/d		.596	1.02	mg/L	N	N	1/18/2018		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.681	1.902	lb/d		.611	1.51	mg/L	N	N	12/8/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.371	1.301	lb/d		.341	1.2	mg/L	N	N	11/21/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.224	.558	lb/d		.227	.62	mg/L	N	N	10/19/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.607	.876	lb/d		.608	.93	mg/L	N	N	9/13/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.528	1.079	lb/d		.59	.98	mg/L	N	N	8/11/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.668	.943	lb/d		.587	.78	mg/L	N	N	7/13/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.899	1.361	lb/d		.694	.9	mg/L	N	N	6/14/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.833	1.541	lb/d		.718	1.2	mg/L	N	N	5/5/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.146	.35	lb/d		.127	.304	mg/L	N	N	4/21/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.205	.882	lb/d		.166	.68	mg/L	N	N	3/24/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.008	.031	lb/d		.006	.02	mg/L	N	N	2/24/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.019	.035	lb/d		.014	.02	mg/L	N	N	1/20/2017		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.145	.682	lb/d		.123	.58	mg/L	N	N	12/20/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.014	.034	lb/d		.013	.03	mg/L	N	N	11/22/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.0169	1.294	lb/d		.139	1.07	mg/L	N	N	10/18/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.116	.395	lb/d		.095	.351	mg/L	N	N	9/22/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.068	.151	lb/d		.057	.13	mg/L	N	N	8/18/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.085	.156	lb/d		.071	.132	mg/L	N	N	7/8/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.128	.272	lb/d		.1	.181	mg/L	N	N	6/28/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.095	.189	lb/d		.079	.146	mg/L	N	N	5/12/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.135	.273	lb/d		.101	.181	mg/L	N	N	4/17/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.102	.192	lb/d		.084	.161	mg/L	N	N	3/13/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.155	.474	lb/d		.132	.4	mg/L	N	N	2/21/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.122	.227	lb/d		.094	.19	mg/L	N	N	1/21/2016		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.362	1.068	lb/d		.326	.994	mg/L	N	N	12/16/2015		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.541	.898	lb/d		.418	.703	mg/L	N	N	11/22/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.455	.862	lb/d		.351	.563	mg/L	N	N	10/22/2015		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.45	.836	lb/d		.303	.611	mg/L	N	N	9/25/2015		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.499	1.116	lb/d		.359	.836	mg/L	N	N	8/21/2015		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.428	.672	lb/d		.321	.482	mg/L	N	N	7/22/2015		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.45	1.072	lb/d		.334	.857	mg/L	N	N	6/12/2015		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.411	1.17	lb/d		.256	.635	mg/L	N	N	5/13/2015		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.151	.317	lb/d		.088	.183	mg/L	N	N	4/9/2015		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.514	1.222	lb/d		.336	.857	mg/L	N	N	3/11/2015		BAS	ENF
IL0001147	UNITED STATES PENITENTIARY	UNITED STATES PENITENTIARY STP	Williamson	Minor	NPDES Individual Permit	Effective	9223		07140106-UNNAMED TRIB TO CRAB ORCHARD LAKE	37.666389	-88.966389	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.326	.706	lb/d		.239	.51	mg/L	N	N	2/12/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.73	mg/L	N	N	1/28/2020		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.79	mg/L	N	N	12/19/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.21	mg/L	N	N	11/15/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.36	mg/L	N	N	10/2/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.98	mg/L	N	N	9/23/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.37	mg/L	N	N	8/27/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.8	mg/L	N	N	7/22/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.64	mg/L	N	N	6/17/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.36	mg/L	N	N	5/16/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.36	mg/L	N	N	4/25/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.96	mg/L	N	N	3/11/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.52	mg/L	N	N	2/19/2019		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.48	mg/L	N	N	1/28/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.72	mg/L	N	N	12/6/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.51	mg/L	N	N	11/27/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.41	mg/L	N	N	10/26/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Effective	4952		07140204-LAKE BRANCH	38.603333	-89.608333	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							6	mg/L	N	N	9/17/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.71	mg/L	N	N	8/21/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	7/16/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.38	mg/L	N	N	6/25/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.27	mg/L	N	N	5/18/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.54	mg/L	N	N	4/10/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							6.27	mg/L	N	N	3/19/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							6.72	mg/L	N	N	2/14/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							5.71	mg/L	N	N	1/2/2018		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							5.95	mg/L	N	N	12/14/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							5.64	mg/L	N	N	11/20/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							5.1	mg/L	N	N	10/27/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.53	mg/L	N	N	9/8/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.54	mg/L	N	N	8/7/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.89	mg/L	N	N	7/14/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.82	mg/L	N	N	6/9/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.82	mg/L	N	N	5/3/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.41	mg/L	N	N	4/11/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.74	mg/L	N	N	3/8/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.87	mg/L	N	N	2/14/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.76	mg/L	N	N	1/24/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.76	mg/L	N	N	1/3/2017		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.84	mg/L	N	N	11/16/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.64	mg/L	N	N	10/12/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.7	mg/L	N	N	9/21/2016		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.5	mg/L	N	N	8/17/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.62	mg/L	N	N	7/19/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.28	mg/L	N	N	6/17/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.59	mg/L	N	N	5/13/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.16	mg/L	N	N	4/20/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.16	mg/L	N	N	3/14/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	2/10/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	1/11/2016		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	12/15/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	11/18/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	10/27/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	9/29/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	8/14/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	7/17/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	6/8/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	5/15/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	5/15/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	4/20/2015		BAS	ENF
IL0020001	AVISTON. VILLAGE OF	AVISTON STP, VILLAGE OF	Clinton	Minor	NPDES Individual Permit	Admin Continued	4952		07140204-LAKE BRANCH	38.603333	-89.608333	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI A	mg/L	N	N	3/17/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Effective	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4	1.4	mg/L	N	N	1/28/2020		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Effective	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.5	1.5	mg/L	N	N	12/29/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Effective	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.1	mg/L	N	N	11/26/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Effective	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	11/6/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Effective	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	2	mg/L	N	N	10/4/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Effective	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.8	1.8	mg/L	N	N	9/4/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Effective	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.5	1.5	mg/L	N	N	7/9/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.75	mg/L	N	N	7/9/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	5/1/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.14	mg/L	N	N	5/1/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.9	mg/L	N	N	4/1/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.3	mg/L	N	N	3/3/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	1/30/2019		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	12/26/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.9	mg/L	N	N	11/6/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							11	mg/L	N	N	10/19/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							12.3	mg/L	N	N	9/25/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.81	mg/L	N	N	8/27/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	7/26/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	6/28/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	5/25/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3	mg/L	N	N	4/26/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							7.8	mg/L	N	N	3/12/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.2	mg/L	N	N	2/26/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.19	mg/L	N	N	1/3/2018		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.5	mg/L	N	N	12/13/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.67	mg/L	N	N	11/14/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.56	mg/L	N	N	10/4/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3	mg/L	N	N	9/8/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.74	mg/L	N	N	8/10/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.37	mg/L	N	N	7/11/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.79	mg/L	N	N	7/11/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.9	mg/L	N	N	5/15/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.94	mg/L	N	N	4/4/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							9.36	mg/L	N	N	3/16/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.93	mg/L	N	N	2/7/2017		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	1/19/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.26	mg/L	N	N	12/2/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.36	mg/L	N	N	11/21/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.33	mg/L	N	N	10/18/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.44	mg/L	N	N	9/21/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.87	mg/L	N	N	8/22/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	7/24/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.47	mg/L	N	N	6/14/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	5/12/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							7.57	mg/L	N	N	4/12/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	3/14/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	2/10/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	1/12/2016		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	12/7/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	11/12/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	10/19/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	9/24/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	8/20/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	7/20/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	6/12/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	5/8/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	4/14/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	3/10/2015		BAS	ENF
IL0020079	RIDGWAY, VILLAGE OF	RIDGWAY STP, VILLAGE OF	Gallatin	Minor	NPDES Individual Permit	Admin Continued	4952		05140204-CRAWFORD CREEK	37.803333	-88.26	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	1/13/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	10/9/2017		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	9/6/2017		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	8/2/2017		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	7/6/2017		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	6/5/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	5/3/2017		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	4/3/2017		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	3/2/2017		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	2/6/2017		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	1/5/2017		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	12/1/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	11/2/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.8		mg/L	N	N	10/3/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	9/2/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.8		mg/L	N	N	8/9/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	7/13/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.8		mg/L	N	N	6/14/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	5/4/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.8		mg/L	N	N	4/5/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.8		mg/L	N	N	3/3/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	2/4/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	1/7/2016		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	12/2/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	11/2/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	10/6/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	9/4/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.58		mg/L	N	N	8/4/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	7/7/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	6/4/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.87		mg/L	N	N	5/8/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	4/6/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	3/4/2015		BAS	ENF
IL0020605	FAIRFIELD, CITY OF	FAIRFIELD STP, CITY OF	Wayne	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-JOHNSON CREEK	38.376667	-88.35	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9		mg/L	N	N	2/4/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/16/2020		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/10/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/11/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/29/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/27/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/16/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/22/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.36	mg/L	N	N	6/27/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/23/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/21/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/21/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/25/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/25/2019		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/28/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/12/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/16/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/25/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/17/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/23/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/28/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/22/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/26/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/21/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/16/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/15/2018		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/15/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/24/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/18/2017		PML	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/22/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/22/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/24/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.41	mg/L	N	N	6/23/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.36	mg/L	N	N	5/24/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.21	mg/L	N	N	4/28/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/3/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/10/2017		PML	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	1/13/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	12/23/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.5	mg/L	N	N	11/11/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	10/6/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	9/16/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.2	mg/L	N	N	8/25/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	7/20/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	6/8/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	5/24/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.3	mg/L	N	N	4/25/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.8	mg/L	N	N	3/7/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.69	mg/L	N	N	2/9/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.98	mg/L	N	N	1/21/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	12/14/2015		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.2	mg/L	N	N	11/16/2015		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.2	mg/L	N	N	10/23/2015		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	9/10/2015		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.69	mg/L	N	N	8/14/2015		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.66	mg/L	N	Y	10/6/2016		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	6/22/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	5/11/2015		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	4/2/2015		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	3/6/2015		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	2/9/2015		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/16/2020		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/10/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/11/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/29/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/27/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/16/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/22/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.42	mg/L	N	N	6/27/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/23/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/21/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/21/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/25/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/25/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/28/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/12/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/16/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/25/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/17/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/23/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/28/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/22/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/26/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/21/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/16/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/15/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/15/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/24/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/18/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/22/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/22/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/24/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.24	mg/L	N	N	6/23/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.36	mg/L	N	N	5/24/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.31	mg/L	N	N	4/28/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/3/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/10/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	1/16/2020		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	12/10/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	11/11/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.5	mg/L	N	N	10/29/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3	mg/L	N	N	9/27/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	8/16/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.61	mg/L	N	N	7/22/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.53	mg/L	N	N	6/27/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.56	mg/L	N	N	5/23/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	4/21/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.62	mg/L	N	N	3/21/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	2/25/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.77	mg/L	N	N	1/25/2019		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	12/28/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.3	mg/L	N	N	11/12/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.73	mg/L	N	N	10/16/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.2	mg/L	N	N	9/25/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	8/17/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.7	mg/L	N	N	7/23/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.7	mg/L	N	N	6/28/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.73	mg/L	N	N	5/22/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.64	mg/L	N	N	4/26/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.1	mg/L	N	N	3/21/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.8	mg/L	N	N	2/16/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	12/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	1/15/2018		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	11/30/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.9	mg/L	N	N	12/15/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	10/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.8	mg/L	N	N	11/24/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	09/30/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.5	mg/L	N	N	10/18/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	08/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.1	mg/L	N	N	9/22/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	07/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.3	mg/L	N	N	8/22/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	06/30/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.1	mg/L	N	N	7/24/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	05/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.74	mg/L	N	N	6/23/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	04/30/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	5/24/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	03/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.1	mg/L	N	N	4/28/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	02/28/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	3/3/2017		BAS	ENF
IL0020737	HOPEDALE, VILLAGE OF	HOPEDALE STP, VILLAGE OF	Tazewell	Minor	NPDES Individual Permit	Admin Continued	4952		07130004-INDIAN CREEK	40.421667	-89.426667	01/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	2/10/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.95	mg/L	N	N	1/31/2020		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	12/3/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.66	mg/L	N	N	11/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.6	mg/L	N	N	10/15/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.5	mg/L	N	N	10/6/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.2	mg/L	N	N	8/27/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	7/11/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.25	mg/L	N	N	7/1/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.68	mg/L	N	N	5/14/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.68	mg/L	N	N	4/30/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.61	mg/L	N	N	3/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.57	mg/L	N	N	2/19/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	1/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.8	mg/L	N	N	1/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.4	mg/L	N	N	11/5/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	10/4/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4	mg/L	N	N	9/4/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.2	mg/L	N	N	8/1/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.2	mg/L	N	N	7/18/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.1	mg/L	N	N	6/5/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	5/1/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.74	mg/L	N	N	4/10/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.4	mg/L	N	N	3/8/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.5	mg/L	N	N	2/5/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.3	mg/L	N	N	1/2/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.6	mg/L	N	N	12/5/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.4	mg/L	N	N	11/6/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.2	mg/L	N	N	10/5/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.9	mg/L	N	N	9/5/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.1	mg/L	N	N	8/10/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.2	mg/L	N	N	7/6/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.93	mg/L	N	N	6/1/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.59	mg/L	N	N	5/23/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.5	mg/L	N	N	5/23/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	3/2/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	2/13/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.8	mg/L	N	N	1/7/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.2	mg/L	N	N	12/5/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.66	mg/L	N	N	11/1/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.79	mg/L	N	N	10/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.9	mg/L	N	N	9/12/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.78	mg/L	N	N	8/8/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	7/11/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.61	mg/L	N	N	6/6/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	5/3/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	4/11/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	3/1/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.99	mg/L	N	N	2/9/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.42	mg/L	N	N	1/19/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.9	mg/L	N	N	1/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.4	mg/L	N	Y	1/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.3	mg/L	N	Y	1/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	9/7/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.72	mg/L	N	N	9/7/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	Y	9/7/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	6/6/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.1	mg/L	N	N	5/5/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	4/13/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.2	mg/L	N	N	3/4/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.2	mg/L	N	N	2/10/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/31/2020		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/3/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.35	mg/L	N	N	10/15/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/6/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/27/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/11/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.27	mg/L	N	N	7/1/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/14/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/30/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2019	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/19/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/5/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/4/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/4/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/1/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/18/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/5/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/1/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/10/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/8/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2018	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/5/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/2/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/5/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/6/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/5/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/5/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/10/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/6/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/1/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/23/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/23/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/2/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2017	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/13/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/7/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/5/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/1/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.34	mg/L	N	N	10/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/12/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/8/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/11/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/6/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/3/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/11/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/29/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/1/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2016	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/9/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.21	mg/L	N	N	1/19/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.36	mg/L	N	N	1/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	1/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	1/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/7/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.22	mg/L	N	N	9/7/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.33	mg/L	N	Y	9/7/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/6/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/5/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/13/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/4/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2015	003-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/10/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/31/2020		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/3/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.76	mg/L	N	N	11/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.54	mg/L	N	N	10/15/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/6/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/27/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.25	mg/L	N	N	7/11/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.61	mg/L	N	N	7/1/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.55	mg/L	N	N	5/14/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.67	mg/L	N	N	4/30/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.54	mg/L	N	N	3/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.59	mg/L	N	N	2/19/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.54	mg/L	N	N	1/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/7/2019		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.51	mg/L	N	N	11/5/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.54	mg/L	N	N	10/4/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/4/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/1/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/18/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/5/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/1/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.5	mg/L	N	N	4/10/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.4	mg/L	N	N	3/8/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/5/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/2/2018		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/5/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/6/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/5/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/5/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/10/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/6/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.38	mg/L	N	N	6/1/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.59	mg/L	N	N	5/23/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/23/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/2/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.74	mg/L	N	N	2/13/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/7/2017		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/5/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.5	mg/L	N	N	11/1/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.38	mg/L	N	N	10/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.56	mg/L	N	N	9/12/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.45	mg/L	N	N	8/8/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/11/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/6/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/3/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/11/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/29/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/1/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/9/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	12/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.29	mg/L	N	N	1/19/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	11/30/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.36	mg/L	N	N	1/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	10/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	1/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	09/30/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	1/4/2016		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	08/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/7/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	07/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.72	mg/L	N	N	9/7/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	06/30/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.54	mg/L	N	Y	9/7/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	05/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/6/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	04/30/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/5/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	03/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/13/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	02/28/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/4/2015		BAS	ENF
IL0020761	ABINGDON, CITY OF	ABINGDON STP, CITY OF	Knox	Minor	NPDES Individual Permit	Admin Continued	4952		07130005-DAGO SLOUGH	40.786667	-90.391667	01/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/10/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.48		lb/d		.95		mg/L	N	N	1/8/2020		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.242		lb/d		.89		mg/L	N	N	12/9/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.43		lb/d		.94		mg/L	N	N	11/5/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.269		lb/d		.975		mg/L	N	N	10/7/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.714		lb/d		.96		mg/L	N	N	9/6/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.034		lb/d		.96		mg/L	N	N	8/9/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.873		lb/d		.83		mg/L	N	N	7/9/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.253		lb/d		.966		mg/L	N	N	6/10/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.611		lb/d		.97		mg/L	N	Y	10/7/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.07		lb/d		.44		mg/L	N	N	4/25/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.06		lb/d		.53		mg/L	N	N	3/25/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.5		lb/d		.7		mg/L	N	N	2/20/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.59		lb/d		.63		mg/L	N	N	1/21/2019		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.48		lb/d		.45		mg/L	N	N	12/17/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.81		lb/d		.34		mg/L	N	N	11/21/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.66		lb/d		.29		mg/L	N	N	10/15/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.17		lb/d		.36		mg/L	N	N	9/19/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.65		lb/d		.33		mg/L	N	N	8/14/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.53		lb/d		1		mg/L	N	N	7/25/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.59		lb/d		.8		mg/L	N	N	7/3/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.15		lb/d		.74		mg/L	N	Y	6/28/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.94		lb/d		.99		mg/L	N	Y	7/3/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.94		lb/d		.87		mg/L	N	Y	6/28/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.34		lb/d		.74		mg/L	N	Y	4/18/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.39		lb/d		1		mg/L	N	Y	4/12/2018		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.14		lb/d		.84		mg/L	N	N	12/27/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.43		lb/d		.94		mg/L	N	N	12/1/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.22		lb/d		.72		mg/L	N	N	10/23/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.54		lb/d		.8		mg/L	N	N	9/21/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.69		lb/d		.38		mg/L	N	N	8/30/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.39		lb/d		.64		mg/L	N	Y	8/30/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.74		lb/d		.61		mg/L	N	Y	8/30/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.09		lb/d		1		mg/L	N	Y	8/30/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.61		lb/d		.98		mg/L	N	Y	8/30/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.68		lb/d		.75		mg/L	N	Y	8/30/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.34		lb/d		.89		mg/L	N	Y	8/30/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.59		lb/d		.65		mg/L	N	N	2/14/2017		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.67		lb/d		.65		mg/L	N	N	12/27/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.23		lb/d		1		mg/L	N	Y	12/27/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.02		lb/d		.95		mg/L	N	N	11/10/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.99		lb/d		.81		mg/L	N	Y	11/10/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.04		lb/d		.8		mg/L	N	Y	11/10/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.94		lb/d		.37		mg/L	N	Y	11/10/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.38		lb/d		.43		mg/L	N	N	6/30/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.62		lb/d		.47		mg/L	N	N	5/25/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.82		lb/d		.92		mg/L	N	N	4/24/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.29		lb/d		.78		mg/L	N	N	3/24/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.84		lb/d		1		mg/L	N	N	2/25/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	68	9.53		lb/d		1.68		mg/L	Y	N	1/25/2016		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.95		lb/d		1		mg/L	N	N	12/24/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.97		lb/d		.56		mg/L	N	N	11/25/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.69		lb/d		.41		mg/L	N	N	10/23/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Effective	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.94		lb/d		.72		mg/L	N	N	9/25/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Expired	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.64		lb/d		.68		mg/L	N	N	8/25/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Expired	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.72		lb/d		.84		mg/L	N	N	7/25/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Expired	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.66		lb/d		1		mg/L	N	N	6/18/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Expired	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.4		lb/d		1		mg/L	N	N	5/25/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Expired	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.42		lb/d		.94		mg/L	N	N	4/23/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Expired	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.36		lb/d		.57		mg/L	N	N	3/19/2015		BAS	ENF
IL0020834	SMITHTON, VILLAGE OF	SMITHTON STP, VILLAGE OF	St. Clair	Minor	NPDES Individual Permit	Expired	4952		07140204-DOUGLAS CREEK	38.41	-89.980833	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.33		lb/d		.9		mg/L	N	N	2/19/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	1/21/2020		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	12/24/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	11/24/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	10/22/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	9/23/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	8/20/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	7/23/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	6/23/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.9	mg/L	N	N	5/12/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.92	mg/L	N	N	4/14/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.86	mg/L	N	N	3/11/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	2/9/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	1/21/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	12/23/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	11/24/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.68	mg/L	N	N	10/19/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	9/24/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	8/19/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	7/15/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	6/10/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI 9	mg/L	N	N	5/17/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/4/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/5/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/5/2018		BAS	ENF

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IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/26/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/8/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/17/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/20/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/8/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/30/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/10/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/10/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	7/7/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/5/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	4/27/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/3/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/12/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/12/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	1/12/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/9/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	11/9/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	10/18/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	9/28/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/27/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	6/27/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.23		lb/yr					N	N	4/12/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.63		lb/yr					N	N	4/1/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.43		lb/yr					N	N	3/2/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		21.97		lb/yr					N	N	1/22/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		21.71		lb/yr					N	N	12/29/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		21.5		lb/yr					N	N	11/6/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		20.2		lb/yr					N	N	10/2/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		19.4		lb/yr					N	N	10/2/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		18.4		lb/yr					N	N	8/21/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		12.7		lb/yr					N	N	7/2/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		11		lb/yr					N	N	6/7/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		10.8		lb/yr					N	N	6/7/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.8		lb/yr					N	Y	6/7/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5		lb/yr					N	Y	6/5/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1		lb/yr					N	N	3/20/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	03/31/2016	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						1.2	1.3	mg/L	N	N	4/12/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	02/29/2016	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						1.7	1.8	mg/L	N	N	4/1/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	01/31/2016	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						1.1	1.2	mg/L	N	N	3/2/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	12/31/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						1.9	2.9	mg/L	N	N	1/22/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	11/30/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						3.75	6.5	mg/L	N	N	12/29/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	10/31/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						4.8	5.7	mg/L	N	N	11/6/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	09/30/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						4	4.1	mg/L	N	N	10/2/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	08/31/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						3.3	3.9	mg/L	N	N	10/2/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	07/31/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						1.7	2.3	mg/L	N	N	8/21/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	06/30/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						1.4	1.8	mg/L	N	N	7/2/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	05/31/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						1.6	2	mg/L	N	N	6/7/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	04/30/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						2.9	6	mg/L	N	N	6/7/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	03/31/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						1	1.7	mg/L	N	Y	6/7/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	02/28/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						3	4.6	mg/L	N	Y	6/5/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Admin Continued	4952		05120108-UNNAMED TRIB TO LITTLE VERMILION	39.923333	-87.655	01/31/2015	001-0	00665-8-0	Phosphorus, total [as P]	Other Treatment, Process Complete						1.26	1.48	mg/L	N	N	3/20/2015		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	12/31/2019	B01-0	00665-EG-0	Phosphorus, total [as P]	Effluent Gross						2.2	2.4	mg/L	N	N	1/21/2020		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	12/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		8.65		lb/d					N	N	1/21/2020		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	11/30/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		17		lb/d					N	N	12/24/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	10/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		5		lb/d					N	N	11/24/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	09/30/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		16		lb/d					N	N	10/22/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	08/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		3.5		lb/d					N	N	9/23/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	07/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		4.26		lb/d					N	N	8/20/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	06/30/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.6		lb/d					N	N	7/23/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	05/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1		lb/d					N	N	6/23/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	04/30/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.75		lb/d					N	N	5/12/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	03/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.77		lb/d					N	N	4/14/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	02/28/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.55		lb/d					N	N	3/11/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	01/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.9		lb/d					N	N	2/9/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	12/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.3		lb/d					N	N	1/21/2019		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	11/30/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.3		lb/d					N	N	12/23/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	10/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.56		lb/d					N	N	11/24/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	09/30/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.76		lb/d					N	N	10/19/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	08/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.2		lb/d					N	N	9/24/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	07/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.96		lb/d					N	N	8/19/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	06/30/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.89		lb/d					N	N	7/15/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	05/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.85		lb/d					N	N	6/10/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	04/30/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.88		lb/d					N	N	5/17/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	03/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		3.2		lb/d					N	N	4/4/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	02/28/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		4.4		lb/d					N	N	3/5/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	01/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2		lb/d					N	N	3/5/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	12/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		16.7		lb/d					N	N	1/26/2018		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	11/30/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		14.7		lb/d					N	N	12/8/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	10/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		11.2		lb/d					N	N	11/17/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	09/30/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		10.2		lb/d					N	N	10/20/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	08/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		9.2		lb/d					N	N	9/8/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	07/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		8		lb/d					N	N	8/30/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	06/30/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		7		lb/d					N	N	7/10/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	05/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		5		lb/d					N	N	7/7/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	04/30/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		4.3		lb/d					N	Y	7/7/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	03/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		3.2		lb/d					N	N	5/5/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	02/28/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.1		lb/d					N	Y	4/27/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	01/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1		lb/d					N	N	2/3/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	12/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1220.8		lb/d					N	N	1/12/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	11/30/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1219.4		lb/d					N	N	1/12/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	10/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1217.6		lb/d					N	Y	1/12/2017		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	09/30/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1216.8		lb/d					N	N	11/9/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	08/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1217		lb/d					N	Y	11/9/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	07/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		10.77		lb/d					N	Y	10/18/2016		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	06/30/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		8.63		lb/d					N	Y	9/28/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	05/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		6.73		lb/d					N	N	6/27/2016		BAS	ENF
IL0020966	RIDGE FARM, VILLAGE OF	RIDGE FARM STP, VILLAGE OF	Vermilion	Minor	NPDES Individual Permit	Effective	4952		05120108-UNNAMED TRIBUTARY OF LITTLE VERMILION RIVER	39.923333	-87.655	04/30/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		5.33		lb/d					N	Y	6/27/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.2		lb/d		1.2		mg/L	N	N	1/24/2020		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.2		lb/d		1.2		mg/L	N	N	12/19/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.2		lb/d		1.2		mg/L	N	N	11/20/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.2		lb/d		1.2		mg/L	N	N	10/24/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.4		lb/d		1		mg/L	N	N	9/24/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.5		lb/d		1.2		mg/L	N	N	8/22/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.4		lb/d		1.2		mg/L	N	N	7/23/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.5		lb/d		1.2		mg/L	N	N	6/24/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1		lb/d		1		mg/L	N	N	5/23/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1		lb/d		1		mg/L	N	N	4/24/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.085		lb/d		.085		mg/L	N	N	3/22/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.89		lb/d		.89		mg/L	N	N	2/21/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.1		lb/d		1.1		mg/L	N	N	1/25/2019		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.3		lb/d		1.2		mg/L	N	N	12/21/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2		lb/d		1.2		mg/L	N	N	11/20/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.2		lb/d		1.2		mg/L	N	N	10/24/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3		lb/d		< 1.2		mg/L	N	N	9/20/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3		lb/d		1.2		mg/L	N	N	8/24/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.4		lb/d		1.2		mg/L	N	N	7/24/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.2		lb/d		1.2		mg/L	N	N	6/21/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.4		lb/d		1.2		mg/L	N	N	5/24/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.6		lb/d		1.2		mg/L	N	N	4/25/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.6		lb/d		1.2		mg/L	N	N	3/23/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.095		lb/d		.095		mg/L	N	N	2/15/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1		lb/d		1		mg/L	N	N	1/24/2018		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.095		lb/d		.095		mg/L	N	N	12/20/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.1		lb/d		< 1.2		mg/L	N	N	11/22/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.8		lb/d		< 1.2		mg/L	N	N	10/16/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Effective	4952		05120114-LITTLE WABASH RIVER	38.691667	-88.348333	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.6		lb/d		< 1.2		mg/L	N	N	9/22/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.3	1.3	mg/L	N	N	8/23/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.3	1.3	mg/L	N	N	7/20/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.85	.85	mg/L	N	N	6/23/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.98	.98	mg/L	N	N	5/15/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.7	1.7	mg/L	N	N	4/21/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	3/21/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.9	1.9	mg/L	N	N	2/21/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.3	1.3	mg/L	N	N	1/23/2017		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.3	1.3	mg/L	N	N	12/19/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.9	.9	mg/L	N	N	11/14/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.97	.97	mg/L	N	N	10/24/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.2	1.2	mg/L	N	N	9/23/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.5	1.5	mg/L	N	N	8/19/2016		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	7/20/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.1	mg/L	N	N	6/16/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.86	.86	mg/L	N	N	5/17/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1	1	mg/L	N	N	4/11/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.2	1.2	mg/L	N	N	3/23/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.56	.56	mg/L	N	N	2/17/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.97	.97	mg/L	N	N	1/19/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.7	1.7	mg/L	N	N	12/18/2015		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.68	.68	mg/L	N	Y	10/3/2016		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.68	.68	mg/L	N	N	11/24/2015		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.1	3.1	mg/L	N	N	9/15/2015		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.1	mg/L	N	N	7/17/2015		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	2	mg/L	N	N	8/20/2015		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	6/15/2015		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	2	mg/L	N	N	5/15/2015		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.95	.95	mg/L	N	N	4/14/2015		BAS	ENF
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.9	1.9	mg/L	N	N	3/17/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0020974	CLAY CITY, VILLAGE OF	CLAY CITY, VILLAGE OF	Clay	Minor	NPDES Individual Permit	Admin Continued	4952		05120114-UNNAMED DITCH TRIB TO LTL WABASH RV	38.691667	-88.348333	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.1	mg/L	N	N	2/17/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5	.6	lb/d		.1	.11	mg/L	N	N	1/16/2020		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.5	lb/d		.08	.08	mg/L	N	N	12/13/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3	.3	lb/d		.06	.06	mg/L	N	N	11/8/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2	.2	lb/d		.07	.08	mg/L	N	N	10/18/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2	.2	lb/d		.05	.05	mg/L	N	N	9/23/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.6	.7	lb/d		.08	.09	mg/L	N	N	8/22/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.6	.6	lb/d		.06	.07	mg/L	N	N	7/23/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1	1.1	lb/d		.06	.08	mg/L	N	N	6/24/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.3	2.1	lb/d		.11	.18	mg/L	N	N	5/23/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7	.7	lb/d		.07	.07	mg/L	N	N	4/25/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.7	1.8	lb/d		.14	.14	mg/L	N	N	3/25/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.1	1.6	lb/d		.12	.15	mg/L	N	N	2/11/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.2	1.8	lb/d		.14	.2	mg/L	N	N	1/21/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.4	2.2	lb/d		.2	.3	mg/L	N	N	1/2/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.9	.9	lb/d		.1	.11	mg/L	N	N	11/20/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7	.7	lb/d		.12	.13	mg/L	N	N	10/25/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7	.9	lb/d		.18	.22	mg/L	N	N	9/25/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.9	1.1	lb/d		.15	.16	mg/L	N	N	8/22/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.4	lb/d		.12	.13	mg/L	N	N	7/24/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.6	2.5	lb/d		.27	.39	mg/L	N	N	6/26/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.9	2.9	lb/d		.18	.25	mg/L	N	N	5/30/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.6	3.5	lb/d		.27	.31	mg/L	N	N	5/15/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.6	1.9	lb/d		.47	.57	mg/L	N	N	3/22/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.5	1.5	lb/d		.48	.48	mg/L	N	N	2/20/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.5	2.2	lb/d		.39	.54	mg/L	N	N	1/2/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.6	.8	lb/d		.19	.26	mg/L	N	N	12/14/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.5	lb/d		.15	.21	mg/L	N	N	11/28/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1	.2	lb/d		.05	.08	mg/L	N	N	10/24/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1	.2	lb/d		.06	.1	mg/L	N	N	9/25/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2	.3	lb/d		.09	.12	mg/L	N	N	8/3/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5	.8	lb/d		.1	.16	mg/L	N	N	7/24/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.5	.8	lb/d		.07	.11	mg/L	N	N	6/21/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.5	3.1	lb/d		.25	.25	mg/L	N	N	5/31/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.3	1.5	lb/d		.23	.27	mg/L	N	N	4/21/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.7	2	lb/d		.27	.33	mg/L	N	N	3/1/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.7	4.3	lb/d		.32	.45	mg/L	N	N	2/1/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3	4.2	lb/d		.39	.51	mg/L	N	N	1/10/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.4	.4	lb/d		.15	.16	mg/L	N	N	12/1/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.1	1.3	lb/d		.23	.25	mg/L	N	N	11/2/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3	2.6	lb/d		.28	.32	mg/L	N	N	10/26/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.8	2.2	lb/d		.23	.27	mg/L	N	N	9/26/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.3	1.6	lb/d		.2	.25	mg/L	N	N	8/24/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.7	2.6	lb/d		.28	.37	mg/L	N	N	7/25/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.4	1.6	lb/d		.2	.22	mg/L	N	N	6/22/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.6	3.2	lb/d		.29	.33	mg/L	N	N	5/17/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3	3.3	lb/d		.34	.39	mg/L	N	N	4/22/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.3	4.9	lb/d		.6	.64	mg/L	N	N	3/7/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.7	3.8	lb/d		.39	.43	mg/L	N	N	2/12/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.5	3	lb/d		.28	.32	mg/L	N	N	1/14/2016		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7	1.1	lb/d		.17	.26	mg/L	N	N	12/17/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.9	1.7	lb/d		.18	.3	mg/L	N	N	11/24/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.9	1.1	lb/d		.19	.22	mg/L	N	N	10/30/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1	1.1	lb/d		.17	.2	mg/L	N	N	9/29/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.8	3	lb/d		.16	.23	mg/L	N	N	8/25/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.4	2.3	lb/d		.13	.21	mg/L	N	N	7/28/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.1	2.8	lb/d		.22	.27	mg/L	N	N	7/21/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7	.7	lb/d		.08	.08	mg/L	N	Y	7/17/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.9	4.2	lb/d		.44	.56	mg/L	N	N	5/11/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.3	6.9	lb/d		.7	.8	mg/L	N	Y	5/11/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.5	3.7	lb/d		.55	.89	mg/L	N	N	3/16/2015		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	12/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/15/2020		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	11/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	12/13/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	10/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.57	mg/L	N	N	11/8/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	09/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/17/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	08/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/23/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	07/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/22/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	06/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.19	mg/L	N	N	7/23/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	05/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.43	mg/L	N	N	6/24/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	04/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.19	mg/L	N	N	5/23/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	03/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.16	mg/L	N	N	4/25/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	02/28/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.16	mg/L	N	N	3/25/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	01/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.44	mg/L	N	N	2/11/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	12/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.5	mg/L	N	N	1/21/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	11/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/2/2019		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	10/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.83	mg/L	N	N	11/20/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	09/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/25/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	08/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/25/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	07/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/22/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	06/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/24/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	05/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/26/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	04/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.55	mg/L	N	N	5/30/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	03/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.23	mg/L	N	N	5/15/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	02/28/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.98	mg/L	N	N	3/22/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	01/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/20/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	12/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/2/2018		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	11/30/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.1	mg/L	N	N	12/14/2017		BAS	ENF
IL0021563	LEROY, CITY OF	LEROY STP, CITY OF	McLean	Minor	NPDES Individual Permit	Effective	4952		07130009-UNMAMED TRIB OF N FORK SALT CREEK	40.34	-88.755	10/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/28/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.064	lb/d			.031	mg/L	Y	N	1/21/2020		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.065	lb/d			.03	mg/L	Y	N	12/26/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.052	lb/d			.033	mg/L	Y	N	10/22/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.052	lb/d			.033	mg/L	Y	N	10/30/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.055	lb/d			.035	mg/L	Y	N	9/23/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.068	lb/d			.041	mg/L	Y	N	8/27/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.038	lb/d			.038	mg/L	Y	N	7/22/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.026	lb/d			.016	mg/L	Y	N	7/8/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.032	lb/d			.05	mg/L	Y	N	5/21/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.038	lb/d			.024	mg/L	Y	N	4/18/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.036	lb/d			.024	mg/L	Y	N	3/25/2019		BAS	ENF

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IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.058	lb/d			.096	mg/L	Y	N	2/21/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.1	lb/d			.06	mg/L	Y	N	1/16/2019		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.033	lb/d			.018	mg/L	Y	N	12/21/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.081	lb/d			.036	mg/L	Y	N	11/24/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.05	lb/d			.029	mg/L	Y	N	10/22/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.017	lb/d			.016	mg/L	Y	N	9/18/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.05	lb/d			.029	mg/L	Y	N	8/23/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			0	lb/d			0	mg/L	N	N	7/23/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.09	lb/d			.046	mg/L	Y	N	6/20/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.044	lb/d			.024	mg/L	Y	N	5/17/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.086	lb/d			.069	mg/L	Y	N	4/17/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.06	lb/d			.044	mg/L	Y	N	3/21/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.044	lb/d			.028	mg/L	Y	N	2/23/2018		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.032	lb/d			.023	mg/L	Y	N	1/20/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.038	lb/d			.021	mg/L	Y	N	12/18/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.07	lb/d			.042	mg/L	Y	N	11/18/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.07	lb/d			.041	mg/L	Y	N	10/20/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.06	lb/d			.028	mg/L	Y	N	9/20/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.02	lb/d			.016	mg/L	Y	N	8/17/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.044	lb/d			.028	mg/L	Y	N	7/31/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	2147483650		.032	lb/d			.016	mg/L	Y	N	6/26/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.038	lb/d			.021	mg/L	N	N	5/16/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.016	lb/d			.02	mg/L	N	N	4/19/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.017	lb/d			.011	mg/L	N	N	3/17/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.02	lb/d			.014	mg/L	N	N	2/17/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.021	lb/d			.04	mg/L	N	N	1/16/2017		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.018	lb/d			.011	mg/L	N	N	12/16/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.06	lb/d			.032	mg/L	N	N	11/16/2016		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.09	lb/d			.054	mg/L	N	N	10/15/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.034	lb/d			.062	mg/L	N	N	9/15/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.1	lb/d			.092	mg/L	N	N	8/15/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.128	lb/d			.067	mg/L	N	N	7/15/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.11	lb/d			.1	mg/L	N	N	6/13/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			< .134	lb/d			< .095	mg/L	N	N	6/13/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.135	lb/d			.09	mg/L	N	N	6/13/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.145	lb/d			.092	mg/L	N	N	6/13/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.046	lb/d			.037	mg/L	N	N	5/25/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.068	lb/d			.043	mg/L	N	N	6/13/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.046	lb/d			.031	mg/L	N	N	5/25/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.06	lb/d			.04	mg/L	N	N	6/13/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.2	lb/d			.12	mg/L	N	N	6/13/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			< .034	lb/d			.026	mg/L	N	N	6/13/2016		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.015	lb/d			.012	mg/L	N	N	6/13/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.073	lb/d			.085	mg/L	N	N	6/13/2016		BAS	ENF
IL0022250	TEASDALE FOODS INC	TEASDALE FOODS INC	Vermilion	Minor	NPDES Individual Permit	Effective	2033		05120109-UNNAMED TRIB TO HOOPESTON BRANCH VIA STORM SEWER	40.46	-87.68	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross			.027	lb/d			.029	mg/L	N	N	6/13/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross								mg/L	N	Y			BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	1/29/2020		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	11/9/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	11/8/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	10/10/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	8/11/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	8/11/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	6/25/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	5/25/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	3/23/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	3/23/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	2/23/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	1/25/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	12/3/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	10/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	10/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	9/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	8/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	7/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	4/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	4/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	3/24/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	3/24/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	2/10/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	12/5/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	11/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	11/23/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	10/11/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	8/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	7/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	7/5/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	7/5/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	4/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	Y	4/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	3/14/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	1/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	11/12/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	10/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	10/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	9/24/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	8/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	7/23/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	6/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	5/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	4/22/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	3/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	2/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	1/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI **E**		mg/L	N	Y	12/18/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	11/25/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	10/25/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI C		mg/L	N	N	9/25/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						NODI **E**		mg/L	N	Y	8/25/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross								mg/L	N	Y			BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	1/29/2020		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/9/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	11/8/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	10/10/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/11/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	8/11/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	6/25/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/25/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/28/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/23/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/23/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/23/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	1/25/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/3/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	9/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	8/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/28/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/24/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/24/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/10/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/5/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/23/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/11/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/10/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	7/10/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/28/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	Y	4/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/14/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/14/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/12/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/24/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/23/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/22/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/29/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.94	mg/L	N	N	12/18/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/25/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/25/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/25/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2015	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI **E**	mg/L	N	Y	8/25/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross								mg/L	N	Y			BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.2	mg/L	N	Y	1/29/2020		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	11/9/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.65	mg/L	N	Y	11/8/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.96	mg/L	N	Y	10/10/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	8/11/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.75	mg/L	N	Y	8/11/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.77	mg/L	N	Y	6/25/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.45	mg/L	N	N	5/25/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/28/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.347	mg/L	N	N	3/23/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2019	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.7	mg/L	N	N	3/23/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.59	mg/L	N	N	2/23/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	Y	1/25/2019		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.6	mg/L	N	N	12/3/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							4.3	mg/L	N	N	10/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.75	mg/L	N	N	10/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.16	mg/L	N	Y	9/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.87	mg/L	N	Y	8/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.87	mg/L	N	N	7/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.73	mg/L	N	N	6/23/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.278	mg/L	N	N	4/25/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/28/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.13	mg/L	N	N	3/24/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2018	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.99	mg/L	N	N	3/24/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.26	mg/L	N	N	2/10/2018		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.74	mg/L	N	N	12/19/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.89	mg/L	N	N	11/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.87	mg/L	N	N	11/23/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.2	mg/L	N	N	10/11/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	8/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.6	mg/L	N	N	7/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.91	mg/L	N	N	7/10/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.61	mg/L	N	Y	7/5/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.5	mg/L	N	N	4/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/28/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.6	mg/L	N	Y	4/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2017	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.22	mg/L	N	N	3/14/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.22	mg/L	N	N	1/25/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.6	mg/L	N	N	1/14/2017		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.6	mg/L	N	N	11/12/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.1	mg/L	N	N	11/12/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	9/27/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.6	mg/L	N	Y	9/27/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	06/30/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							7.1	mg/L	N	N	7/23/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	05/31/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							7.7	mg/L	N	N	6/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	04/30/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.36	mg/L	N	N	5/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	03/31/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.78	mg/L	N	N	4/22/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	02/29/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross								mg/L	N	Y			BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	01/31/2016	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.97	mg/L	N	N	2/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	12/31/2015	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.97	mg/L	N	N	1/25/2016		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	11/30/2015	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3.8	mg/L	N	N	12/18/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	10/31/2015	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							3	mg/L	N	N	11/25/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	09/30/2015	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2	mg/L	N	N	10/25/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	08/31/2015	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							2.2	mg/L	N	N	9/25/2015		BAS	ENF
IL0022390	WHITE HALL, CITY OF	WHITE HALL STP, CITY OF	Greene	Minor	NPDES Individual Permit	Effective	4952		07130011-SEMINARY CREEK	39.418333	-90.403333	07/31/2015	B01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI **E**	mg/L	N	Y	8/25/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	12/31/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.73	mg/L	N	N	12/31/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.7	mg/L	N	N	11/25/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.84	mg/L	N	N	10/25/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.2	mg/L	N	N	10/11/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.81	mg/L	N	N	9/19/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.3	mg/L	N	N	8/13/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.48	mg/L	N	N	7/8/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.42	mg/L	N	N	6/3/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.58	mg/L	N	N	4/26/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.82	mg/L	N	N	4/14/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	3/8/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	1/31/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.4	mg/L	N	N	12/31/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.88	mg/L	N	N	11/30/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.83	mg/L	N	N	10/5/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.8	mg/L	N	N	10/3/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.66	mg/L	N	N	8/24/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1	mg/L	N	N	8/2/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.51	mg/L	N	N	6/25/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.38	mg/L	N	N	5/31/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.53	mg/L	N	N	4/27/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.6	mg/L	N	N	3/27/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	2/27/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.66	mg/L	N	N	2/6/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.9	mg/L	N	N	12/15/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.1	mg/L	N	N	11/22/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.75	mg/L	N	N	11/1/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.3	mg/L	N	N	10/3/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/30/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.88	mg/L	N	N	7/26/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.37	mg/L	N	N	6/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.3	mg/L	N	N	5/25/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.56	mg/L	N	N	4/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/24/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/24/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/23/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/27/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/26/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.57	mg/L	N	N	9/26/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.84	mg/L	N	N	8/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.46	mg/L	N	N	5/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.42	mg/L	N	N	3/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.59	4.28	lb/d		.5	.57	mg/L	N	N	2/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.85	2.63	lb/d		.32	.35	mg/L	N	N	1/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.79	3.47	lb/d		.5	.52	mg/L	N	N	12/23/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.9	4.99	lb/d		.95	1.3	mg/L	N	N	11/25/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	13	3.11	8.99	lb/d		1.13	1.4	mg/L	Y	N	10/22/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.35	3.27	lb/d		.56	.8	mg/L	N	N	9/23/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.17	4.5	lb/d		.4	.6	mg/L	N	N	8/17/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.92	2.85	lb/d		.32	.38	mg/L	N	N	7/14/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1	1.76	lb/d		.25	.26	mg/L	N	N	6/19/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.39	1.44	lb/d		.37	.41	mg/L	N	N	5/21/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.04	1.2	lb/d		.29	.36	mg/L	N	N	4/16/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.37	1.38	lb/d		.38	.39	mg/L	N	N	3/20/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Admin Continued	4952		07130009-SALT CREEK TRIB TO CLINTON LAKE	40.235	-88.65	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.3	1.6	lb/d		.3	.33	mg/L	N	N	2/20/2015		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/31/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.31	mg/L	N	N	12/31/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.3	mg/L	N	N	11/25/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/25/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/11/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/19/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.29	mg/L	N	N	8/13/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.41	mg/L	N	N	7/8/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.42	mg/L	N	N	6/3/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.56	mg/L	N	N	4/26/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/28/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.56	mg/L	N	N	4/14/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	01/31/2019	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.71	mg/L	N	N	3/8/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.56	mg/L	N	N	1/31/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/31/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/30/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.61	mg/L	N	N	10/5/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/3/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/24/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.2	mg/L	N	N	8/2/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/25/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.33	mg/L	N	N	5/31/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.51	mg/L	N	N	4/27/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/28/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							1.2	mg/L	N	N	3/27/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	01/31/2018	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/27/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/6/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/15/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/22/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/1/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/3/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/30/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.47	mg/L	N	N	6/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.34	mg/L	N	N	5/25/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/28/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	01/31/2017	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/24/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/24/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/23/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/27/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	10/26/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.71	mg/L	N	N	9/26/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.87	mg/L	N	N	8/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.37	mg/L	N	N	5/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/29/2016	A01-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							.28	mg/L	N	N	3/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		3.46	6.05	lb/d		.99	1.1	mg/L	N	N	12/31/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.56	5.72	lb/d		.77	.89	mg/L	N	N	12/31/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.5	6.78	lb/d		.79	1.1	mg/L	N	N	11/25/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2	5.39	lb/d		.83	.84	mg/L	N	N	10/25/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.3	3.8	lb/d		1	1.2	mg/L	N	N	10/11/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.66	3.82	lb/d		.8	.82	mg/L	N	N	9/19/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		3.96	6	lb/d		.82	1	mg/L	N	N	8/13/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		3.15	4.05	lb/d		.535	.54	mg/L	N	N	7/8/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.22	2.56	lb/d		.41	.42	mg/L	N	N	6/3/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		4.02	5.08	lb/d		.7	.7	mg/L	N	N	4/26/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/28/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		3.23	5.8	lb/d		.88	.88	mg/L	N	N	4/14/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	01/31/2019	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.72	5.96	lb/d		.96	1.1	mg/L	N	N	3/8/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.53	5.45	lb/d		.59	.86	mg/L	N	N	1/31/2019		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		6.71	9.69	lb/d		.97	1.4	mg/L	N	N	12/31/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.97	5.5	lb/d		.81	.88	mg/L	N	N	11/30/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.3	6.16	lb/d		.79	.84	mg/L	N	N	10/5/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.42	2.6	lb/d		.67	.8	mg/L	N	N	10/3/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.86	3.96	lb/d		.62	.66	mg/L	N	N	8/24/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.54	3.72	lb/d		.61	.62	mg/L	N	N	8/2/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.36	2.21	lb/d		.44	.51	mg/L	N	N	6/25/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.11	2.07	lb/d		.39	.54	mg/L	N	N	5/31/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.81	1.59	lb/d		.25	.34	mg/L	N	N	4/27/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/28/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.09	5.97	lb/d		.66	.93	mg/L	N	N	3/27/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	01/31/2018	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.91	4.98	lb/d		.79	1.3	mg/L	N	N	2/27/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.08	1.54	lb/d		.62	.66	mg/L	N	N	2/6/2018		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.1	3.68	lb/d		.89	.9	mg/L	N	N	12/15/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.14	4.12	lb/d		.99	1.1	mg/L	N	N	11/22/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.97	2	lb/d		.58	.75	mg/L	N	N	11/1/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.17	3.14	lb/d		.74	1.3	mg/L	N	N	10/3/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.75	3.15	lb/d		1	1.4	mg/L	N	N	8/30/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.13	3.74	lb/d		.75	.88	mg/L	N	N	7/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.31	3.55	lb/d		.44	.49	mg/L	N	N	6/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.69	4.08	lb/d		.46	.55	mg/L	N	N	5/25/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.48	4.2	lb/d		.56	.56	mg/L	N	N	4/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/28/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete	24	4.43	7.28	lb/d		1.24	1.9	mg/L	Y	N	3/26/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	01/31/2017	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.44	3.92	lb/d		.61	.77	mg/L	N	N	2/24/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	12/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.65	5.63	lb/d		.6	.75	mg/L	N	N	1/24/2017		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	11/30/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.5	3.38	lb/d		.5	.52	mg/L	N	N	12/23/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	10/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.04	1.73	lb/d		.43	.46	mg/L	N	N	11/27/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	09/30/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.96	3.21	lb/d		.47	.52	mg/L	N	N	10/26/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	08/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.21	3.36	lb/d		.52	.61	mg/L	N	N	9/26/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	07/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.62	5.1	lb/d		.7	.72	mg/L	N	N	8/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	06/30/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		.8	3	lb/d		.32	.5	mg/L	N	N	7/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	05/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		2.49	4.2	lb/d		.46	.56	mg/L	N	N	6/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	04/30/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.63	3	lb/d		.31	.4	mg/L	N	N	5/25/2016		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	03/31/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		3.23	6.38	lb/d		.83	.9	mg/L	N	N	4/25/2016		BAS	ENF
IL0022462	FARMER CITY, CITY OF	FARMER CITY STP, CITY OF	De Witt	Minor	NPDES Individual Permit	Effective	4952		07130009-SALT CREEK	40.235	-88.65	02/29/2016	B01-0	00665-J-1	Phosphorus, total [as P]	Intermediate Treatment, Process Complete		1.76	4.75	lb/d		.48	.76	mg/L	N	N	3/25/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.3	2.4	mg/L	N	N	1/8/2020		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.7	2.4	mg/L	N	N	12/6/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.3	2.8	mg/L	N	N	11/7/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.8	3.1	mg/L	N	N	11/4/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.4	3.6	mg/L	N	N	9/5/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.3	2.4	mg/L	N	N	8/6/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.2	mg/L	N	N	7/9/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.97	1.5	mg/L	N	N	6/4/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.87	1.2	mg/L	N	N	5/7/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4	.99	mg/L	N	N	4/2/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.2	1.3	mg/L	N	N	3/5/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	2.3	mg/L	N	N	2/5/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4	1.6	mg/L	N	N	1/8/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.9	3	mg/L	N	N	12/6/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.4	4.4	mg/L	N	N	11/5/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.1	3.3	mg/L	N	N	10/2/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4.2	4.5	mg/L	N	N	9/7/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4.3	5	mg/L	N	N	8/9/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.9	3	mg/L	N	N	7/12/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.4	2.6	mg/L	N	N	6/5/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.4	mg/L	N	N	5/9/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.6	mg/L	N	N	4/4/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.6	3.1	mg/L	N	N	3/7/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.8	2.9	mg/L	N	N	2/6/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.6	4.8	mg/L	N	N	1/4/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.7	2.8	mg/L	N	N	12/7/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.3	3.8	mg/L	N	N	11/3/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.2	3.3	mg/L	N	N	10/6/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.1	2.2	mg/L	N	N	9/7/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.1	2.2	mg/L	N	N	8/10/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	1.5	mg/L	N	N	7/18/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.4	1.7	mg/L	N	N	6/7/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1	1.7	mg/L	N	Y	8/10/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	1.7	mg/L	N	N	4/11/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.3	1.6	mg/L	N	N	3/9/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.2	1.3	mg/L	N	N	2/3/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.2	3.1	mg/L	N	N	1/4/2017		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.9	2.5	mg/L	N	N	12/7/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3	3.2	mg/L	N	N	11/8/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.8	2.3	mg/L	N	N	10/5/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.7	3.5	mg/L	N	N	9/7/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4	1.9	mg/L	N	N	8/10/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	1.9	mg/L	N	N	7/11/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.9	1.9	mg/L	N	N	6/9/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	2.2	mg/L	N	N	5/9/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.7	2	mg/L	N	N	4/8/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.8	mg/L	N	N	3/15/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.8	1.8	mg/L	N	N	2/15/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	2.1	mg/L	N	N	1/8/2016		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.6	3.6	mg/L	N	N	12/7/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4.5	4.7	mg/L	N	N	11/5/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4	4.3	mg/L	N	N	10/8/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.7	1.7	mg/L	N	N	9/11/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.92	.97	mg/L	N	N	8/17/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	2.9	mg/L	N	N	7/8/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.8	2.4	mg/L	N	N	6/10/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.9	2.9	mg/L	N	N	5/7/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.5	1.9	mg/L	N	N	4/6/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	2	mg/L	N	N	3/6/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Admin Continued	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.6	3.2	mg/L	N	N	2/6/2015		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	12/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/8/2020		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	11/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/6/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	10/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/7/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	09/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/4/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	08/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	9/5/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	07/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	8/6/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	06/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	7/9/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	05/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	6/4/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	04/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	5/7/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	03/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	4/2/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	02/28/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	3/5/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	01/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	2/5/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	12/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	1/8/2019		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	11/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	12/6/2018		BAS	ENF
IL0022641	DWIGHT, VILLAGE OF	DWIGHT STP, VILLAGE OF	Livingston	Minor	NPDES Individual Permit	Effective	4952		07120005-GOOSEBERRY CREEK	41.106667	-88.412778	10/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross							NODI C	mg/L	N	N	11/5/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.3	2.3	mg/L	N	N	1/5/2020		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.1	3.1	mg/L	N	N	12/8/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						5.3	5.3	mg/L	N	N	11/17/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4.2	4.2	mg/L	N	N	10/5/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.5	3.5	mg/L	N	N	9/15/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.8	2.8	mg/L	N	N	8/4/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3	3	mg/L	N	N	7/5/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	6/1/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.1	mg/L	N	N	5/1/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.1	mg/L	N	N	4/11/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4	1.4	mg/L	N	N	3/11/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.3	1.3	mg/L	N	N	2/3/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	1/11/2019		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.2	2.2	mg/L	N	N	12/8/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4	1.4	mg/L	N	N	11/5/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.6	.6	mg/L	N	N	10/13/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.8	3.8	mg/L	N	N	9/10/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	8/5/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.1	1.1	mg/L	N	N	7/4/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.3	2.3	mg/L	N	N	6/10/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Effective	4952		05120109-SALT FORK VERMILION RIVER	40.105	-88.051667	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4	1.4	mg/L	N	N	5/13/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	4/5/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3	3	mg/L	N	N	3/14/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.6	2.6	mg/L	N	N	2/10/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.7	2.7	mg/L	N	N	1/9/2018		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.2	2.2	mg/L	N	N	12/3/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.3	3.3	mg/L	N	N	11/10/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4.2	4.2	mg/L	N	N	10/11/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4.3	4.3	mg/L	N	N	9/6/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4	4	mg/L	N	N	8/18/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.4	3.4	mg/L	N	N	7/8/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4	1.4	mg/L	N	N	6/9/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.2	1.2	mg/L	N	N	5/6/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.2	2.2	mg/L	N	N	4/6/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.3	2.3	mg/L	N	N	3/4/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.1	2.1	mg/L	N	N	2/5/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.8	1.8	mg/L	N	N	1/3/2017		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.7	2.7	mg/L	N	N	12/3/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.4	2.4	mg/L	N	N	11/6/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4	1.4	mg/L	N	N	10/2/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4.3	4.3	mg/L	N	N	9/4/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.1	2.1	mg/L	N	N	8/2/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.4	2.4	mg/L	N	N	7/5/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.9	1.9	mg/L	N	N	6/12/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	5/7/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	2	mg/L	N	N	4/2/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.7	1.7	mg/L	N	N	3/13/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.3	1.3	mg/L	N	N	2/6/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.2	2.2	mg/L	N	N	1/3/2016		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.3	3.3	mg/L	N	N	12/2/2015		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						4.1	5.2	mg/L	N	N	11/22/2015		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3	3	mg/L	N	N	10/8/2015		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.3	3.3	mg/L	N	N	9/17/2015		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2	2	mg/L	N	N	8/3/2015		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.8	.8	mg/L	N	N	7/12/2015		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.6	1.6	mg/L	N	N	6/8/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.2	2.2	mg/L	N	N	5/3/2015		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.7	2.7	mg/L	N	N	4/5/2015		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.9	1.9	mg/L	N	N	3/6/2015		BAS	ENF
IL0023086	ST JOSEPH, VILLAGE OF	ST JOSEPH STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Expired	4952		05120109-SALT FORK	40.105	-88.051667	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.3	1.3	mg/L	N	N	2/8/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/17/2020		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	12/19/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	11/15/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	10/18/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/20/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	8/16/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	7/18/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	6/13/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	5/21/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/23/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/14/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/22/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/17/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	12/13/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	11/15/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	10/18/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/21/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	8/17/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	7/20/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	6/15/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	5/10/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/19/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/15/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/9/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/10/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	12/14/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	11/13/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	10/19/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/14/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	8/17/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	7/20/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	6/12/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	5/18/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/20/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/17/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/10/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/20/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.9		lb/d		.48		mg/L	N	N	12/16/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	11/10/2016		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	10/13/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/13/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	8/12/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	7/14/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	6/17/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	5/19/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/15/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/11/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/12/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	1/15/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	12/10/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	11/20/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	10/21/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	9/14/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	8/21/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	7/17/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	6/18/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	5/18/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	4/17/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	3/19/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		NODI C		lb/d		NODI C		mg/L	N	N	2/20/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.2		lb/d		.6		mg/L	N	N	1/17/2020		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.9		lb/d		.9		mg/L	N	N	12/19/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.5		lb/d		.6		mg/L	N	N	11/15/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.5		lb/d		.8		mg/L	N	N	10/18/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.4		lb/d		.81		mg/L	N	N	9/20/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.7		lb/d		.8		mg/L	N	N	8/16/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.6		lb/d		.8		mg/L	N	N	7/18/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.3		lb/d		.5		mg/L	N	N	6/13/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.1		lb/d		.4		mg/L	N	N	5/21/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.3		lb/d		.5		mg/L	N	N	4/23/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/28/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.47		lb/d		.44		mg/L	N	N	3/14/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2019	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.5		lb/d		.4		mg/L	N	N	2/22/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.8		lb/d		.4		mg/L	N	N	1/17/2019		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.1		lb/d		.5		mg/L	N	N	12/13/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.2		lb/d		.6		mg/L	N	N	11/15/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.8		lb/d		.5		mg/L	N	N	10/18/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	10	4		lb/d		1.1		mg/L	Y	N	9/21/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.8		lb/d		1		mg/L	N	N	8/17/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3		lb/d		.58		mg/L	N	N	7/20/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.9		lb/d		.5		mg/L	N	N	6/15/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3		lb/d		.4		mg/L	N	N	5/10/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.5		lb/d		.6		mg/L	N	N	4/19/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Effective	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/28/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.9		lb/d		.5		mg/L	N	N	3/15/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2018	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.9		lb/d		.7		mg/L	N	N	2/9/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.4		lb/d		.9		mg/L	N	N	1/10/2018		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.4		lb/d		.6		mg/L	N	N	12/14/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.3		lb/d		.9		mg/L	N	N	11/13/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.9		lb/d		.8		mg/L	N	N	10/19/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.9		lb/d		.8		mg/L	N	N	9/14/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.4		lb/d		.6		mg/L	N	N	8/17/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.7		lb/d		.6		mg/L	N	N	7/20/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.4		lb/d		.3		mg/L	N	N	6/12/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.8		lb/d		.6		mg/L	N	N	5/18/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.4		lb/d		.6		mg/L	N	N	4/20/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/28/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3		lb/d		.6		mg/L	N	N	3/17/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2017	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.5		lb/d		.6		mg/L	N	N	2/10/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2		lb/d		.5		mg/L	N	N	1/20/2017		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.4		lb/d		.6		mg/L	N	N	12/16/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.9		lb/d		.87		mg/L	N	N	11/10/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.8		lb/d		.69		mg/L	N	N	10/13/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.3		lb/d		.9		mg/L	N	N	9/13/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.1		lb/d		.7		mg/L	N	N	8/12/2016		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2		lb/d		.7		mg/L	N	N	7/14/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.7		lb/d		.63		mg/L	N	N	6/17/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3		lb/d		.7		mg/L	N	N	5/19/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.9		lb/d		.8		mg/L	N	N	4/15/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/29/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.7		lb/d		.7		mg/L	N	N	3/11/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2016	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.6		lb/d		.5		mg/L	N	N	2/12/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	12/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.6		lb/d		.63		mg/L	N	N	1/15/2016		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	11/30/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.4		lb/d		.7		mg/L	N	N	12/10/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	10/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.6		lb/d		.79		mg/L	N	N	11/20/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	09/30/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.8		lb/d		.8		mg/L	N	N	10/21/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	08/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.7		lb/d		.4		mg/L	N	N	9/14/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	07/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.5		lb/d		.47		mg/L	N	N	8/21/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	06/30/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.8		lb/d		.73		mg/L	N	N	7/17/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	05/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.7		lb/d		.9		mg/L	N	N	6/18/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	04/30/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.1		lb/d		.8		mg/L	N	N	5/18/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	03/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.1		lb/d		.45		mg/L	N	N	4/17/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	02/28/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.9		lb/d		.71		mg/L	N	N	3/19/2015		BAS	ENF
IL0023094	EAST ALTON, VILLAGE OF	EAST ALTON STP, VILLAGE OF	Madison	Minor	NPDES Individual Permit	Admin Continued	4952		07110009-WOOD RIVER, MISSISSIPPI RIVER	38.858611	-90.126111	01/31/2015	002-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.1		lb/d		.39		mg/L	N	N	2/20/2015		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3		lb/d		.56		mg/L	N	N	1/6/2020		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.7		lb/d		.93		mg/L	N	N	12/3/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.9		lb/d		.95		mg/L	N	N	11/5/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	1	4.5		lb/d		1.01		mg/L	Y	N	10/2/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.2		lb/d		.99		mg/L	N	N	9/5/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.3		lb/d		.7		mg/L	N	N	8/16/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.8		lb/d		.57		mg/L	N	N	7/10/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.9		lb/d		.69		mg/L	N	N	6/6/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8		lb/d		.81		mg/L	N	N	5/9/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.7		lb/d		.9		mg/L	N	N	4/5/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.4		lb/d		.93		mg/L	N	N	3/5/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.6		lb/d		.81		mg/L	N	N	2/4/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.7		lb/d		.84		mg/L	N	N	1/7/2019		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.1		lb/d		.78		mg/L	N	N	12/5/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.2		lb/d		.83		mg/L	N	N	11/15/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.2		lb/d		.82		mg/L	N	N	10/9/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.3		lb/d		.7		mg/L	N	N	9/13/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.7		lb/d		.89		mg/L	N	N	8/2/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.6		lb/d		.93		mg/L	N	N	7/5/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.7		lb/d		.88		mg/L	N	N	6/12/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.1		lb/d		.94		mg/L	N	N	5/7/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.6		lb/d		.89		mg/L	N	N	4/2/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.7		lb/d		.55		mg/L	N	N	3/6/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3		lb/d		.54		mg/L	N	N	2/5/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3		lb/d		.59		mg/L	N	N	1/5/2018		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.7		lb/d		.4		mg/L	N	N	12/5/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.1		lb/d		.75		mg/L	N	N	11/3/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.6		lb/d		.68		mg/L	N	N	10/10/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3		lb/d		.57		mg/L	N	N	9/6/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.9		lb/d		.47		mg/L	N	N	9/2/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.3		lb/d		.98		mg/L	N	N	7/11/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		7.8		lb/d		1		mg/L	N	N	6/8/2017		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.3		lb/d		.44		mg/L	N	N	5/4/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.94		lb/d		.18		mg/L	N	N	4/4/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.63		lb/d		.69		mg/L	N	N	3/1/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.4		lb/d		.93		mg/L	N	N	2/10/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.9		lb/d		.36		mg/L	N	N	1/13/2017		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.93		lb/d		.2		mg/L	N	N	12/6/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.79		lb/d		.18		mg/L	N	N	11/3/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.6		lb/d		.43		mg/L	N	N	10/7/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.8		lb/d		.72		mg/L	N	N	9/13/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.9		lb/d		.81		mg/L	N	N	8/3/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	12	7.02		lb/d		1.12		mg/L	Y	N	7/14/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.3		lb/d		.75		mg/L	N	N	6/9/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		6.79		lb/d		.83		mg/L	N	N	6/8/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.77		lb/d		.39		mg/L	N	N	4/4/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.3		lb/d		.36		mg/L	N	N	3/3/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross	13	7.8		lb/d		1.13		mg/L	Y	N	2/4/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		8.4		lb/d		.96		mg/L	N	N	1/5/2016		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.2		lb/d		.92		mg/L	N	N	12/26/2015		BAS	ENF
IL0024414	MAHOMET STP	MAHOMET STP, VILLAGE OF	Champaign	Minor	NPDES Individual Permit	Admin Continued	4952		07130006-SANGAMON RIVER	40.185	-88.401667	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.69		lb/d		.16		mg/L	N	N	11/3/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.14		lb/d		.58		mg/L	N	N	1/29/2020		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.41		lb/d		.4		mg/L	N	N	1/2/2020		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		4.25		lb/d		.61		mg/L	N	N	11/25/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.73		lb/d		.56		mg/L	N	N	11/1/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.7		lb/d		.99		mg/L	N	N	9/23/2019		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.43		lb/d		.74		mg/L	N	N	9/3/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.57		lb/d		.65		mg/L	N	N	7/30/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		5.21		lb/d		.71		mg/L	N	N	7/3/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.39		lb/d		.74		mg/L	N	N	5/21/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.1		lb/d		.6		mg/L	N	N	4/29/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.19		lb/d		.8		mg/L	N	N	3/25/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.95		lb/d		.95		mg/L	N	N	3/5/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.74		lb/d		.96		mg/L	N	N	1/24/2019		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.43		lb/d		.8		mg/L	N	N	12/19/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.26		lb/d		.39		mg/L	N	N	11/29/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.42		lb/d		.17		mg/L	N	N	10/8/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7		lb/d		.33		mg/L	N	N	9/6/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.64		lb/d		.3		mg/L	N	N	8/2/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.56		lb/d		.56		mg/L	N	N	7/5/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.36		lb/d		.62		mg/L	N	N	6/5/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.5		lb/d		.66		mg/L	N	N	5/1/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.53		lb/d		.7		mg/L	N	N	4/6/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.65		lb/d		.27		mg/L	N	N	3/7/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.43		lb/d		.25		mg/L	N	N	2/21/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.78		lb/d		.46		mg/L	N	N	1/17/2018		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.05		lb/d		.39		mg/L	N	N	12/18/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.12		lb/d		.89		mg/L	N	N	11/21/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.17		lb/d		.54		mg/L	N	N	10/6/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.57		lb/d		.7		mg/L	N	N	9/19/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.04		lb/d		.42		mg/L	N	N	8/2/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.7		lb/d		.5		mg/L	N	N	7/17/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.91		lb/d		.21		mg/L	N	N	6/22/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.03		lb/d		.46		mg/L	N	N	5/9/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.8		lb/d		.72		mg/L	N	N	4/25/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.99		lb/d		.56		mg/L	N	N	3/6/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.33		lb/d		.69		mg/L	N	N	2/24/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Effective	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.15		lb/d		.63		mg/L	N	N	1/4/2017		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.73		lb/d		.83		mg/L	N	N	12/20/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.12		lb/d		.67		mg/L	N	N	11/9/2016		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.82		lb/d		.5		mg/L	N	N	10/10/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.26		lb/d		.73		mg/L	N	N	9/13/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.1		lb/d		.56		mg/L	N	N	8/22/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.55		lb/d		.59		mg/L	N	N	7/12/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.08		lb/d		.62		mg/L	N	N	6/21/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.58		lb/d		.39		mg/L	N	N	5/6/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.12		lb/d		.62		mg/L	N	N	4/18/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.45		lb/d		.82		mg/L	N	N	3/14/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.36		lb/d		.75		mg/L	N	N	2/8/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		2.11		lb/d		.58		mg/L	N	N	1/6/2016		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.79		lb/d		.75		mg/L	N	N	12/8/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.36		lb/d		.79		mg/L	N	N	11/25/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.64		lb/d		.74		mg/L	N	N	10/1/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.67		lb/d		.97		mg/L	N	N	9/16/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.97		lb/d		.83		mg/L	N	N	8/20/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.3		lb/d		.54		mg/L	N	N	7/7/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.31		lb/d		.68		mg/L	N	N	6/9/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.49		lb/d		.67		mg/L	N	N	5/11/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.96		lb/d		.49		mg/L	N	N	4/17/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.96		lb/d		.7		mg/L	N	N	3/24/2015		BAS	ENF
IL0026093	RICHMOND, VILLAGE OF	RICHMOND STP, VILLAGE OF	McHenry	Minor	NPDES Individual Permit	Admin Continued	4952		07120006-NORTH BRANCH OF NIPPERSINK CREEK	42.475	-88.3	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.75		lb/d		.54		mg/L	N	N	2/24/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	12/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.15		lb/d		.43		mg/L	N	N	1/7/2020		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	11/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.89		lb/d		.26		mg/L	N	N	12/13/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	10/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.26		lb/d		.45		mg/L	N	N	11/7/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	09/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.18		lb/d		.12		mg/L	N	N	10/16/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	08/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.1		lb/d		.08		mg/L	N	N	9/10/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	07/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.13		lb/d		.08		mg/L	N	N	8/15/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	06/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.32		lb/d		.08		mg/L	N	N	7/10/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	05/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.44		lb/d		.08		mg/L	N	N	6/10/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	04/30/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.2		lb/d		.08		mg/L	N	N	5/10/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	03/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.27		lb/d		.08		mg/L	N	N	4/15/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	02/28/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.67		lb/d		.121		mg/L	N	N	3/8/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	01/31/2019	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.62		lb/d		.16		mg/L	N	N	2/8/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	12/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.7		lb/d		.246		mg/L	N	N	1/9/2019		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	11/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.41		lb/d		.181		mg/L	N	N	12/6/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	10/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.25		lb/d		.25		mg/L	N	N	11/14/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	09/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.88		lb/d		.71		mg/L	N	N	10/5/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	08/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.28		lb/d		.22		mg/L	N	N	9/12/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	07/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.48		lb/d		.22		mg/L	N	N	8/7/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	06/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.02		lb/d		.344		mg/L	N	N	7/5/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	05/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.32		lb/d		.129		mg/L	N	N	6/11/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	04/30/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.327		lb/d		.12		mg/L	N	N	5/3/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	03/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.08		mg/L	N	N	4/5/2018		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Effective	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	02/28/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.19		lb/d		.08		mg/L	N	N	3/7/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	01/31/2018	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.3		lb/d		.13		mg/L	N	N	2/7/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	12/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.72		lb/d		.29		mg/L	N	N	1/15/2018		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	11/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.41		lb/d		.61		mg/L	N	N	12/6/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	10/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.32		lb/d		.26		mg/L	N	N	11/15/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	09/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.94		lb/d		.46		mg/L	N	N	10/6/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	08/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.32		lb/d		.23		mg/L	N	N	9/11/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	07/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.38		lb/d		.27		mg/L	N	N	8/4/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	06/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.34		lb/d		.194		mg/L	N	N	7/17/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	05/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.48		lb/d		.08		mg/L	N	N	6/19/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	04/30/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		3.02		lb/d		.39		mg/L	N	N	5/17/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	03/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		.29		lb/d		.08		mg/L	N	N	4/11/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	02/28/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.04		lb/d		.36		mg/L	N	N	3/7/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	01/31/2017	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross		1.33		lb/d		.454		mg/L	N	N	2/2/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	12/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.044		mg/L	N	N	1/17/2017		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	11/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.554		mg/L	N	N	12/8/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	10/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.51		mg/L	N	N	11/16/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	09/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.01		mg/L	N	N	10/13/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	08/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.63		mg/L	N	N	9/13/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	07/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.16		mg/L	N	N	8/17/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	06/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.74		mg/L	N	N	7/12/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	05/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.47		mg/L	N	N	6/6/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	04/30/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.44		mg/L	N	N	5/9/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	03/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.17		mg/L	N	N	4/6/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	02/29/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.62		mg/L	N	N	3/8/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	01/31/2016	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.66		mg/L	N	N	2/10/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	12/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.296		mg/L	N	N	1/13/2016		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	11/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.214		mg/L	N	N	12/11/2015		BAS	ENF

NPDES ID	Permit Name	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Primary SIC Code	Primary NAICS Code	State Water Body	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Stay Type Code	Change of Limit Status Code	Limit Type Code
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	10/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.356		mg/L	N	N	11/17/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	09/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.2		mg/L	N	N	10/26/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	08/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.3		mg/L	N	N	9/21/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	07/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.4		mg/L	N	N	8/20/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	06/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						.7		mg/L	N	N	7/17/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	05/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.35		mg/L	N	N	6/15/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	04/30/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.6		mg/L	N	N	5/7/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	03/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						3.1		mg/L	N	N	4/15/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	02/28/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						1.7		mg/L	N	N	3/24/2015		BAS	ENF
IL0050628	HINCKLEY, VILLAGE OF	HINCKLEY STP, VILLAGE OF	DeKalb	Minor	NPDES Individual Permit	Admin Continued	4952		07120007-LITTLE ROCK CREEK	41.765	-88.631667	01/31/2015	001-0	00665-1-0	Phosphorus, total [as P]	Effluent Gross						2.03		mg/L	N	N	2/25/2015		BAS	ENF

Appendix G
Responsiveness Summary

Responsiveness Summary

Upper Fox River-Chain O'Lakes Watershed Total Maximum Daily Load

The responsiveness summary responds to questions and comments received during the public comment period from May 14, 2019, through June 14, 2019, and additional informational meeting from September 11, 2019.

What is a TMDL?

A Total Maximum Daily Load (TMDL) is the sum of the allowable amount of a pollutant that a water body can receive from all contributing sources and still meet water quality standards or designated uses. The Upper Fox River- Chain O'Lakes Watershed TMDL report contains a plan detailing the actions necessary to reduce pollutant loads to the impaired water bodies and ensure compliance with applicable water quality standards. The Illinois EPA implements the TMDL program in accordance with Section 303(d) of the federal Clean Water Act and regulations thereunder.

Background

The Fox River watershed spans across two states, Wisconsin and Illinois with the headwaters located in Wisconsin. The river flows south into Illinois along the western portion of the Chicago Metropolitan suburban area. The watershed drains approximately 2,658 square miles (sq mi) with 1,720 sq mi located within Illinois (IDNR 1995). The Fox River flows 115.1 miles from Wisconsin, through several Illinois Counties (Grundy, Kane, Kendall, Lake, La Salle, McHenry and Will) before discharging into the Illinois River at Ottawa.

The Illinois EPA Integrated Report (303(d)) List and Stream Assessment Report (Illinois EPA, 2018) divides the Fox River watershed into two portions: Upper Fox River watershed (USGS HUC:07120006) and the Lower Fox River watershed (USGS HUC:07120007). The Illinois portion of the Upper Fox River is further divided into five smaller sub-watersheds (10-digit hydrologic unit codes). Three of these subwatersheds (Nippersink Creek, North Branch Nippersink Creek and Squaw Creek) drain through a hydrologically connected system of lakes, commonly known as the Chain O' Lakes, to the Fox River. This Upper Fox River/Chain O' Lakes watershed drains 362 square miles in Lake and McHenry Counties, representing 50% of the Illinois portion of the Upper Fox River watershed. The Upper Fox River/Chain O' Lakes watershed includes the populous cities such as Round Lake Beach and Woodstock. The TMDL report identifies the unique collection of lakes in the watershed and identifies those waterbodies for TMDL development.

The Clean Water Act and USEPA regulations require that states develop TMDLs for waters on the Section 303(d) List. Illinois EPA has developed TMDLs for pollutants that have numeric water quality standards. Therefore,

- A fecal coliform TMDL was developed for Deep Lake (VTD).

- A phosphorus (total) TMDL was developed for Antioch Lake (RTT), Bluff Lake (VTJ), Lake Catherine (RTD), Channel Lake (RTI), Davis Lake (STQ), Dunn's Lake (VTH), Duck Lake (RTZG), Fish-Duncan Lake (VTK), Fischer Lake (VTT), Fox Lake (RTF), Grass Lake (RTQ), Long Lake (RTJ), Lake Marie (RTR), McGreal Lake (UTX), Nippersink Lake (RTUA), North Churchill Lake (STR), Petite Lake (VTW), Pistakee Lake (RTU), Redhead Lake (RTV), South Churchill Lake (STS), Spring Lake (RGZT), Summerhill Estates Lake (WTA), Tranquility Lake (UTW), Turner Lake (VTZA), Wooster Lake (RTZH).

In addition, a sedimentation/siltation Load Reduction Strategy (LRS) was developed for Fox River (IL_DT-35), while an LRS for total suspended solids (TSS) was developed for Round Lake (RTH) and all the lakes listed above, except Lake Catherine (RTD), Channel Lake (RTI), Davis Lake (STQ), Deep Lake (VTD) and Wooster Lake (RTZH).

All the waterbodies above are listed as impaired per the 2016 Draft Illinois Integrated Water Quality Report 303(d) list.

Illinois EPA contracted with CDM Smith (a TMDL Consultant) to prepare the TMDL report for the Upper Fox River-Flint Creek Watershed project.

Public Meetings

A Stage 1 public meeting was held at the University Center of Lake County, in Grayslake, Illinois on August 25, 2009. The Illinois EPA provided public notice for the meeting by placing display ads in the Northwest Herald and Grayslake Review newspapers on August 6, 2009. This notice gave the date, time, location, and purpose of the meeting. The notice also provided references to obtain additional information about this specific site, the TMDL Program and other related issues. Approximately 87 individuals and organizations were also sent the public notice by first class mail, as well as many organizations by email.

The public meeting started at 6:00 p.m. on Tuesday, August 25, 2009. It was attended by approximately 39 people and concluded at 8:15 p.m. with the meeting record remaining open until midnight, September 24, 2009. All comments from the Stage 1 public meeting have been incorporated into the final draft report.

A public meeting for the draft Stage 3 TMDL Report was held on May 14, 2019 (1:30 - 3:30 pm), at the Fox Waterway Agency in the Village of Fox Lake, IL. Approximately 30 people participated in the public meeting and the public comment period ended at midnight on June 14, 2019. Additional informational meeting took place on September 11, 2019 (@1:00 pm) in the Village of Port Barrington, IL to inform stakeholders about the TMDL development process. Approximately 15 people participated in this meeting.

Illinois EPA provided public notice for the Draft Stage 3 TMDL report by placing a display-ad in the Lake County Journal (the local newspaper in the Village of Grayslake). In addition, a direct mailing was sent to NPDES Permittees, and stakeholders in the watershed. The notice gave the date, time, location, and purpose of the meeting. The notice also provided references on how to obtain additional information about this specific project, the TMDL program, and other related information. The draft TMDL report was available for review in hard copy at the Fox Waterway Agency, Lake County Stormwater Commission, Grayslake Area Public Library, and electronically on the Agency's webpage: www2.illinois.gov/epa/public-notices/Pages/general-notices.aspx.

Questions & Comments

1. The report states that additional future monitoring of total phosphorus concentrations in effluent from STP facilities may provide greater certainty to relative impact of point sources on total phosphorus concentrations in the watershed. Lake Marie Phosphorus data used for the analysis was from 1973 to 2014, no data from 2014 to 2019. Stage 1 of the TMDL analysis recommended additional data be collected for the waste load allocation analysis, while the Stage 3 report says that additional data was not imperative. The Village of Antioch spent millions of dollars upgrading its plant that would have had a significant positive impact on Lake Marie and that change would not be adequately reflected in that data. Given the uncertainly in the existing data, additional data collection and more detailed water quality modeling could be performed, which could result in a different recommended waste load allocation for Antioch STP.

   Response: **Generally, data collection is beneficial to all assessment and modeling exercises. In the case of Lake Marie, a total of approximately 50 viable data points for total phosphorus near the lake surface were available. This represents a greater sample size than what is typically available for many waterbodies and was adequate for model construction, albeit with some degree of uncertainty still inherent to the data set. The TMDL process and implementation program is intended to be iterative with additional data collected over time being incorporated into future assessments that are scheduled based on the review/assessment cycle IEPA employs for all waterbodies in the State.**

2. Most Sewage Treatment Plants (STP) in the watershed were given a waste load allocation based on the design average flow (DAF) and permitted effluent limit, meaning that they could discharge their permitted total phosphorus load and water quality standards would still be met. The water quality modeling performed determined that the phosphorus water quality standard cannot be met in Lake Marie if the Antioch STP discharges at a DAF of 2.0 MGD and effluent concentration of 1.0 mg/L TP effluent (design flow and effluent limit), regardless of other source loads. As a result, the waste load allocation for Antioch STP was set at the current total phosphorus load based on effluent monitoring reports, being approximately 8.26 lbs/day (3,013 lbs/year) of total phosphorus based on existing flows and effluent concentrations (TMDL report Table 2-4). The report does not indicate if the modeling evaluated alternative phosphorus loadings between what was defined as the current loading and the current design permitted loading for which the plant was built. Furthermore, the report states that the relative proportion of the load reduction coming from internal sources (lake dynamics) or external sources (dischargers) can be

modified and still result in compliance. The Village requests that more detailed lake modeling be performed to determine a less stringent waste load allocation for Antioch STP that is intermediate between the permitted loading and the currently proposed loading.

Response: The TMDL loading capacity (LC) for Lake Marie has been calculated to be 11.3 lbs\day as discussed in Section 2.3.1 and Table 2-3 of the TMDL report. The discharge from the Village of Antioch Wastewater treatment Plant is tributary to Lake Marie, therefore several scenarios were considered to determine the allowable wasteload allocation for the lake to meet the water quality standards. At the currently permitted design average flow of (DAF = 2.0 MGD), this would result in the lake exceeding the load capacity and will not be able to meet the water quality standards. Modeling runs were performed using a variety of flows and total phosphorus concentration estimates as follows:

- **8.34 x Current Average Flow (1.32 MGD) x 0.752 mg/L (current concentration),**
- **8.34 x Current Average Flow (1.32 MGD) x annual average permit conc. limit (1.0 mg/L)**
- **8.34 x Current Average Flow (1.32 MGD) x max. permit conc. limit (2.0 mg/L)**

The only combination of inputs that allowed for attainment of the water quality standard in the lake was the current flow x current concentration. This represents approximately 73% of the estimated allowable load into the lake leaving some headroom, and the remaining allowable load was assigned to internal and nonpoint source loads in order to more accurately reflect likely source load removal scenarios.

3. The Village of Antioch acknowledges that it will have to meet a total discharge limit of phosphorus of 0.5 mg/l (rolling annual geometric mean calculated monthly) by the year 2030. The Village's planning and construction that took place resulted in a totally re-built wastewater plant that came on-line in August of 2009 at considerable cost to the community as a whole, primarily the residents in a small village. To suddenly suggest that additional modifications and potential new construction be made on a faster timeframe to utilize the original plant loadings is unfair to those residents.

Response: **The phosphorus WLA assigned to the Village of Antioch will be included in the next NPDES permit renewal cycle, and the actual NPDES permit phosphorus effluent concentration limits, Special Conditions, Compliance Schedules and other permit language will be developed in coordination with Permit Section and the Village of Antioch during the Draft NPDES Permit public notice process.**

4. The Village of Fox Lake's – Northwest Regional Reclamation Facility (NWRWRF) NPDES Permit No.IL0020958 has not been included the Upper Fox River-Chain O'Lakes Watershed Stage 3 Draft Total Maximum Daily Load (TMDL) Report, and the Village of Fox Lake would like to propose a modification to the Waste Load Allocation (WLA) that has been identified in Table 2.4 (WLAs for Total Phosphorus Loads- Page 2-9). The requested modification is the inclusion of the NWRWRF's - "Out fall 002 STP." Currently the table does not include the NWRWRF' s outfall. It is requested that the proposed waste load allocation limit for the NWRWRF, via Outfall 002, be a discharge of 1.0 mg/L on a monthly average.

   The NWRWRF only uses this outfall during high flow/flood events (Flows greater than 22.5 M GD, and high Lake levels). As a result, this outfall only discharges between 2-6 days per year.

   Response: **The Village of Fox Lake – Northwest Regional Water Reclamation Facility (NPDES Permit No.IL0020958) - Outfall 002 is an Alternative Discharge Outfall (Flow greater than 22.5 MGD and high lake level – approximately 8.0 MGD) with discharge to Pistakee Lake during high flow/flood events. The Agency has updated <u>Section 2.3.1.4-Wasteload Allocation, and Table 2-4 WLAs for Total Phosphorus Loads,</u> and the Village of Fox Lake's – Northwest Regional Water Reclamation Facility (Outfall 002) now has been included in the TMDL Report.**

5. We know that Illinois currently does not have a water quality standard for phosphorus in rivers. Yet, there are impaired lakes downstream from Fox River segment DT-35. The Illinois standard for lakes is 0.05 mg/L. So why doesn't the TMDL contain a Load Reduction Strategy (LRS) phosphorus target for DT-35?

   Response: **The Fox River segment DT-35 is not on the 303(d) list as impaired due to phosphorus, therefore the parameter was not addressed via the TMDL or LRS development process. The Illinois Nutrient Loss Reduction Strategy Workgroups are working with stakeholders in the Fox River Watershed to address nutrient impairments.**

6. The Fox River Study Group has been collecting monthly samples of the Fox River since April 2002. Were those data included in the development of the TMDLs? Sampling data are available from within Fox River segment DT-22 at Rawsons Bridge Rd. All FRSG data are readily available at http://ilrdss.sws.uiuc.edu/fox/. In addition, the Illinois State Water Survey has completed an analysis of the water quality trends in the river for the last decade. The report-Water Quality Trend Analysis for the Fox River Watershed: Stratton Dam to the Illinois River is available at http://hdl.handle.net/2142/103009.

   Response: The FRSG Data was downloaded and reviewed during project development, however, only the data collected under an IEPA approved Quality Assurance Project Plan (QAPP) was used for regulatory assessment purposes. Generally, additional data collected may be used for model verification purposes and for development of watershed-based plans (WBPs) component of the TMDL report.

7. We are very concerned with and object to how waste load allocations ("WLA") are being handled in the TMDLs. As we understand from our reading of the reports and the discussion at the May 14, 2019 public hearing on the reports, all wastewater facilities are simply being given their current phosphorus load as their WLA. While some facilities are achieving relatively low levels of phosphorus in their effluent (~0.5-0.6 mg/L), others have or are estimated to be discharging very high levels of phosphorus (~5-7 mg/L). (Fox/Chain Table 2-4 at 2-9 and Fox/Flint Table 2-8 at 2-11) We understand that these are often small facilities with unsophisticated treatment systems. Yet if MS4 communities will be required to substantially reduce the phosphorus in their runoff to achieve the TMDL targets, then reductions at wastewater facilities should also be considered as a means to reduce phosphorus loads. Because very low levels of phosphorus inputs are needed to achieve the state's water quality standard for lakes, all wastewater facilities, no matter how well they are doing at removing phosphorus, must be considered for further reductions to be a part of the solution to the watershed's phosphorus pollution problem.

   Response: As stated in the TMDL report, in the absence of available total phosphorus effluent monitoring data, an upper range of total phosphorus concentration was used to calculate the wasteload allocation based on the complexity of the treatment process of the wastewater treatment facilities (in this case, Imhoff Tank\Septic Tank followed by sand filtration). The Agency agrees with your assessment, in order to provide reasonable assurance and to meet the TMDL goals, all point sources in the watershed will need to evaluate and develop a

range of measures for reducing phosphorus discharges (Phosphorus Discharge Optimization Plan) from wastewater treatment plants, including possible source reduction measures, operational improvements, and minor facility modifications that will optimize reductions in phosphorus discharges from wastewater treatment facilities. The Phosphorus Discharge Optimization Plan has been added in Section 3 - Implementation Plan (refer to part 3.5.1 - Point Sources of Phosphorus). In addition, the TMDL report has recommended for total phosphorus effluent monitoring requirements, and Phosphorus Discharge Optimization Plan to be included in the next NPDES permits renewal cycle.

8. All options need to be considered for phosphorus reductions in a given watershed, including reductions by point source facilities. A similar scenario is found in the Fox/Chain Report where Table 2-4 at 2-9 lists a number of wastewater treatment facilities that discharge phosphorus loads to Dunn's Lake, Long Lake, Wooster Lake, Lake Marie and Pistakee Lake, with listed discharges as high as 29 pounds per phosphorus per day for an individual facility, and with combined loads totaling over 50 pounds per day . This is inconsistent with the statement in the Fox/Chain Report at 3-61 that their total WLA is 28 pounds phosphorus per day. Reductions at these facilities too need to be incorporated into the phosphorus TMDLs in this report to provide reasonable assurance that the TMDLs will be achieved.

   Response: Section 3 of the TMDL report has been updated to more accurately reflect the total loads from permitted facilities. The total phosphorus WLA for these facilities is estimated to be about 118 lbs/day (see Table 2-4) which represents approximately 28.5% of the LC for this watershed.

9. In both reports, there is uncertainty about what some facilities are discharging because they are not required to measure and report phosphorus in their effluent. Given the phosphorus impairments in the lakes in the Fox River watershed, all facilities with an NPDES permit that have any potential to discharge phosphorus should be required to monitor phosphorus in their effluent. Illinois EPA should modify permits immediately to require this monitoring as it is necessary information for implementation and adaptive management of these TMDLs.

   Response: The TMDL reports for Upper Fox River- Chain O'Lakes and Upper Fox River- Flint Creek include recommendation for total phosphorus effluent monitoring requirements to be required in the next NPDES permit renewal cycle for wastewater treatment facilities that do not have monitoring requirements in their current NPDES permit.

Illinois EPA views the TMDL reports as tools to develop water quality-based control actions to be incorporated into an overall watershed management approach. The TMDL establishes the link between water quality standards assessment and water quality-based solutions. For the TMDL to be successful, NPDES Permittees (Point Sources) in the watershed must work with Illinois EPA's Permit Section to address the wasteload allocation (WLA) during the next cycle of the NPDES permit renewal process, while the Load Allocation (LA) – nonpoint sources pollution is addressed through voluntary and incentive-based approaches, such as participation in the Agency's Section 319 funding program for developing watershed-based plans.

The voluntary management measures recommended in the TMDL Report can be successfully implemented through the leadership of local stakeholders within the watershed. In order to assist local stakeholders in implementing these recommendations, Illinois EPA strongly encourages the formation of watershed work groups to expedite implementation of the voluntary and incentive-based approaches. These groups can direct planning efforts for implementing best management practices (BMPs) that are both practical and feasible for the watershed.

10. In Fox/Chain Table 2-4 at 2-9; Table 2-14 at 2-11, and Table 2-19 at 2-12; the Village of Richmond STP should be included. It is located in the North Branch Nippersink Creek watershed which is a tributary to the Pistakee Lake watershed.

Response:

The Village of Richmond – STP (NPDES Permit No.IL0026093) is shown in the TMDL report (refer to Table 2-4), and the Village of Richmond's MS4 General NPDES Permit No. ILR400732 is now included in the TMDL report (refer Table 2-19 and Table 2-24).

11. Regarding TMDL endpoints for fecal coliform, we want to raise again the concern that the May through October season for limitations on fecal coliform is too short to cover the months when people are out recreating on these lakes and the Fox River and its tributaries. People are out on boats, canoes and kayaks as soon as they can in the spring and as late as they can in the fall.

Response: The recommendation to change applicability of the fecal coliform season will be discussed with BOW-Programs at the time the Agency develops revised draft Bacteria Water Quality Standards.

12. At the May 14 meeting it was mentioned that the NVSS target developed as an LRS for suspended solids was designed to take out the algal component. Can you please explain how this works more thoroughly?

    Response: Total suspended solids (TSS) are usually determined by filtering a wastewater sample through a glass fiber filter and then weighing the mass of solids that remain on the filter. In a further step, the solids remaining can be heated to ignition at 600°C at which point the volatile solids, which represent the organic material in the solids, combust or burn off. The remaining solids are considered as inorganic (mineral) matter and are termed non-volatile suspended solids (NVSS), and the suspended solids associated with the mineral fraction are termed fixed suspended solids (FSS). Thus, the process essentially burns off the organic matter (which consists of algae, plankton, plant matter, etc.) in the suspended solids and the remaining mass is weighed.

13. In the Fox/Chain report, the phrase "waterbody uses likely result in increased resuspension of sediment year-round" is repeated 21 times. We recommend that the May 1994 Army Corps of Engineers Final Environmental Impact Statement on Fox River Chain O'Lakes Recreational Boating Impacts be reviewed, and its recommendations be incorporated into the report's implementation plan.

    Response: The implementation of controls on recreational uses may also help to reduce sediment resuspension in these waterbodies. The potentially adverse impact of recreational boating on the Chain O'Lakes system was the focus of a Final Environmental Impact Statement for Recreational Boating Impacts produced by the U.S. Army Corps of Engineers in 1994 (USACE 1994). As a result of that process, several controls were implemented including a no-net gain pier and limited ramp permitting system designed to reduce the number of commercial piers and boat ramps installed in the Chain O' Lakes. Additional controls such as speed limits, no-wake zones, reduced access to shallow areas, and shore-line stabilization projects may also prove beneficial to reducing sediment and nutrient re-suspension in the Chain O' Lakes system. The reference to the USACE document has been added to Section 3.5 of the TMDL report.

14. Corrections needed in the Fox/Chain Report
    Figure 2-1 at 2-8: The Village of Spring Grove STP is shown in the wrong location.

    Response: This has been corrected.