

STORMWATER MANAGEMENT PROGRAM PLAN



Lake Marie – Antioch Township, IL

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ANTIOCH TOWNSHIP LAKE COUNTY, ILLINOIS

MARCH 9, 2017
TEMPLATE LAST REVISED JULY 2016

SMPP

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Table of Contents

1	<i>Overview of the Stormwater Management Program Plan</i>	6
1.1	Introduction	6
1.2	History	7
1.3	Water Quality Standards	9
1.3.A	Designated Uses	9
1.3.B	Water Quality Criteria	10
1.3.C	Monitoring	10
1.3.D	Total Maximum Daily Load (TMDL)	11
1.4	Watershed, Sub-watersheds and Receiving Waters	11
1.4.A	Watershed Descriptions	13
1.4.B	Identifying Outfalls (BMP C.1)	14
1.5	Status of Waters	15
1.6	Countywide Approach to NPDES Compliance	17
2	<i>Program Management</i>	19
2.1	Implementation of this SMPP	19
2.2	Intra-Department Coordination	19
2.2.A	Stormwater Coordinator	19
2.2.B	Engineering Department	21
2.2.C	Highway Department	21
2.3	Coordination with Lake County Stormwater Management Commission	21
2.4	Watershed Work Groups	21
2.4.A.1	Fox River Study Group	21
2.4.A.2	Des Plaines River Watershed Workgroup	22
2.5	Coordination with Consultants	23
2.6	Coordination of Contractors	23
2.7	Coordination with the Public	23
2.8	Coordination with the IEPA	23
2.9	Coordination with the Development Community	23
3	<i>The Program</i>	25
3.1	Qualified Local Program	26
3.1.A	Public Education and Outreach	26
3.1.A.1	Distributed Paper Material (BMP A.1)	26

3.1.A.2	Speaking Engagement (BMP A.2)	27
3.1.A.3	Public Service Announcement (BMP A.3)	28
3.1.A.4	Outreach Events (BMP A.4)	28
3.1.A.5	Classroom Education Material (BMP A.5)	28
3.1.A.6	Other Public Education – Web Site (BMP A.6)	29
3.1.B	Public Participation/Involvement	29
3.1.B.1	Public Panel (BMP B.1)	29
3.1.B.2	Stakeholder Meeting (BMP B.3)	30
3.1.B.3	Program Involvement (BMP B.6)	30
3.1.C	Illicit Discharge Detection and Elimination	31
3.1.C.1	Regulatory Control Program (BMP C.2)	31
3.1.C.2	Other Illicit Discharge Controls (BMP C.10)	31
3.1.D	Construction Site Runoff Control	32
3.1.D.1	Regulatory Control Program (BMP D.1)	32
3.1.D.2	Erosion and Sediment Control BMPs (BMP D.2)	33
3.1.D.3	Other Waste Control Program (BMP D.3)	34
3.1.D.4	Site Plan Review Procedures (BMP D.4, E.4)	34
3.1.D.5	Site Inspection/Enforcement Procedures (BMP D.6, E.5)	35
3.1.D.6	Public Information Handling Procedures (BMP D.5)	36
3.1.E	BMP Reference Information	36
3.1.F	Post-Construction Runoff Control	36
3.1.F.1	Regulatory Control Program (BMP E.2)	37
3.1.F.2	Long Term O&M (BMP E.3)	37
3.1.F.3	Runoff Volume Reduction Hierarchy (BMP E.4)	37
3.1.F.4	Other Post-Construction Runoff Controls (BMP E.7)	38
3.1.G	Pollution Prevention / Good Housekeeping	39
3.1.G.1	Employee Training Program (BMP F.1)	39
3.1.G.2	Flood Management / Assess Guidelines (BMP F.5)	39
3.1.G.3	Winter Roadway Deicing (BMP F.6)	40
3.1.H	Watershed Plans	40
3.2	Public Education and Outreach	43
3.2.A	Distribution of Paper Materials (BMP A.1)	43
3.2.B	Other Public Education - Web Site (BMP A.6)	44
3.2.C	Outreach Events (BMP A.1, A.4)	44
3.2.D	Household Hazardous Wastes (BMP A.4)	45
3.2.E	Septic System Maintenance (BMP A.6)	46
3.2.F	Vehicle Fluid Maintenance (BMP A.6)	46
3.2.G	Car / Outdoor Washing (BMP A.6)	47
3.2.H	Lawn and Garden Care (BMP A.6)	47
3.2.I	Green Infrastructure (BMP A.6)	47
3.2.J	Pool Dewatering (BMP A.6)	48
3.3	Public Participation and Involvement	49
3.3.A	Stakeholder Meeting (BMP B.3)	49
3.3.B	Public Review Process (BMP B.4)	49
3.3.B.1	Environmental Justice Areas	49
3.3.B.2	Complaints, Suggestions and Requests (BMP B.7)	50

3.3.C	Program Involvement (BMP B.6, C.6)	50
3.4	Illicit Discharge Detection and Elimination	51
3.4.A	Regulatory Authority (BMP C.2)	51
3.4.A.1	Watershed Development Ordinance	52
3.4.A.2	Illicit Discharge Ordinance	52
3.4.B	Understanding Outfalls and Illicit Discharges	52
3.4.B.1	Potential Sources of Illicit Discharges	52
3.4.B.2	Exclusions	53
3.4.B.3	Prohibited Discharges	53
3.4.B.4	Pollutant Indicators	54
3.4.C	Indirect Connection Program (BMP C.3)	64
3.4.C.1	Groundwater Seepage	64
3.4.C.2	Spills	65
3.4.C.3	Dumping	65
3.4.C.4	Outdoor washing activities	65
3.4.C.5	Non-target irrigation from landscaping or lawns	65
3.4.D	Direct Connection Illicit Discharge Program (BMP C.3 – C.8)	65
3.4.D.1	Program Planning	66
3.4.D.2	Outfall Inspection (BMP C.3)	69
3.4.D.3	Follow Up Investigation and Program Evaluation (BMP C.4)	75
3.4.D.4	Removal of Illicit Discharges (BMP C.5, C.8)	77
3.5	Construction Site Runoff Control	79
3.5.A	Regulatory Program (BMP D.1)	79
3.5.B	Responsible Parties (BMP D.1)	79
3.5.B.1	Applicant	79
3.5.B.2	DECI – Designated Inspectors	79
3.5.B.3	Enforcement Officer	80
3.5.C	Erosion and Sediment Control BMPs (BMP D.2)	81
3.5.D	Construction Site Waste Control (BMP D.3)	81
3.5.E	Site Plan Review (BMP D.4, E.4)	81
3.5.F	Site Inspection Procedures (BMP D.6, E.5)	82
3.5.G	Public Information Handling Procedures (BMP D.5)	82
3.5.H	Performance Guarantees (BMP D.6)	83
3.5.I	Violation Notification Procedures (BMP D.6)	83
3.6	Post Construction Runoff Control	83
3.6.A	Regulatory Program (BMP E.2)	84
3.6.B	Long Term Operation and Maintenance (BMP E.3)	84
3.6.C	Runoff Volume Reduction Hierarchy (BMP E.4)	85
3.6.D	Watershed Plans (BMP E.7)	85
3.6.E	Site Inspections (BMP E.6)	86
3.6.E.1	Shorelines, Streambanks and Stream Bed Sediment Accumulation	86
3.6.E.2	Detention / Retention Pond	87
3.7	Pollution Prevention and Good Housekeeping	88

3.7.A	Inspection and Maintenance Program	89
3.7.A.1	Street Sweeping (BMP E.7, F.4)	90
3.7.A.2	Drainageways (BMP E.7, F.2)	90
3.7.A.3	Landscape Maintenance	91
3.7.A.4	Snow Removal and Ice Control (BMP F.3)	92
3.7.A.5	Vehicle and Equipment Operations (BMP F.4)	93
3.7.A.6	Animal Nuisance Control (BMP F.4)	94
3.7.A.7	Waste Management (BMP F.4)	94
3.7.A.8	Water Conservation & Irrigation	96
3.7.A.9	Green Infrastructure (BMP F.3)	96
3.7.A.10	Special Events (BMP F.4)	96
3.7.B	Spill Response Plan (BMP F.6, C.9)	97
3.7.B.1	Spill Prevention	97
3.7.B.2	Non-Hazardous Spills/Dumping	98
3.7.B.3	Hazardous Spills	98
3.7.C	Employee Training (BMP F.1)	99
3.7.C.1	Training Approach	99
3.7.C.2	Training Schedule and Frequency	100
4	<i>Program and Performance Monitoring, Evaluation and Reporting</i>	101
4.1	Monitoring Program	101
4.1.A	Fox River Study Group	102
4.1.B	Des Plaines River Watershed Workgroup	103
4.1.C	Lake County Health Department Lakes Management Unit	103
4.1.C.1	Inland Beaches	104
4.1.D	Community Monitoring	104
4.2	Program Evaluation (BMP C.6)	105
4.2.A	Monitoring Program Evaluation	106
4.2.B	IDDE Program Evaluation	106
4.2.C	SMPP Document Evaluation	107
5	<i>Appendices</i>	108
5.1	List of Acronyms	109
5.2	Stormwater Outfall Screening Equipment Checklist	110
5.3	Stormwater Outfall Inspection Data Form	111
5.4	Pre-Construction Meeting Form	112
5.5	Soil Erosion and Sediment Control Inspection Form	113
5.6	Sample Notice of Violation Letter	114
5.7	Indirect Illicit Discharge Tracking and Summary Forms	115
5.8	Spill Response Notice	116
5.9	Sample Maintenance Plans	117
5.10	Yearly Tracking Forms	118

5.11 Pool Dewatering Fact Sheet _____	119
5.12 General Permit ILR40 _____	120
5.13 Bibliography and References _____	121

List of Tables and Figures

Figure 1: Designated Uses _____	9
Figure 2: Mississippi River Watershed _____	11
Figure 3: Lake County’s Watersheds & Subwatersheds _____	11
Figure 4: Major Sub-watersheds and Receiving Streams _____	12
Figure 5: Significant Outfall Locations _____	14
Figure 6: Impaired Waters 2014 303d and 305b Reports by IEPA _____	15
Figure 7: Roles of MS4 _____	20
Figure 8: Watershed Based Plan Status _____	42
Figure 9: Turbidity Severity Examples _____	56
Figure 10: Natural Sheen versus Synthetic _____	57
Figure 11: Characterizing Submersion and Flow _____	72
Figure 12: Outfall Inspection Procedure Flow Chart _____	75
Figure 13: SMC Stream and Detention Basin Inventory Status _____	87
Figure 14: Countywide Monitoring Efforts _____	102
Figure 16: Additonal Community Monitoring Locations _____	105
Table 1: Odor or Potential Illicit Discharges (adapted from CWP) _____	54
Table 2: Color of Potential Illicit Discharges (adapted from CWP) _____	54
Table 3: Floatables in Potential Illicit Discharges (adapted from CWP) _____	57

1 Overview of the Stormwater Management Program Plan



Lake Catherine - Antioch Township, IL

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1.1 Introduction

This Stormwater Management Program Plan (SMPP) was developed by Antioch Township based off a SMPP template provided by the Lake County Stormwater Management Commission. The purpose of the SMPP is to meet the minimum standards required by the United States Environmental Protection Agency (USEPA) under the National Pollutant Discharge Elimination System (NPDES) Phase II program. Federal regulations through the USEPA require that all Municipal Separate Storm Sewer Systems (MS4s), partially or fully in urbanized areas based on the 2000 census, obtain stormwater permits for their discharges into receiving waters. Illinois EPA has issued a new version of its MS4 Permit. The new version of the permit became effective on March 1, 2016. According to the new permit, MS4s have 180 days from the effective date of the permit to comply with any changes or new provisions contained in the permit.

The SMPP describes the procedures and practices that can be implemented by Antioch Township toward the goal of reducing the discharge of pollutants within stormwater runoff in order to comply with Federal standards. Compliance with the plan is intended to protect water quality thus contributing to the following amenities:

- cleaner lakes and streams,
- improved recreational opportunities and tourism,

- flood damage reduction,
- better aesthetics and wildlife habitat, and
- a safer and healthier environment for the citizens.

The SMPP addresses the primary program elements, including the manner in which Antioch Township:

- reviews, permits and inspects construction activity within its limits;
- manages the planning, design and construction of projects performed within its limits;
- maintains its facilities and performs its day-to-day operations;
- works toward protecting the receiving waters from illicit discharges;
- provides public education and outreach;
- trains its employees in carrying out and reporting program activities; and
- continually monitors and evaluates the program.

1.2 History



In 1948 the Federal Water Pollution Control Act was enacted to encourage water pollution control at the state and local levels. Between 1949 and 1969 the Cuyahoga River in Ohio caught fire ten times.

To better protect these public assets the 1948 Act was amended in 1972. The focus of the '72 Act was to obtain fishable and swimmable waters and eliminate the discharge of point source pollutants into navigable waters (such as industrial and waste water treatment plant outfalls). This was the beginning of the National Pollutant Discharge Elimination System (NPDES) program.

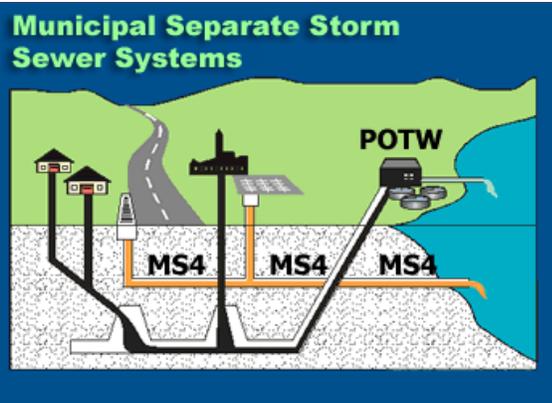


James Thomas
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The Act was further refined in 1977, to extend deadlines and better define types of pollutants. It became commonly referred to as the Clean Water Act (CWA).



In 1987 the NPDES permit program was expanded to also regulate discharges from Municipal Separate Storm Sewer Systems (MS4) as point source discharges instead of non-point source discharges.



The NPDES permit process regulates the discharge from MS4s, construction sites and industrial activities based on amendments to CWA in 1987 and the subsequent 1990 and 1999 regulations by the U.S. Environmental Protection Agency (USEPA). In Illinois, the USEPA has delegated administration of the federal NPDES program to the Illinois Environmental Protection Agency (IEPA). On December 20, 1999 the IEPA issued a general NPDES Phase II permit for all MS4s. Under the General Permit each MS4 was required to submit a Notice of Intent (NOI) declaring compliance with the conditions of the permit by March 10, 2003. The original NOI describes the proposed activities and best management practices that occurred over the original 5-year period toward the ultimate goal of developing a compliant SMPP. At the end of the 5th year (March 1, 2008) the components of the SMPP were required to be implemented; per the ILR40 permit. The IEPA reissued the ILR 40 permit on April 1, 2009 and again on March 1, 2016, including revisions each time.

Additionally, under the General ILR10 permit also administered IEPA, all construction projects that disturb greater than 1 acre of total land area are required to obtain an NPDES permit from IEPA prior to the start of construction. Municipalities covered by the General ILR40 permit, are automatically covered under ILR10 30 days after the IEPA receives the NOI from the municipality.

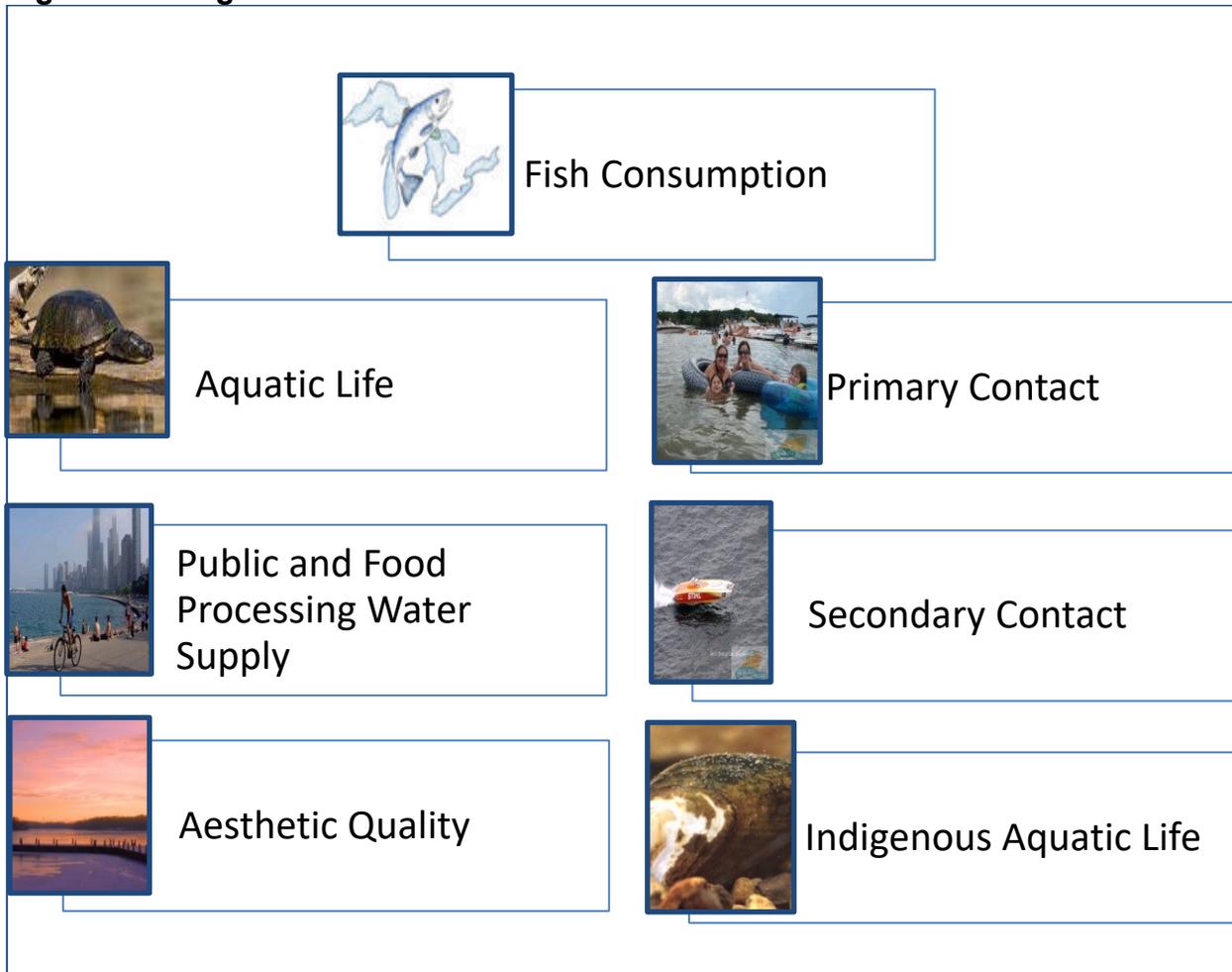
1.3 Water Quality Standards

The 1987 Water Quality Act also established new requirements and funding, through the Clean Water Act Section 319, for states to develop and implement nonpoint source pollution control. Specifically, Section 319 required each state to: (1) identify navigable waters that, without government action to control non-point sources of pollution, cannot be reasonably expected to maintain applicable water quality standards or goals; (2) identify nonpoint sources that add significant amounts of pollution to affected waters; and (3) develop a nonpoint source water pollution plan on a watershed-by-watershed basis. The Illinois Environmental Protection Agency (IEPA) created a program to comply with these federal regulations. This program has 3 basic components.

1.3.A Designated Uses

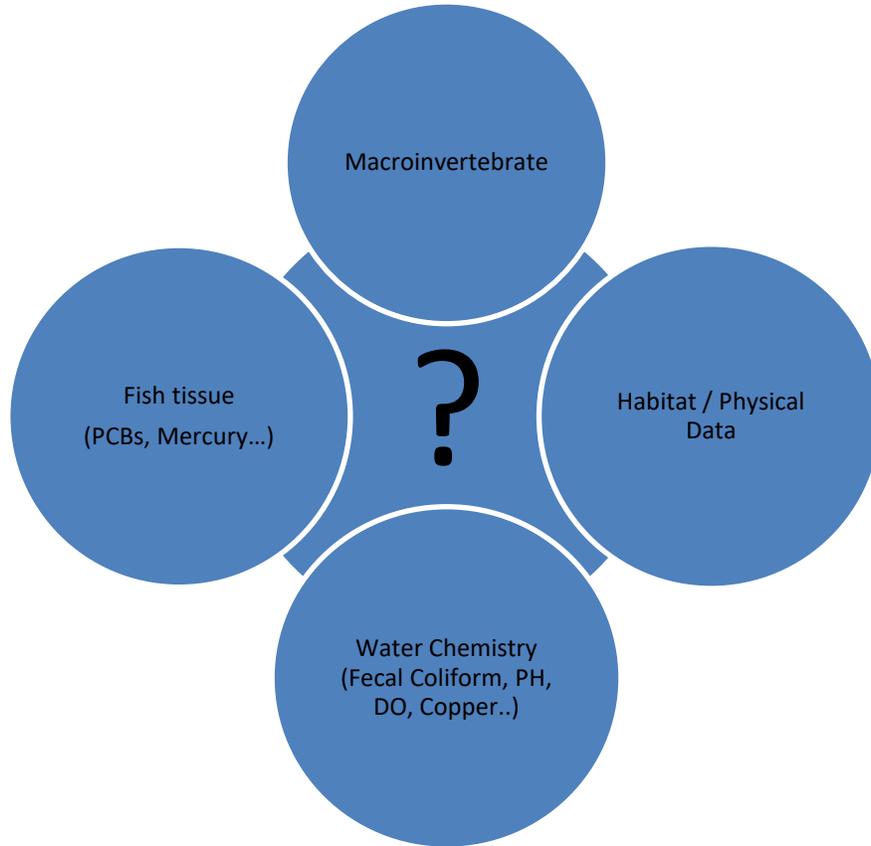
One of IEPA's first steps in achieving compliance with the Act was to identify all uses its waters should support. IEPA identified 7 designated uses, as depicted on **Figure 1**. Then each navigable water was evaluated to identify the designated uses it should support.

Figure 1: Designated Uses



1.3.B Water Quality Criteria

IEPA determined a set of water quality criteria that need to meet based on each of the 7 designated uses. Some criteria are applicable for multiple Designated Uses.

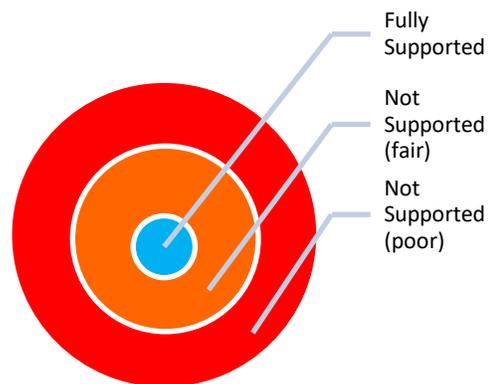


1.3.C Monitoring

IEPA is required to conduct a monitoring program for all of its receiving streams based on the water quality criteria it should be meet for each of its designated uses according to the following process.

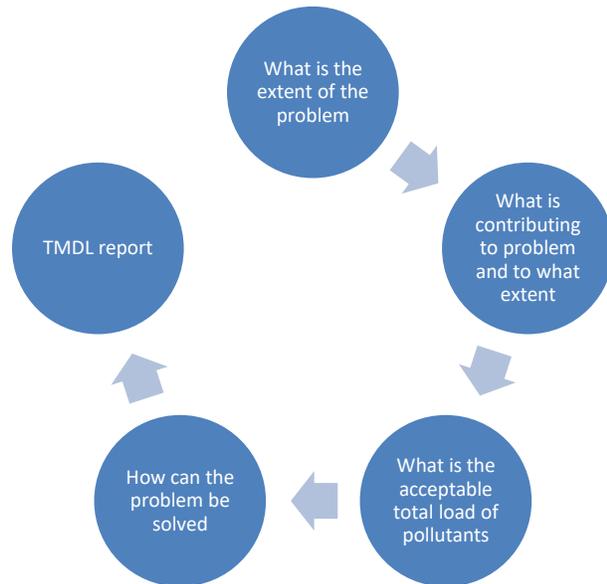
- Conduct Monitoring per Designated Use
- Determine if Water Quality Criteria are met
- Include Non-Supporting Waters on Impaired Waters report
- Rank non-supporting waters based on severity of problem.

IEPA is required to submit the monitoring results [305(b) report] to USEPA every 2 years. The impaired waters report [303(d) report] and ranking are part of this report.



1.3.D Total Maximum Daily Load (TMDL)

Total Maximum Daily Load (TMDL) reports are created by IEPA for impaired waters. These reports are created by IEPA based on severity. IEPA creates TMDL reports for impaired waters with the highest ranks. The majority of impaired waters do not yet have TMDL reports. This graphic identifies the pieces of a TMDL report. Once the TMDL report is approved by the USEPA, the recommended strategies should be implemented by the affected MS4.



1.4 Watershed, Sub-watersheds and Receiving Waters



Figure 2: Mississippi River Watershed

All storm water runoff from the Village discharges into the Illinois River, a tributary to the Mississippi River. Receiving streams within the Township that are tributary to the Fox River include Sequoit Creek and the Chain O' Lakes. Receiving streams within the Township that are tributary to the Des Plaines River include N. Mill Creek and Hastings Creek.

Topographic characteristics of the Village are typical of those in northeastern Illinois. Floodplains tend to be broad and flat with relatively small channels.

Watershed: The land area that contributes storm water to one of the four major Rivers in Lake County.

Sub-Watershed: The land area that contributes storm water to one of the receiving waters tributary to a major River.

Receiving Water: A natural or man-made system into which storm water or treated wastewater is discharged, including the four major rivers in Lake County, their tributary stream systems and other Waters of the U.S.

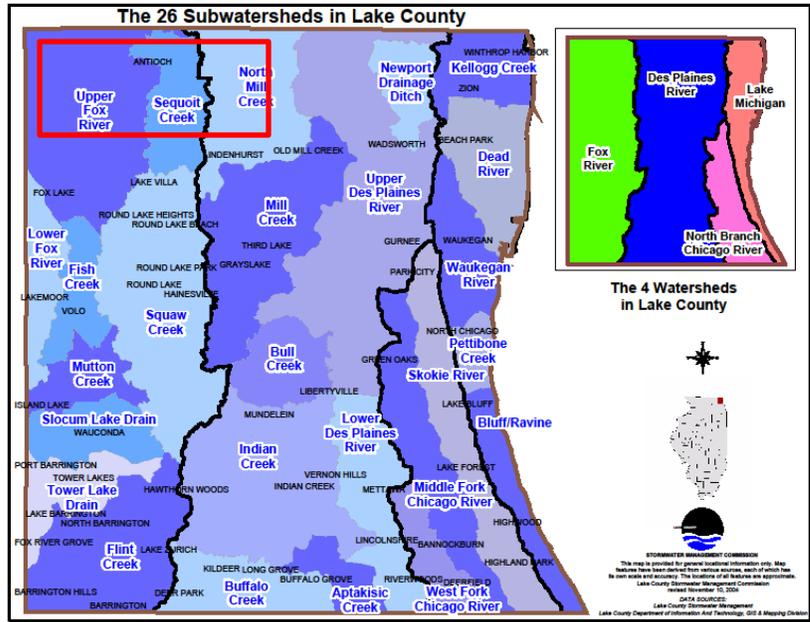


Figure 3: Lake County's Watersheds & Subwatersheds

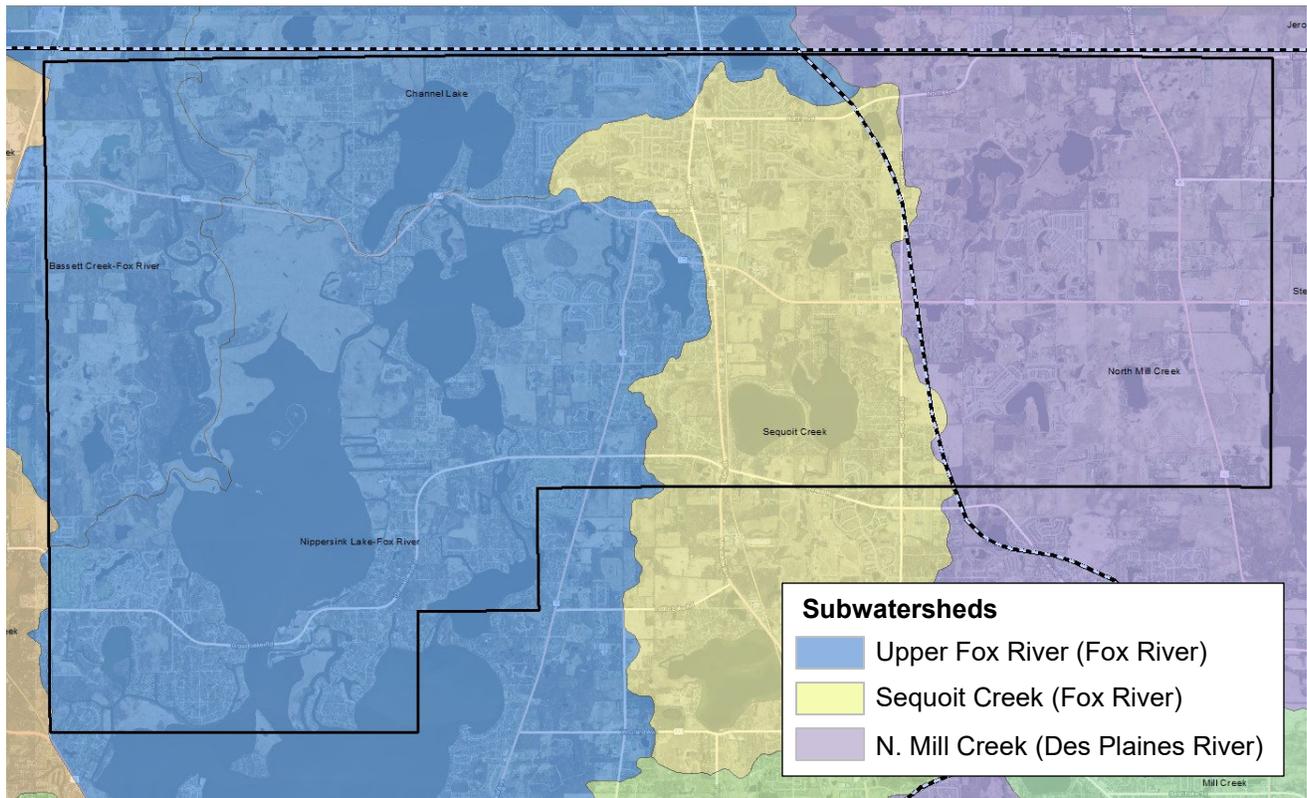


Figure 4: Major Sub-watersheds and Receiving Streams

1.4.A Watershed Descriptions

Des Plaines River Watershed

The Des Plaines River watershed originates in Racine and Kenosha Counties in Wisconsin flowing south into Illinois. The Des Plaines watershed in Lake County drains an area of approximately 202 square miles or 129,577 acres. It is the largest of the county's four major watersheds. The topography of the watershed is dominated by a gently rolling landscape with numerous wet marshy areas. The Lake County portion of the watershed is divided into nine sub-watersheds.

Within Lake County, the Des Plaines River watershed includes the communities of Buffalo Grove, Deer Park, Grayslake, Gurnee, Hawthorn Woods, Indian Creek, Kildeer, Libertyville, Lincolnshire, Lindenhurst, Long Grove, Mettawa, Mundelein, Old Mill Creek, Riverwoods, Third Lake, Vernon Hills, Wadsworth and Wheeling. Open space areas are concentrated along the floodplain of the Des Plaines River, where the Lake County Forest Preserve District has substantial holdings that stretch uninterrupted from the Wisconsin-Illinois border into Cook County.

Fox River Watershed

The Fox River originates about 15 miles northwest of Milwaukee, Wisconsin. The river enters the northwest corner of Lake County in the Chain O'Lakes area and then enters McHenry County, but reenters Lake County south of Fox River Valley Gardens. About 163 square miles of Lake County drains to the Fox River.

Along the Fox River from the state line to Algonquin, the terrain is flat and contains many lakes and low-lying wetlands. The upland areas of the watershed include gently sloping topography to steep hilly terrain.

Major tributaries to the Fox River in Lake County include the Chain O'Lakes, Sequoit Creek, Squaw Creek, Fish Lake Drain, Mutton Creek, Slocum Lake Drain, Tower Lake Drain and Flint Creek. The area around the Chain O'Lakes is substantially developed around the many lakes, while the middle of the watershed is experiencing an increase in suburbanization. The same can be said for the southern area of the watershed, which includes new development within estate and rural estate land use.

The Fox River watershed includes all or portions of the communities of Antioch, Barrington, Barrington Hills, Deer Park, Fox Lake, Fox River Grove, Grayslake, Hainesville, Hawthorn Woods, Island Lake, Lake Barrington, Lake Villa, Lake Zurich, Lakemoor, Mundelein, North Barrington, Port Barrington, Round Lake, Round Lake Beach, Round Lake Heights, Round Lake Park, Tower Lakes, Volo and Wauconda.

1.4.B Identifying Outfalls (BMP C.1)

An Outfall (is defined at 40 CFR 122.26(B)(9)) means a point source (as defined by 40 CFR 122.2) at the point where a municipal separate storm sewer discharges into a “receiving water”. Open conveyances connecting two municipal storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other Waters of the United States are not considered Outfalls. For the purposes of this manual the following definitions shall be used:

Outfall: Storm sewer outlet, or other open conveyance point discharge location, that discharges into a Waters of the U.S, receiving stream or another MS4.

Regulated systems include the conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, gutters, ditches, swales, manmade channels or storm sewers. High priority outfalls are defined, for the purpose of implementing this SMPP, as outfalls that are greater than 6” in diameter. *Currently, the Township is in the process of locating all of its outfalls in order to prepare an outfall inventory map. Approximately 1/2 of the Township’s outfalls were located in 2016.*

The outfall map should be revised to incorporate permitted outfalls associated with new developments. An outfall inventory should be performed every 5 years in conjunction with pre-screening efforts (Chapter 3.4.D.2); the focus of this effort is to search for new outfalls.

Measurable Goal(s):

- Maintain outfall inventory, searching for new outfalls every 5 years.
- Identify high priority outfalls

Figure 5: Significant Outfall Locations

(Map in progress)