Illinois Environmental Protection Agency

Bureau of Water • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control
ANNUAL FACILITY INSPECTION REPORT
for NPDES Permit for Storm Water Discharges from Separate Storm Sewer Systems (MS4)

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Compliance Assurance Section at the above address. Complete each section of this report.

Report Period: From March, 2018 To March, 2019

Permit No. ILR40 0367

MS4 OPERATOR INFORMATION: (As it appears on the current permit)

Name: The City of Lake Forest Mailing Address 1: 800 N Field Drive

Mailing Address 2: County: Lake

City: Lake Forest State: IL Zip: 60045 Telephone: 847-810-3542

Contact Person: Jim lockefeer Email Address: Lockefej@cityoflakeforest.com
(Person responsible for Annual Report)

Name(s) of governmental entity(ies) in which MS4 is located: (As it appears on the current permit)

State of Illinois

THE FOLLOWING ITEMS MUST BE ADDRESSED.

A. Changes to best management practices (check appropriate BMP change(s) and attach information regarding change(s) to BMP and measurable goals.)

1. Public Education and Outreach ☐
2. Public Participation/Involvement ☑
3. Illicit Discharge Detection & Elimination ☑
4. Construction Site Runoff Control ☑
5. Post-Construction Runoff Control ☑
6. Pollution Prevention/Good Housekeeping ☑

B. Attach the status of compliance with permit conditions, an assessment of the appropriateness of your identified best management practices and progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP, and your identified measurable goals for each of the minimum control measures.

C. Attach results of information collected and analyzed, including monitoring data, if any during the reporting period.

D. Attach a summary of the storm water activities you plan to undertake during the next reporting cycle (including an implementation schedule.)

E. Attach notice that you are relying on another government entity to satisfy some of your permit obligations (if applicable).

F. Attach a list of construction projects that your entity has paid for during the reporting period.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Jim Lockefeer
Owner Signature:

5-31-19
Date:

Jim Lockefeer
Printed Name:

Management Analyst
Title:

EMAIL COMPLETED FORM TO: epa.ms4annualinsp@illinois.gov

or Mail to: ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL
COMPLIANCE ASSURANCE SECTION #19
1021 NORTH GRAND AVENUE EAST
POST OFFICE BOX 19276
SPRINGFIELD, ILLINOIS 62794-9276

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed $50,000 for the violation and an additional civil penalty of not to exceed $10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

Illinois Environmental Protection Agency
Annual Facility Inspection Report
for General Permit for Discharges from Small MS4s

City of Lake Forest
Permit No. ILR40 ILR400367
Permit Year 16: March 1, 2018 to February 28, 2019

Table of Contents

Part A. Changes to Best Management Practices A-1

Part B. Status of Compliance with Permit Conditions B-1

Part C. Information and Data Collection Results C-1

Part D. Summary of Year 17 Stormwater Activities D-1

Part E. Notice of Qualifying Local Program E-1

Part E1. QLP Changes to Best Management Practices, Year 16
Part E2. QLP Status of Compliance with Permit Conditions, Year 16
Part E3. QLP Information and Data Collection Results, Year 16
Part E4. QLP Summary of Year 17 Stormwater Activities
Part E5. QLP Construction Projects Conducted During Year 16

Part F. Construction Projects Conducted During Year 16 ..... F-1

Part A. MS4 Changes to Best Management Practices, Year 16

Information regarding the status of all of the BMPs and measurable goals described in the MS4's SMPP is provided in the following table.

Note: "X" indicates BMPs that were implemented in accordance with the MS4's SMPP
✓ indicates BMPs that were changed during Year 16

Year 16 MS4	
A. Public Education and Outreach	
X	A.1 Distributed Paper Material
X	A.2 Speaking Engagement
	A.3 Public Service Announcement
X	A.4 Community Event
	A.5 Classroom Education Material
	A.6 Other Public Education
B. Public Participation/Involvement	
X	B.1 Public Panel
	B.2 Educational Volunteer
X	B.3 Stakeholder Meeting
X	B.4 Public Hearing
	B.5 Volunteer Monitoring
X	B.6 Program Coordination
X	B.7 Other Public Involvement
C. Illicit Discharge Detection and Elimination	
X	C.1 Storm Sewer Map Preparation
X	C.2 Regulatory Control Program
X	C.3 Detection/Elimination Prioritization Plan
X	C.4 Illicit Discharge Tracing Procedures
X	C.5 Illicit Source Removal Procedures
	C.6 Program Evaluation and Assessment
X	C.7 Visual Dry Weather Screening
	C.8 Pollutant Field Testing
	C.9 Public Notification
X	C.10 Other Illicit Discharge Controls

Year 16 MS4	
D. Construction Site Runoff Control	
X	D.1 Regulatory Control Program
X	D.2 Erosion and Sediment Control BMPs
X	D.3 Other Waste Control Program
X	D.4 Site Plan Review Procedures
X	D.5 Public Information Handling Procedures
X	D.6 Site Inspection/Enforcement Procedures
	D.7 Other Construction Site Runoff Controls
E. Post-Construction Runoff Control	
	E.1 Community Control Strategy
X	E.2 Regulatory Control Program
X	E.3 Long Term O&M Procedures
X	E.4 Pre-Const Review of BMP Designs
X	E.5 Site Inspections During Construction
X	E.6 Post-Construction Inspections
X	E.7 Other Post-Const Runoff Controls
F. Pollution Prevention/Good Housekeeping	
X	F.1 Employee Training Program
X	F.2 Inspection and Maintenance Program
X	F.3 Municipal Operations Storm Water Control
X	F.4 Municipal Operations Waste Disposal
	F.5 Flood Management/Assess Guidelines
	F.6 Other Municipal Operations Controls

Additional information about the changes that were made to the BMPs described in the MS4's SMPP during Year 16 is provided below.

Part B. MS4 Status of Compliance with Permit Conditions, Year 16

Stormwater Management Activities, Year 16

Please note that IEPA issued a new version of its General NPDES Permit No. ILR40 (Permit), effective on March 1, 2016. On behalf of all MS4s within the county, SMC performs activities related to each of the six minimum control measures which are described in detail in the SMPP. These BMPs, implemented at the county level, make significant strides in achieving the statutory goal of reducing the discharge of pollutants to the MEP as watershed boundaries are not constrained by municipal borders. The SMPP can be viewed at the following link: www.cityoflakeforest.com/flooding-and-stormwater-management/

Potential Comment #1: In response to the new ILR40 permit, effective March 1, 2016, the QLP issued a revised SMPP template in November of 2016 (near the end of Year 14). During Year 16, the MS4 reviewed and revised its SMPP. The stormwater management activities that the MS4 performed during Year 16, including the MS4's BMPs and measurable goals, are described in detail in the revised SMPP.

A. Public Education and Outreach

Measurable Goal(s):

- Implement BMPs and track progress of BMP implementation, as described in the SMPP.

Year 16 MS4 activities:

A.1. Distributed Paper Material
Educational pamphlets are provided on the City's website and at City Buildings. These include the City's stormwater management policy guideline brochure and various IEPA/EPA educational brochure links. The City also posts Lake County SMC green infrastructure brochures (rain gardens, rain barrels, etc.) and has made many of these brochures available at public meetings.

A.2. Speaking Engagement
On September 26, 2018 a community event was held by the City. The event was titled Water: Your Home, Your Community". Stormwater Management was discussed by the City as well as other City Agency groups.

A.4. Community Event
On September 26, 2018 a community event was held by the City. The event was titled Water: Your Home, Your Community". Stormwater Management was discussed by the City as well as other City Agency groups. Each year, a household chemical waste event is held in the City, through a collaboration with the Solid Waste Agency of Lake County (SWALCO). This is event is advertised by the City's at its Compost & Recycling Center, as well as, through social media and on the City's and SWALCO's websites. The event was held on September 15, 2018.

B. Public Participation/Involvement

Measurable Goal(s):

- Implement BMPs and track progress of BMP implementation, as described in the SMPP.

Year 16 MS4 activities:

B.1. Public Panel
On September 26, 2018 a community event was held by the City. The event was titled Water: Your Home, Your Community". The major topic discussed was stormwater management. There were multiple stormwater management topic tables at the event attendees could listen in and ask question at. The tables were staffed by the City, Lake Forest College, Lake Forest School Districts, and Lake Forest Open Lands.

B.3. Stakeholder Meeting
On June 28, 2018, The City's Public Works Committee discussed and reviewed the City's SMPP. All of the City of Lake Forest, Public Works Committee Meetings are open to the public.

B.4. Public Hearing
On June 28, 2018, The City's Public Works Committee discussed and reviewed the City's SMPP. All of the City of Lake Forest, Public Works Committee Meetings are open to the public. At every meeting there is opportunity for public comment. No public comment were shared at this meeting.

B.6. Program Coordination
On July 16, 2013, the Lake Forest Collaborative for Environmental Leadership (LFCEL) was established. The LFCEL is comprised of the City of Lake Forest, Lake Forest College, Lake Forest High School District 115, Lake Forest Elementary School District 67, and the Lake Forest Open Lands Association. The LFCEL's purpose is explained below:

"help educate and coordinate environmental action and promote sustainable practices within the community. The role of the Collaborative is … to assist the community in identifying … issues and … new programs … that encourage environmental thinking and action to protect Lake Forest's unique natural heritage, enhance its residents' quality of life, improve the value of the community … and expand resident pride in their community and conservation ethic. The Collaborative will … work closely with the City's key institutions to define conservation and environmental goals, identify and enact policies and programs that positively influence behavior, promote citizen involvement and awareness, and protect and restore the community's unique natural heritage."

Storm water management was defined as a major collaborative initiative and focus. The Collaborative meets quarterly.

In July of 2016, the City adopted a City Sustainability Plan. The plan identifies five major categories. One of those five categories is titled "Stormwater Management and Water Use".

B.7. Other Public Involvement
All of the City of Lake Forest, City Council Meetings are open to the public and televised. All of the Public Works Committee Meetings are open to the public.

Following large rain events, for example the event that occurred on Monday September 3, 2018 (Labor Day) The City's Director of Public Works spoke at public City Council meetings about the event as well as City stormwater management efforts.

C. Illicit Discharge Detection and Elimination

Measurable Goal(s):

- Implement BMPs and track progress of BMP implementation, as described in the SMPP.

Year 16 MS4 activities:

C.1. Storm Sewer Map Preparation
A Citywide Storm Sewer Map and atlas is available on City's MapOffice GIS website.

C.2. Regulatory Control Program
The City of Lake Forest has adopted the WDO and is currently a Certified Community for the review, permitting, inspection and enforcement of the provisions of the WDO. The community designates an Enforcement Officer; this person is responsible for the administration and enforcement of the WDO. The City of Lake Forest has created an Inspection and Violation Notification Procedure to ensure compliance with the WDO. The City of Lake Forest has created and adopted an Illicit Discharge Ordinance – Ordinance
2014-34; codified as Paragraph 150.401 under Title XV - Land Use and Development of the City of Lake Forest, Illinois Code of Ordinances. This Ordinance is the mechanism to allow for the execution and enforcement of the SMPP.

C.3. Detection/Elimination Prioritization Plan
The City's Department of Community Development conducts dye testing each time a property is sold, for the purposes of cross connection control.

C.4. Illicit Discharge Tracing Procedures
Discharge locations are available on City's MapOffice GIS website. Follow up inspections are required for outfalls identified to have potential illicit discharges during the outfall inspection procedure. This is accomplished by reviewing stormwater outfall inspection data collected during outfall investigations to determine which outfalls require a follow up investigation, target sewer system areas (using available mapping and atlas information) for detailed investigation.

C.5. Illicit Source Removal Procedures
Removal of illicit discharge connections is required at all identified contributing sources. The City follows eight steps that are taken to definitively identify and remove an inappropriate discharge to the storm sewer system as identified in the SMMP

C.7. Visual Dry Weather Screening
The City conducted numerous dry weather inspections along the East & West Skokie Drainage districts creeks during June, 2018 – August, 2018. The data was captured and is available through the City's GIS section.

C.10. Other Illicit Discharge Controls
The City completed a full ravine inventory and inspection that included the inspection of residential and City outfalls located within the ravines during May, 2018 – August, 2018. Water sampling also occurred as part of this program. Field water sample tests occurred at the start and end point of each ravine.

D. Construction Site Runoff Control

Measurable Goal(s):

- Implement BMPs and track progress of BMP implementation, as described in the SMPP.
- Enforce WDO in ensuring that all applicable developments are regulated pursuant to the WDO.

Year 16 MS4 activities:

- The MS4 continues to implement the BMPs described in its SMPP and to track progress in implementing its stormwater management program.
- The MS4 continues to enforce the WDO in ensuring that all applicable developments are regulated pursuant to the WDO.

D.1. Regulatory Control Program
The City of Lake Forest follows the Watershed Development Ordinance (WDO). The City is a Certified Community, under the requirements of the WDO.

D.2. Erosion and Sediment Control BMPs
All development meets or exceeds the requirements of the WDO.

D.3. Other Waste Control Program
The City enforces WDO provisions regarding the control of waste and debris at construction sites.

D.4. Site Plan Review Procedures
All commercial and residential permit applications are reviewed for compliance with the WDO. When required, the City issues Watershed Development Permits.

D.5. Public Information Handling Procedures

All calls regarding drainage, possible illicit discharges, and construction site complaints are promptly inspected by the Engineering Division of the Public Works Department and feedback is provided to the caller.

D.6. Site Inspection/Enforcement Procedures
As a Certified Community, the City has a Certified Enforcement Officer and two Certified Erosion Control Inspectors. All development is inspected for compliance with approved plans and WDO requirements.

E. Post-Construction Runoff Control

Measurable Goal(s):

- Implement BMPs and track progress of BMP implementation, as described in the SMPP.
- Enforce WDO in ensuring that all applicable developments regulated pursuant to the WDO.

Year 16 MS4 activities:

- The MS4 continues to implement the BMPs described in its SMPP and to track progress in implementing its stormwater management program.
- The MS4 continues to enforce the WDO in ensuring that all applicable developments are regulated pursuant to the WDO.

E.2. Regulatory Control Program
The Regulatory Control Program is the Lake County WDO.

E.3. Long Term O&M Procedures
Major construction projects permitted under the WDO require the preparation of long term maintenance plans with responsible party identified. All storm water management systems must be deed or plat restricted.

E.4. Pre-Construction Review of BMP Designs
All commercial and residential permit applications are reviewed for compliance with the WDO.

E.5. Site Inspections during Construction

All permitted development is inspected by personnel of the Engineering Division of the Public Works Department, in accordance with the WDO.

E.6. Post-Construction Inspections
All development projects are inspected and monitored until all punch lists are complete and "as-built" drawings received. Projects with post construction monitoring and management plans are supervised throughout the required period until final agency acceptance is received.

F. Pollution Prevention/Good Housekeeping

Measurable Goal(s):

- Implement BMPs and track progress of BMP implementation, as described in the SMPP.

Year 16 MS4 activities:

- The MS4 continues to implement the BMPs described in its SMPP and to track progress in implementing its stormwater management program.

F.1. Employee Training Program
The City coordinates a mandatory Spill Prevention, Control, and Countermeasure Plan for the Fleet Maintenance Garage and Building Maintenance Workshop at the Municipal Services Building. City Water and Sewer Section Staff also watches the Municipal Stormwater Pollution Prevention Everyday Best Management Practices DVD that is rented through Lake County SMC.

F.2. Inspection and Maintenance Program
The Streets Division of the Public Works Department collected 90.60 tons of debris from May of 2018 through April of 2019 through the Street Sweeping Program. All sweeper debris was property disposed of at an approved landfill site.

F.3. Municipal Operations Storm Water Control
Approximately 600 catch basins were cleaned and cleared of debris during the City's Fiscal Year 2019. The City maintains a five year annual program to clear and clean catch basins

F.4. Municipal Operations Waste Disposal
All waste is disposed of at approved and certified landfill sites or with approved and licensed waste haulers.

Stormwater Management Program Assessment, Year 16

The MS4 revised their SMPP to coincide with the March 2016 ILR40 permit. As described in the revised SMPP there are extensive monitoring efforts already underway across the County, refer to Part C of this report for additional information. The QLP section of the report describes the Status of Lake County waters using information gathered by active workgroups and the Lake County Health Department along with a discussion on TMDL status within the County. The Status of Lake County Waters provides insight as to the overall effectiveness of countywide efforts to improve water quality. As an active MS4 within the County, the countywide findings reflect the individual efforts of each MS4. Additionally, the SMPP identified impaired waters based on the July 2016 303(d) list. The inclusion or exclusion of water bodies on the IEPAs 303(d) list, published bi-annually, is a direct reflection of the program's effectiveness.

Part C. MS4 Information and Data Collection Results, Year 16

Annual Monitoring and Data Collection, Year 16

Information and data that the MS4 collected to meet the monitoring requirement of the version of IEPA's General NPDES Permit No. ILR40 that applied to the reporting period are summarized below.

The MS4 revised their SMPP to coincide with the March 2016 ILR40 permit. As described in the revised SMPP there are extensive monitoring efforts already underway across the County. The MS4 is located in and participates in the Des Plaines River Watershed Workgroup (DRWW), North Branch Chicago River Watershed Workgroup (NBWW) of Fox River Study Group (FRSG) and supports Lake County Health Department (LCHD) efforts. The QLP section of the report describes the status of Lake County waters using information gathered by these workgroups, the LCHD and IEPA. The following is a brief summary of the efforts described in more detail in the SMPP.

- The Des Plaines River Watershed Workgroup (DRWW) monitors water quality in the Des Plaines River and tributaries to accurately identify the quality of the river ecosystems as well as stressors associated with non-attainment of water quality standards and designated uses. During the current YR16 reporting period, DRWW's monitoring program includes: Water/Sediment sampling and analysis at 71 Monitoring Locations for 2018; Bioassessment monitoring at 20 monitoring locations; Continuous water quality monitoring with data sondes and Chlorophyll a sampling and analysis at 14 Monitoring Locations; and Flow Monitoring data collection at 21 sites. An annual water chemistry monitoring report was submitted to Illinois EPA on behalf of DRWW members in March 2019, which covers the NPDES II monitoring requirements for MS4 communities that are DRWW members. The Des Plaines River Watershed Monitoring Strategy was also updated and submitted to Illinois EPA in March 2018. The MS4 is currently a DRWW member for the reporting year (URL: http://www.drww.org/members).
- The North Branch Watershed Workgroup (NBWW) monitors water quality in the North Branch of the Chicago River and tributaries to accurately identify the quality of the river ecosystems as well as stressors associated with non-attainment of water quality standards and designated uses. Monitoring data will allow for a greater understanding of the water quality impairments, identify priority restoration activities, and track water quality improvements. The Workgroup is committed to an approach for attaining water quality standards that focuses on stakeholder involvement, monitoring, and locally led decision-making based on sound science. Comprehensive baseline monitoring has been completed at all 25 sites for water column chemistry and sampled 11 sites for fish, habitat, macroinvertebrate, and sediment chemistry. Data sondes were deployed at 7 sites in the Middle Fork and Skokie River for collection of dissolved oxygen (D.O), pH, temperature, and specific conductance. The NBWW will continue to support the North Branch Watershed Planning Committee and the North Branch Watershed Consortium through regular discussion at general meetings. MS4 communities that are currently NBWW members for the reporting year are located at (URL: www.nbwwil.org).
- The Fox River Implementation Plan (FRIP) takes the place of a traditional TMDL for dissolved oxygen and nuisance algae in the Fox River. The FRSG directly coordinates with the IEPA on the efforts described in the FRIP.
- The LCHD Lakes Management Unit has been collecting water quality data on Lake County lakes since the late 1960s. Since 2000, 176 different lakes each year have been studied and data collected on temperature, dissolved oxygen, phosphorus, nitrogen, solids, pH, alkalinity, chloride, conductivity, water clarity, the plant community and shoreline characteristics. Lake summary reports can be found (URL: https://www.lakecountyil.gov/2400/Lake-Reports).

- Lake Michigan Beaches have a significant portion of the Lake Michigan Beaches listed as impaired. The LCHD samples beaches from approximately Memorial Day to Labor Day. These results are used by the LCHD, in concert with other data collected by IEPA, to determine if TMDL implementation recommendations have resulted in load reductions and improved overall beach health.
- Inland Beaches are monitored bimonthly from May to September by Lake County Health Department's Lake Management Unit (LMU). Bacteria concentrations at inland beaches and recreational areas resulting in high concentrations of E coli bacteria are the basis of swim bans. The IEPA uses the number and duration of swim bans to assess whether or not the beaches support designated uses for primary contact recreation.

Part D. MS4 Summary of Year 17 Stormwater Activities

The table below indicates the stormwater management activities that the MS4 plans to undertake during Year 17. Additional information about the stormwater management activities that the MS4 will perform is provided in the section following the table.

Note: "X" indicates BMPs that will be implemented during Year 17
✓ indicates BMPs that were changed during Year 17

Year 17 MS4	
A. Public Education and Outreach	
X	A.1 Distributed Paper Material
	A.2 Speaking Engagement
	A.3 Public Service Announcement
X	A.4 Community Event
	A.5 Classroom Education Material
X	A.6 Other Public Education
B. Public Participation/Involvement	
	B.1 Public Panel
	B.2 Educational Volunteer
X	B.3 Stakeholder Meeting
X	B.4 Public Hearing
X	B.5 Volunteer Monitoring
X	B.6 Program Coordination
X	B.7 Other Public Involvement
C. Illicit Discharge Detection and Elimination	
X	C.1 Storm Sewer Map Preparation
X	C.2 Regulatory Control Program
X	C.3 Detection/Elimination Prioritization Plan
X	C.4 Illicit Discharge Tracing Procedures
X	C.5 Illicit Source Removal Procedures
X	C.6 Program Evaluation and Assessment
X	C.7 Visual Dry Weather Screening
X	C.8 Pollutant Field Testing
X	C.9 Public Notification
	C.10 Other Illicit Discharge Controls

Year 17 MS4	
D. Construction Site Runoff Control	
X	D.1 Regulatory Control Program
X	D.2 Erosion and Sediment Control BMPs
X	D.3 Other Waste Control Program
X	D.4 Site Plan Review Procedures
X	D.5 Public Information Handling Procedures
X	D.6 Site Inspection/Enforcement Procedures
	D.7 Other Construction Site Runoff Controls
E. Post-Construction Runoff Control	
	E.1 Community Control Strategy
X	E.2 Regulatory Control Program
X	E.3 Long Term O&M Procedures
X	E.4 Pre-Const Review of BMP Designs
X	E.5 Site Inspections During Construction
X	E.6 Post-Construction Inspections
X	E.7 Other Post-Const Runoff Controls
F. Pollution Prevention/Good Housekeeping	
X	F.1 Employee Training Program
X	F.2 Inspection and Maintenance Program
X	F.3 Municipal Operations Storm Water Control
X	F.4 Municipal Operations Waste Disposal
	F.5 Flood Management/Assess Guidelines
X	F.6 Other Municipal Operations Controls

Stormwater Management Activities, Year 17

As described in Part B above, a significant enhancement to the SMPP is the inclusion of Chapter 3.1 Qualified Local Program. On behalf of all MS4s within the county, SMC performs activities related to each of the six minimum control measures which are described in detail in the SMPP. These BMPs, implemented at the county level, make significant strides in achieving the statutory goal of reducing the discharge of pollutants to the MEP as watershed boundaries are not constrained by municipal borders. As such, a significant portion of the stated MS4 measurable goals are to "support QLP efforts."

During Year 16, the MS4 plans to continue to support and supplement QLP efforts, as described in detail in the MS4's SMPP and in brief below. The MS4's SMPP can be viewed at www.cityoflakeforest.com/flooding-and-stormwater-management/ .

A. Public Education and Outreach

In additional to the extensive QLP efforts, the MS4 utilizes a variety of methods to educate and provide outreach to the public about the importance of managing pollutants that potentially could enter the stormwater system. The MS4's Public Education and Outreach program includes: the distribution of educational material via newsletters, website, at outreach events and by supporting efforts of the Solid Waste Agency of Lake County (SWALCO).

Measurable Goal(s):

- Support QLP efforts.
- Implement BMPs and track progress of BMP implementation, as described in the SMPP.

B. Public Participation/Involvement

In additional to the extensive QLP efforts, the MS4 utilizes a variety of methods to allow input from citizens during the development and implementation of the SMPP. The MS4's Public Participation/Involvement program includes the following: maintaining a process for receiving and processing citizen input/complaints; attending and publicizing stakeholder meetings and the Lake County Municipal Advisory Committee, identification of environmental justice areas, and presenting program information at a public meeting at least once annually.

Measurable Goal(s):

- Support QLP efforts.
- Implement BMPs and track progress of BMP implementation, as described in the SMPP.

C. Illicit Discharge Detection and Elimination

In additional to the extensive QLP efforts, the MS4 will conduct activities toward the identification and removal of direct connections of pollutants into the storm water management systems (including wetlands and receiving waters). The program includes the following primary components.

- An outfall map showing the locations of outfalls and the names and locations of all waters that receive discharges from those outfalls;
- An ordinance that prohibits all non-storm water discharges into the storm sewer system and provides the authority for appropriate enforcement procedures and actions;
- A plan to detect and address all non-stormwater discharges, into the storm sewer system;
- Periodic inspection of outfalls for detection of non-stormwater discharges and illegal dumping (5-yr rescreening schedule).
- Annual inspection of all High Priority Outfalls.

Measurable Goal(s):
- Support QLP Efforts.
- Implement BMPs and track progress of BMP implementation, as described in the SMPP.

D. Construction Site Runoff Control

Lake County has adopted a countywide Watershed Development Ordinance (WDO) that establishes the minimum stormwater management requirements for development in Lake County. The WDO establishes countywide standards for runoff maintenance, detention sites, soil erosion and sediment control, inspections, water quality, wetlands, and floodplains. The WDO, which is administered and enforced within the community by the MS4, establishes standards for construction site runoff control.

Measurable Goal(s):
- Implement BMPs and track progress of BMP implementation, as described in the SMPP.
- Enforce WDO in ensuring that all applicable developments are in compliance with the WDO.

E. Post-Construction Runoff Control

As described above, the countywide WDO establishes the minimum stormwater management requirements for development in Lake County. BMP standards are incorporated into the WDO to implement stormwater management strategies that minimize increases in stormwater runoff rates, volumes, and pollutant loads from development sites. The SMPP also includes support of adopted Watershed Plan recommendations and inspection procedures for pre-WDO developments, streambanks and shorelines, streambeds, and detention/retention ponds.

Measurable Goal(s):
- Implement BMPs and track progress of BMP implementation, as described in the SMPP.
- Enforce WDO in ensuring that all applicable developments are in compliance with the WDO.

F. Pollution Prevention/Good Housekeeping

In addition to the QLP efforts to provide training materials and opportunities, the MS4 is committed to implementing the Pollution Prevention/Good Housekeeping component of its SMPP. The MS4 is responsible for the care and upkeep of the general facilities, municipal roads, its general facilities, and associated maintenance yards. The MS4's Pollution Prevention/Good Housekeeping program includes: the evaluation and improvement of municipal policies and procedures to reduce the discharge of pollutants from municipal activities and operations; and, a training program for municipal employees.

Measurable Goal(s):
- Support QLP efforts.
- Implement BMPs and track progress of BMP implementation, as described in the SMPP.

Part E. Notice of Qualifying Local Program

The Lake County Stormwater Management Commission (SMC) serves as a Qualifying Local Program (QLP) for MS4s in Lake County. In accordance with IEPA's General NPDES Permit No. ILR40, as a QLP, SMC performs activities related to each of the six minimum control measures. This part of the Annual Report, which summarizes the stormwater management activities performed by SMC as a QLP, consists of the following five sections:

- **Part E1** identifies changes to Best Management Practices (BMPs) that occurred during Year 16 and includes information about how these changes affected the QLP's stormwater management program.
- **Part E2** describes the stormwater management activities that the QLP performed during Year 16.
- **Part E3** summarizes the information and data collected by the QLP during Year 16.
- **Part E4** describes the stormwater management activities that the QLP plans to undertake during Year 17.
- **Part E5** lists the construction projects conducted by the QLP during Year 16.

Part E1. QLP Changes to Best Management Practices, Year 16

Note: "X" indicates BMPs that were implemented as planned
✓ indicates BMPs that were changed during Year 16

Year 16 QLP	
A. Public Education and Outreach	
X	A.1 Distributed Paper Material
	A.2 Speaking Engagement
X	A.3 Public Service Announcement
X	A.4 Community Event
X	A.5 Classroom Education Material
X	A.6 Other Public Education
B. Public Participation/Involvement	
X	B.1 Public Panel
	B.2 Educational Volunteer
X	B.3 Stakeholder Meeting
	B.4 Public Hearing
	B.5 Volunteer Monitoring
X	B.6 Program Coordination
	B.7 Other Public Involvement
C. Illicit Discharge Detection and Elimination	
	C.1 Storm Sewer Map Preparation
X	C.2 Regulatory Control Program
	C.3 Detection/Elimination Prioritization Plan
	C.4 Illicit Discharge Tracing Procedures
	C.5 Illicit Source Removal Procedures
	C.6 Program Evaluation and Assessment
	C.7 Visual Dry Weather Screening
	C.8 Pollutant Field Testing
	C.9 Public Notification
X	C.10 Other Illicit Discharge Controls

Year 16 QLP	
D. Construction Site Runoff Control	
X	D.1 Regulatory Control Program
X	D.2 Erosion and Sediment Control BMPs
X	D.3 Other Waste Control Program
X	D.4 Site Plan Review Procedures
X	D.5 Public Information Handling Procedures
X	D.6 Site Inspection/Enforcement Procedures
	D.7 Other Construction Site Runoff Controls
E. Post-Construction Runoff Control	
	E.1 Community Control Strategy
X	E.2 Regulatory Control Program
X	E.3 Long Term O&M Procedures
X	E.4 Pre-Const Review of BMP Designs
X	E.5 Site Inspections During Construction
X	E.6 Post-Construction Inspections
X	E.7 Other Post-Const Runoff Controls
F. Pollution Prevention/Good Housekeeping	
X	F.1 Employee Training Program
	F.2 Inspection and Maintenance Program
	F.3 Municipal Operations Storm Water Control
	F.4 Municipal Operations Waste Disposal
X	F.5 Flood Management/Assess Guidelines
X	F.6 Other Municipal Operations Controls

Part E2. QLP Status of Compliance with Permit Conditions, Year 16

IEPA issued its General NPDES Permit No. ILR40 effective March 1, 2016 (the first day of Year 14). SMC has reviewed the new permit, compared it to the previous permit, summarized the changes, and evaluated what the changes appear to mean for Lake County MS4s. Based on these findings, SMC revised its SMPP template and provided it to communities in August 2016; the final draft was provided in November 2016.

The Lake County Stormwater Management Commission (SMC) serves as a Qualifying Local Program (QLP) for MS4s in Lake County. In accordance with IEPA's NDPES General Permit No. ILR40, as a QLP, SMC performs activities related to each of the six minimum control measures. The stormwater management activities that the QLP performed during Year 16 are described below.

A. Public Education and Outreach

A.1 Distributed Paper Material

Measurable Goal(s):

- Distribute informational materials from "take away" rack at SMC. Upon request, distribute materials directly to municipalities for local distribution.

Year 16 QLP activities:

- SMC distributes a variety of informational materials related to stormwater management through its "take away" rack and website.
- Upon request, informational materials are distributed directly to Lake County MS4s in PDF format for use on community websites, in community newsletters, and in community "take away" racks.
- Provided NPDES related information via Facebook.

A.3 Public Service Announcement

Measurable Goal(s):

- Include public service announcement highlighting community accomplishments related to IEPA's NPDES Stormwater Program in "Watershed E-News";
- Post watershed identification signage with LCDOT;
- Upon request or download "The Big Picture: Water Quality, Regulations & NPDES" to Lake County MS4s.

Year 16 QLP activities:

- SMC includes announcements highlighting community accomplishments related to IEPA's NPDES Stormwater Program on its website, in its newsletter, and through other media outlets (URL hyperlink).
- Watershed identification signage is located throughout the county.
- SMC continues to make available "The Big Picture: Water Quality, Regulations & NPDES" presentation to Lake County MS4s, (URL hyperlink).

A.4 Community Event

Measurable Goal(s):

- Sponsor or co-sponsor workshop on a topic related to IEPA's NPDES Stormwater Program.

Year 16 QLP activities:

SMC sponsored or co-sponsored many workshops and events on stormwater-related topics between March 1, 2018 and February 28, 2019, including:

- SMC sponsored a Designated Erosion Control Inspector (DECI) Workshop held on April 5, 2018.
- SMC co-sponsored a river cleanup for Chicago River Day on May 12, 2018 throughout the watershed.
- SMC co-sponsored Parking Lots & Sidewalks De-Icing Workshop held in Libertyville, IL on October 1, 2018.
- SMC co-sponsored Roadway De-Icing Workshop held in Libertyville, IL on October 2 and 3, 2018.
- SMC co-sponsored a Project Tour for the Bull Creek Streambank Restoration Project in Beach Park, IL within the Dead River subwatershed on July 1, 2018.

A.5 Classroom Education

Measurable Goal(s):

- Develop and compile information for stormwater educational kit for distribution upon request.
- Provide materials and training on storm sewer inlet stenciling kits to teachers upon request.

Year 16 QLP activities:

Stormwater educational materials were compiled for use at several public education events that were held between March 1, 2018 and February 28, 2019, including:

- Loch Lomond Property Owners Association's Loch Fest held in Mundelein, IL on July 28, 2018.

A.6 Other Public Education

Measurable Goal(s):

- Maintain and update the portion of the SMC website dedicated to IEPA's NPDES Stormwater Program with resource materials such as model ordinances, case studies, brochures, and web links.
- Make "The Big Picture: Water Quality, Regulations & NPDES" presentation available to Lake County MS4s.

Year 16 QLP activities:

- As new information and resource materials become available, they are posted to the SMC website and/or distributed directly to Lake County MS4s, (URL hyperlink).
- SMC continues to make available "The Big Picture: Water Quality, Regulations & NPDES" presentation to Lake County MS4s, (URL hyperlink).
- SMC continues to update and maintain an ArcGIS geospatial web tool for Lake County MS4 programs that indicates TMDL statuses, 303(b), 305(d), HUC 12 watershed information and other information within an MS4 defined boundary, (URL hyperlink).
- SMC maintains an ArcGIS geospatial web tool for Lake County within the Des Plaines River watershed, allowing the public to see an Inventory of Stream and Detention Basin Information, (URL hyperlink).
- SMC maintains reference documents for stormwater best practices, BMPs and green infrastructure practices on its website, (URL hyperlink).
- SMC made available via the Lake County SMC website, Community Awareness Illicit Discharge Education and Elimination Videos.
    - The online videos are available in English and Spanish.
        - Illicit Discharge Education and Elimination (English), (URL hyperlink).
        - Illicit Discharge Education and Elimination (Spanish), (URL hyperlink).

B. Public Participation/Involvement

B.1 Public Panel

Measurable Goal(s):

- Provide notice of public meetings on SMC website. Track number of meetings conducted.

Year 16 QLP activities:

- Notice of all public meetings continues to be provided on the SMC website and though direct mailings and e-mailings to distribution lists.
- SMC tracked the number of Stormwater Management Committee Board (SMC) meetings, Technical Advisory Committee (TAC) meetings, Municipal Advisory Committee (MAC), and Watershed Management Board (WMB) meetings conducted during Year 16, between March 1, 2018 and February 28, 2019.
- Per records, there were 9 SMC meetings, Zero TAC meetings, 4 MAC meetings, and 1 WMB meeting conducted during this reporting period.
- According to records, between March 1, 2018 and February 28, 2019, 4 CIRS community inquiries were received and processed by SMC staff.

B.3 Stakeholder Meeting

Measurable Goal(s):

- Provide notice of stakeholder meetings on SMC website.
- Track number of watershed planning committee meetings conducted.
- Establish watershed planning committees for each new watershed planning effort.

Year 16 QLP activities:

- Notice of all stakeholder meetings continues to be provided on the SMC website and through direct mailings and e-mailings to stakeholder lists.
- SMC tracked the number of stakeholder meetings conducted for the various watershed planning committees during the reporting period. The list below summarizes the watershed planning committee meetings that were conducted during Year 16:
    - Des Plaines River Watershed Workgroup – 3 (excluding executive board meetings)
    - North Branch Chicago River Watershed Workgroup– 4 (excluding executive board meetings)
- SMC continues to establish and/or assist watershed planning committees for each new watershed planning effort.

B.6 Program Coordination

Measurable Goal(s):

- Track number of MAC meetings conducted during Year 16.
- Prepare annual report on Qualifying Local Program activities at end of Year 16.

Year 16 QLP activities:

- SMC tracked the number of Municipal Advisory Committee (MAC) meetings conducted during Year 16: According to records, there were 4 MAC meetings conducted during this reporting period. 4/8/18, 6/6/18, 9/5/18, and 12/5/18.
- The stormwater management activities that SMC performed as a QLP during Year 16 are described in the Annual Facility Inspection Report (i.e., Annual Report) template provided to Lake County MS4s.
- The stormwater management activities that SMC plans to perform as a QLP during Year 16 are described in Part E4 of the Annual Report template.

C. Illicit Discharge Detection and Elimination

C.2 Regulatory Control Program

Measurable Goal(s):

- Continue to enforce the countywide WDO.

Year 16 QLP activities:

- SMC continues to enforce the countywide WDO.
- Lake County continues to provide the Lake County Illicit Discharge Detection and Elimination (IDDE) Manual on the SMC website, (URL hyperlink).

C.10 Other Illicit Discharge Controls

Measurable Goal(s):

- Sponsor or co-sponsor and track the number of attendees at an Illicit Discharge Detection and Elimination workshop or other training workshop related to IEPA's NPDES Stormwater Program.

Year 16 QLP activities:

- SMC sponsored or co-sponsored many workshops and events on stormwater-related topics between March 1, 2018 and February 28, 2019. Such workshops and events are described above.
- SMC made available via the Lake County SMC website, Community Awareness Illicit Discharge Education and Elimination Videos.
    - The online videos are available in English and Spanish.
        - Illicit Discharge Education and Elimination (English), (URL hyperlink).
        - Illicit Discharge Education and Elimination (Spanish), (URL hyperlink).

D. Construction Site Runoff Control

D.1 Regulatory Control Program

Measurable Goal(s):

- Continue to enforce the countywide WDO.
- Administer the Designated Erosion Control Inspector (DECI) program outlined by the WDO.

Year 16 QLP activities:

- SMC continues to enforce the countywide WDO.
- SMC continues to administer the Designated Erosion Control Inspector (DECI) program as outlined by the WDO, (URL hyperlink).
    - Total DECIs who have passed the exam (to date): 741.
    - DECIs who have passed the exam between 03/01/2018 – 02/28/2019: 54.
    - Total listed DECIs (to date): 139 (DECI completed certification process).
    - DECIs have a recertification process every (3) years. Current cycle 2017-2020.

D.2 Erosion and Sediment Control BMPs

Measurable Goal(s):

- Continue to enforce the countywide WDO.
- Complete TRM update and work toward final approval and publication of the document.

Year 16 QLP activities:

- SMC continues to enforce the countywide WDO.
- SMC continues to provide technical guidance and reference materials to support the administration and enforcement of the countywide WDO.
- SMC staff distributed 112 precipitation weather notifications. The rainfall reports indicate county rain events with observed precipitation for guidance on construction site runoff SE/SC inspections.

D.3 Other Waste Control Program

Measurable Goal(s):

- Enforce WDO provisions regarding the control of waste and debris at construction sites.

Year 16 QLP activities:

- SMC continues to enforce the countywide WDO.

D.4 Site Plan Review Procedures

Measurable Goal(s):

- Track number of enforcement officers who have passed the exam.
- Track number of communities that undergo a performance review.
- Complete ordinance administration and enforcement chapter of TRM.

Year 16 QLP activities:

- SMC continues to track the number of enforcement officers (EOs) who have passed the EO exam and have become EOs. Per records, as of the end of Year 16, there are 91 EOs certified in Lake County.
- The list of EOs representing Certified Communities is continually updated and is maintained on the SMC website, (URL hyperlink).
- In accordance with the amended countywide WDO, the certification process is every 5 years, (URL hyperlink). The community re-certification process, which includes a performance review of all 53 certified and non-certified communities for permitted development compliance.
- The SMC website includes guidance information to supplement the TRM related to WDO interpretation as well as ordinance administration and enforcement.

D.5 Public Information Handling Procedures

Measurable Goal(s):

- Track number of complaints received and processed related to soil erosion and sediment control (SE/SC).

Year 16 QLP activities:

- SMC continues to track the number of complaints received and processed related to soil erosion and sediment control.
- According to records, between March 1, 2018 and February 28, 2019, 8 SE/SC complaints were received and processed by SMC staff.

D.6 Site Inspection/Enforcement Procedures

Measurable Goal(s):

- Track number of site inspections conducted by SMC.

Year 16 QLP activities:

- SMC continues to track the number of site inspections conducted by SMC staff.
- According to records, between March 1, 2018 and February 28, 2019, 655 site inspections were conducted by SMC staff.
- SMC staff distributed 113 rainfall weather notifications. The rainfall reports indicate county rain events with observed precipitation for construction site runoff SE/SC inspections.

E. Post-Construction Runoff Control

E.2 Regulatory Control Program

Measurable Goal(s):

- Continue to enforce the countywide WDO.

Year 16 QLP activities:

- SMC continues to enforce the countywide WDO.

E.3 Long Term O&M Procedures

Measurable Goal(s):

- Continue to enforce the countywide WDO.

Year 16 QLP activities:
- SMC continues to enforce the countywide WDO.

E.4 Pre-Construction Review of BMP Designs

Measurable Goal(s):
- Continue to enforce the countywide WDO.

Year 16 QLP activities:
- SMC continues to enforce the countywide WDO.

E.5 Site Inspections During Construction

Measurable Goal(s):
- Continue to enforce the countywide WDO.

Year 16 QLP activities:
- SMC continues to enforce the countywide WDO.

E.6 Post-Construction Inspections

Measurable Goal(s):
- Continue to enforce the countywide WDO.

Year 16 QLP activities:
- SMC continues to enforce the countywide WDO.

E.7 Other Post-Construction Runoff Controls

Measurable Goal(s):
- Conduct annual Watershed Management Board (WMB) meeting.
- Contribute funding to flood reduction and water quality improvement projects, including stormwater retrofits, through the WMB.

Year 16 QLP activities:
- The annual WMB meeting was held on Dec. 5, 2018.
- At the annual WMB meeting 6 Projects were selected to receive $170,760 of funding through the SMC grant program. These projects including planning and in the ground project efforts that support flood reduction, water quality improvement, and stormwater retrofit projects.
    - 6 WMB project grants awarded.
    - 3 Stormwater Infrastructure Repair Fund (SIRF) project grant awarded.
    - 1 Watershed Management Assistance (WMAG) project grant awarded.
- SMC staff attended the Des Plaines River Watershed Workgroup green infrastructure training seminar on 11/7/18.
- SMC staff attended the Green Alleys: An Innovative Approach to Stormwater Manage webinar on 3/7/18 (Sustainable City Network).

F. Pollution Prevention/Good Housekeeping

F.1 Employee Training Program

Measurable Goal(s):
- Provide list of available resources to MS4s.
- Sponsor or co-sponsor employee training workshops or events.
- Make available the Excal Visual Municipal Storm Water Pollution Prevention Storm Watch Everyday Best Management Practices training video and testing.

Year 16 QLP activities:
- SMC continues to provide information on training opportunities and training resources to Lake County MS4s.

- SMC sponsored or co-sponsored a number of workshops and events on stormwater-related topics between March 1, 2018 and February 28, 2019. Such workshops and events are described above.
- SMC continues to make available the Excal Visual Storm Watch Municipal Stormwater Pollution Prevention software to Lake County MS4s. According to records, between March 1, 2018 and February 28, 2019, six (6) MS4s borrowed the Excal Visual software.
- SMC made available in 2018, the Excal Visual "IDDE - A Grate Concern" DVD. The 14¼ minute video focuses on the hazards of illicit discharges and shows and trains government employees and contractors on IDDE and how to spot them. Four (4) MS4s borrowed the Excal Visual software.

F.5 Flood Management/Assess Guidelines

Measurable Goal(s):

- Track number of projects that are reviewed for multi-objective opportunities.

Year 16 QLP activities:

- SMC continues to evaluate all SMC-sponsored projects for multi-objective opportunities, such as flood control and water quality.

F.6 Other Municipal Operations Controls

Winter Roadway Deicing

Measurable Goal(s):

- Advise MS4 communities of watershed groups addressing issues associated with the use of chlorides (i.e. road salt).

Year 16 QLP activities:

- SMC co-sponsored 3 de-icing workshops:
  - Deicing for Parking Lots and Sidewalks 10/01/2018.
  - Deicing Roads 10/02/2018 and 10/03/2018.
  - In total 171 attendees participated in these three workshops.
  - Since 2009 the deicing workshops have had a cumulative attendance of roughly 1,370 attendees.
- A de-icing certification process to promote trained vendors is offered
  - Preferred Providers that successfully completed a Lake County Deicing Training Workshop and passed the Course Exam can be referenced on a Preferred Provider List (URL hyperlink).
  - Certification is through a third-party vendor, Fortin Consulting, Inc.
  - In 2018, 149 preferred providers have been identified based on certification.
- SMC continues to make available chloride reduction documents
  - Too Much Salt in Our Winter Maintenance Recipe - Tips for Managing Snow and Ice at Home, (URL hyperlink).
  - Lake County Winter Parking Lot and Sidewalk Maintenance Manual, (URL hyperlink).
  - Less Salt Equals Less Money, Clean Water, Safe Conditions - Tips for Effective Road Salting, (URL hyperlink).

Part E3. QLP Information and Data Collection Results, Year 16

The QLP did not collect any monitoring data on behalf of Lake County's MS4s during Year 16. However, SMC has reviewed information presented by the Illinois EPA (IEPA) in the 2016 Illinois Integrated Water Quality Report and 303(d) List and has developed the brief "State of Lake County's Waters" report provided below.

State of Lake County's Waters
February 2019

This brief report is based on information contained in the Illinois EPA's 2016 Illinois Integrated Water Quality Report (IIWQR) and Section 303(d) List, dated July 2016. Its purpose is to provide basic information to Lake County's MS4 communities on the condition of surface waters within Lake County. More detailed information about the condition of surface waters in Lake County can be found in the Illinois EPA's 2016 Illinois Integrated Water Quality Report and Section 303(d) List.

The Illinois EPA's 2016 IIWQR and Section 303(d) List assesses the condition of surface water within streams, inland lakes, and Lake Michigan waters. The IEPA assessment of surface water conditions is based on a degree of support (attainment) of a designated use within a stream segment, inland lake or within Lake Michigan. Determination designation is through an analysis of various types of information: including biological, physicochemical, physical habitat, and toxicity data. 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, public and food-processing water supply, and aesthetic quality. When sufficient data is available the IEPA assesses each applicable designation as Fully Supporting (Good resource quality), Not Supporting (Fair or Poor resource quality), Not Assessed or Insufficient Information. Uses determined to be Not Supporting are called "impaired," and waters that have at least one-use assessment as Not Supporting are also called impaired as designated within the 303(d) list.

Streams

An analysis of data accompanying the Illinois EPA's 2016 IIWQR and Section 303(d) List shows that 179.68 stream miles in Lake County have been assessed by the Illinois EPA for attainment of at least one designated use per the IIWQR Appendix B-2. Specific Assessment Information for Streams, 2016.

An analysis of data accompanying the Illinois EPA's 2016 Illinois Integrated Water Quality Report and Section 303(d) List shows that 157.84 stream miles (of the 179.68 stream miles that have been assessed) in Lake County are considered impaired by the Illinois EPA. These stream segments have been mapped and are shown in Figure E3.1.

An analysis of the 2014 impaired streams to the 2016 impaired streams, indicates 8 stream miles previously listed in the 2014 303(d) list have new data indicating aquatic life is now "Fully Supported" and applicable water quality standards have been attained; these waters are no longer included in the 2016 303(d) list. The IIWQR mentions there is no specified reason for the recovery.

Table E3.1 2014 303(d) streams removed from 2016 303(d) list

Assessment ID	Name	Miles		Assessment ID	Name	Miles
IL_G-08	Des Plaines River	0.98		IL_QE-01	Dead Dog Creek	4.02
IL_GV-01	Bull Creek	2.33		IL_DTZS-01	Flint Creek	9.66
IL_RGZB	Hastings Lake	0.34		IL_RTJ	Long Lake	2.85
IL_DT-35	Fox River	5.03		IL_RHK	Eleanor Lake	0.36

IL_HCCB-05	West Fork North Branch	5.73		IL_GWA	North Mill Creek	6.62
IL_GST	Buffalo Creek	8.77		IL_RGZE	Slough Lake	0.42
IL_RGZA	Crooked Lake	1.00				

An analysis of the 2014 impaired streams to the 2016 impaired streams indicates 27 stream miles previously not listed in the 2014 303(d) list are now considered impaired in the 2016 303(d) list as new data indicates impairments.

Table E3.2 Stream Segments added to 2016 303(d) list not previously listed in 2014						
Assessment ID	Name	Miles		Assessment ID	Name	Miles
IL_HCCB-05	West Fork North Branch Chicago River	0.002		IL_QC-03	Waukegan River	1.47
IL_DTRA-W-C1	Fiddle Creek	0.003		IL_GU-02	Indian Creek	11.32
IL_GW-02	Mill Creek	12.96		IL_QA-C4	Pettibone Creek	1.24

Lakes

An analysis of data accompanying the Illinois EPA's 2016 IIWQR and Section 303(d) List shows that 170 inland lakes in Lake County have been assessed by the Illinois EPA for attainment of at least one designated use per the IIWQR Appendix B-3. Specific Assessment Information for Lakes, 2016.

An analysis of data accompanying the Illinois EPA's 2016 IIWQR and Section 303(d) List shows that 140 inland lakes, of the 170 assessed, in Lake County are considered impaired by the Illinois EPA. These lakes have been mapped and are shown in Figure E3.1.

An analysis of the 2014 impaired lakes to the 2016 impaired lakes indicates 5 lakes previously not listed in the 2014 303(d) list are now considered impaired in the 2016 303(d) list as new data indicates impairments.

Table E3.3 Inland Lakes added to 2016 303(d) list not previously listed in 2014						
Assessment ID	Name	Acres		Assessment ID	Name	Acres
IL_RGZD	Miltmore	83.1		IL_VGW	Rollins Savanna #1	8
IL_RGK	Grays	80		IL_VGX	Rollins Savanna #2	53
IL_SGZ	Briarcrest Pond	4				

Lake Michigan

Lake Michigan is monitored by the Illinois EPA through the Lake Michigan Monitoring Program. Bordering Cook and Lake Counties, the State of Illinois has jurisdiction over approximately 1,526 square miles of open water, 13 harbors, and 64 shoreline miles of Lake Michigan.

Located within Illinois is 196 square miles of open water of Lake Michigan, or about thirteen percent of the total open water located within Illinois. These waters were assessed for the 2016 IIWQR and Section 303(d) List, and all 196 assessed square miles were rated as Fully Supporting for the following uses: aquatic life use, primary contact use, secondary contact use, and public and food processing water supply use. However, fish consumption uses in all 196 assessed square miles of open water was rated as Not Supporting due to contamination from polychlorinated biphenyls (PCBs) and mercury. Additionally, aesthetic quality use in all 196 assessed square miles of open water was rated as Not Supporting due to exceedances of the Lake Michigan open water standard for total phosphorus. It should be noted that such

exceedances do not necessarily indicate that there are offensive conditions in Lake Michigan due to excessive algal or aquatic plant growth.

Along Illinois' Lake Michigan coastline, four of the 13 harbors are currently assessed in the 2016 IIWQR and Section 303(d) List, for several different designated uses. The Illinois EPA uses data collected from the Lake Michigan Monitoring Program harbor component to assess water quality for the following designated uses:

- Aesthetic Quality, a 0.18 sq. mi area was assessed, with 0.12 sq. mi fully supporting and 0.06 sq. mi Not Supporting (poor).
- Aquatic Life, a 3.88 sq. mi area was assessed, with 3.82 sq. mi fully supporting and 0.06 sq. mi Not Supporting (poor).
- Fish Consumption, a 2.62 sq. mi area was assessed, with 2.62 sq. mi Not Supporting (poor).
- Primary and Secondary Contact were not assessed.

Table C-10 of the IIWQR, lists potential causes of impairment in the harbors of Lake Michigan that can include Pesticides, Organic Pollutants, Metal Pollutants as well as polychlorinated biphenyls (PCBs), mercury, bottom deposits, lead, zinc, cadmium, arsenic, phosphorus, copper, and chromium.

Along Illinois' Lake Michigan coastline, a portion of all 64 shoreline miles of Lake Michigan located in Illinois were assessed for the Illinois EPA's 2016 IIWQR and Section 303(d) List for several different designated uses. Contamination sources for Not Supporting is due to polychlorinated biphenyls (PCBs) and mercury and bacterial contamination from Escherichia coli (E. coli) bacteria.

- Aesthetic Quality and Aquatic Life were not assessed.
- Fish Consumption, 64 mi area was assessed, with 64 mi Not Supporting (poor).
- Primary Contact, 64 mi area was assessed, with 5.5 mi fully supporting and 58.5 mi Not Supporting (poor).
- Secondary Contact, 5.5 mi area was assessed, with 5.5 mi fully supporting.

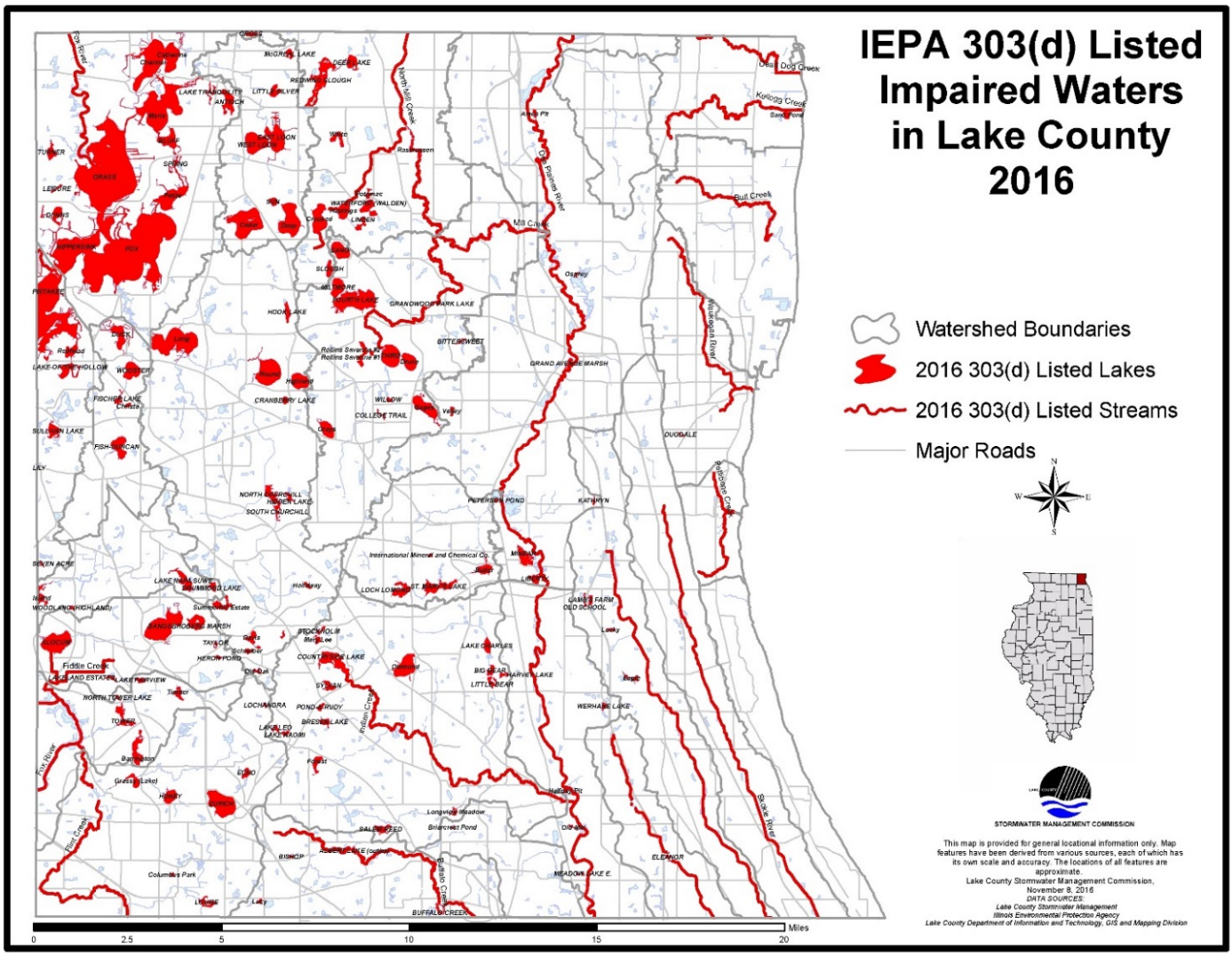
IEPA 303(d) Listed Impaired Waters in Lake County 2016
Watershed Boundaries
2016 303(d) Listed Lakes
2016 303(d) Listed Streams
Major Roads
STORMWATER MANAGEMENT COMMISSION
This map is provided for general locational information only. Map features have been derived from various sources, each of which has its own scale and accuracy. The locations of all features are approximate.
Lake County Stormwater Management Commission, November 8, 2016
DATA SOURCES:
Lake County Stormwater Management
Illinois Environmental Protection Agency
Lake County Department of Information and Technology, GIS and Mapping Division
Miles
0
2.5
5
10
15
20

Figure E3.1

Monitoring

The Des Plaines River Watershed Workgroup (DRWW) monitors water quality in the Des Plaines River and tributaries to accurately identify the quality of the river ecosystems as well as stressors associated with non-attainment of water quality standards and designated uses. During the current YR16 reporting period, DRWW's monitoring program includes: Water/Sediment sampling and analysis at 71 Monitoring Locations for 2018; Bioassessment monitoring at 20 monitoring locations; Continuous water quality monitoring with data sondes and Chlorophyll a sampling and analysis at 14 Monitoring Locations; and Flow Monitoring data collection at 21 sites. An annual water chemistry monitoring report was submitted to Illinois EPA on behalf of DRWW members in March 2019, which covers the NPDES II monitoring requirements for MS4 communities that are DRWW members. The Des Plaines River Watershed Monitoring Strategy was also updated and submitted to Illinois EPA in March 2018. The MS4 is currently a DRWW member for the reporting year (URL: http://www.drww.org/members).

The North Branch Watershed Workgroup (NBWW) monitors water quality in the North Branch of the Chicago River and tributaries to accurately identify the quality of the river ecosystems as well as stressors associated with non-attainment of water quality standards and designated uses. Monitoring data will allow for a greater understanding of the water quality impairments, identify priority restoration activities, and track water quality improvements. The Workgroup is committed to an approach for attaining water quality standards that focuses on stakeholder involvement, monitoring, and locally led decision-making based on sound science. Comprehensive baseline monitoring has been completed at all 25 sites for water column chemistry and sampled 11 sites for fish, habitat, macroinvertebrate, and sediment chemistry. Data sondes were deployed at 7 sites in the Middle Fork and Skokie River for collection of dissolved oxygen (D.O), pH, temperature, and specific conductance. The NBWW will continue to support the North Branch Watershed Planning Committee and the North Branch Watershed Consortium through regular discussion at general meetings. MS4 communities that are currently NBWW members for the reporting year are located at (URL: www.nbwwil.org).

The LCHD Lakes Management Unit has been collecting water quality data on Lake County lakes since the late 1960s. Since 2000, 176 different lakes each year have been studied and data collected on temperature, dissolved oxygen, phosphorus, nitrogen, solids, pH, alkalinity, chloride, conductivity, water clarity, the plant community and shoreline characteristics. Lake summary reports can be found, (URL hyperlink). This data is used as part of ongoing watershed planning efforts throughout the county, which result in specific programmatic and site-specific recommendations throughout the county. SMC is currently developing an application to assist communities in identifying potential site-specific recommendations within their jurisdictional boundaries.

Part E4. QLP Summary of Year 17 Stormwater Activities

The table below indicates the stormwater management activities that the QLP plans to undertake during Year 17. Additional information about the BMPs and measurable goals that the QLP will implement during Year 17 is provided in the section following the table.

Note: "X" indicates BMPs that will be implemented during Year 17

Year 17 QLP	
A. Public Education and Outreach	
X	A.1 Distributed Paper Material
X	A.2 Speaking Engagement
X	A.3 Public Service Announcement
X	A.4 Community Event
X	A.5 Classroom Education Material
X	A.6 Other Public Education
B. Public Participation/Involvement	
X	B.1 Public Panel
	B.2 Educational Volunteer
X	B.3 Stakeholder Meeting
	B.4 Public Hearing
	B.5 Volunteer Monitoring
X	B.6 Program Coordination
	B.7 Other Public Involvement
C. Illicit Discharge Detection and Elimination	
	C.1 Storm Sewer Map Preparation
X	C.2 Regulatory Control Program
	C.3 Detection/Elimination Prioritization Plan
	C.4 Illicit Discharge Tracing Procedures
	C.5 Illicit Source Removal Procedures
	C.6 Program Evaluation and Assessment
	C.7 Visual Dry Weather Screening
	C.8 Pollutant Field Testing
	C.9 Public Notification
X	C.10 Other Illicit Discharge Controls

Year 17 QLP	
D. Construction Site Runoff Control	
X	D.1 Regulatory Control Program
X	D.2 Erosion and Sediment Control BMPs
X	D.3 Other Waste Control Program
X	D.4 Site Plan Review Procedures
X	D.5 Public Information Handling Procedures
X	D.6 Site Inspection/Enforcement Procedures
	D.7 Other Construction Site Runoff Controls
E. Post-Construction Runoff Control	
	E.1 Community Control Strategy
X	E.2 Regulatory Control Program
X	E.3 Long Term O&M Procedures
X	E.4 Pre-Const Review of BMP Designs
X	E.5 Site Inspections During Construction
X	E.6 Post-Construction Inspections
X	E.7 Other Post-Const Runoff Controls
F. Pollution Prevention/Good Housekeeping	
X	F.1 Employee Training Program
	F.2 Inspection and Maintenance Program
	F.3 Municipal Operations Storm Water Control
	F.4 Municipal Operations Waste Disposal
X	F.5 Flood Management/Assess Guidelines
X	F.6 Other Municipal Operations Controls

The Lake County Stormwater Management Commission (SMC) is a Qualifying Local Program for MS4s in Lake County. SMC has been providing services under four of the six minimum control categories since it began implementing a comprehensive, countywide stormwater program in 1991. The revised SMPP template clarifies and emphasizes the significant efforts by SMC related to each of the six minimum control measures. These QLP commitments provide Lake County with a baseline Countywide stormwater management program that can be built upon by each of the individual MS4s.

During Year 17, SMC remains committed to performing a variety of stormwater management activities across the County, these commitments are now specifically outlined in the SMPP template. SMC program is continually evolving, to better assist Lake County MS4s in meeting the requirements of the 2016-2021 MS4 Permit.

A. Public Education and Outreach

SMC will continue to support Lake County MS4s in the development and implementation of their stormwater management programs by performing activities related to the Public Education and Outreach minimum control measure, as described below.

A.1 Distributed Paper Material

SMC compiles, develops, and distributes throughout Lake County a variety of materials related to stormwater management.

Measurable Goal(s):

- Develop and Distribute informational materials from "take away" rack at SMC.
- Upon request, distribute informational materials directly to Lake County MS4s for local distribution.

A.2 Speaking Engagement

SMC provides educational presentations related to IEPA's NPDES Stormwater Program on a regular basis at Municipal Advisory Committee (MAC) meetings. Upon request, SMC will provide educational presentations related to IEPA's NPDES Stormwater Program to Lake County MS4s.

Measurable Goal(s):

- Provide educational presentations related to IEPA's NPDES Stormwater Program at MAC meetings.
- Upon request, provide educational presentations related to IEPA's NPDES Stormwater Program to Lake County MS4s.

A.3 Public Service Announcement

SMC performs extensive Social Media Outreach & Announcement Activities. Public service announcement related to IEPA's NPDES Stormwater Program or Stormwater BMPs are included in SMC's watershed E-News. SMC also utilizes social media and coordinates with the Lake County Department of Transportation (LCDOT) to post watershed identification signage in watersheds where watershed planning activities have occurred or are occurring.

Measurable Goal(s):

- Include public service announcements related to IEPA's NPDES Stormwater Program or stormwater BMPs in watershed E-News at least once each year.
- Post watershed identification signage in cooperation and collaboration with LCDOT.
- Provide information via social media (Facebook and Twitter).

A.4 Outreach Events

SMC sponsors and co-sponsors educational and technical training workshops on a variety of stormwater management-related topics. Each year, SMC will sponsor or co-sponsor at least one

workshop on a topic related to IEPA's NPDES Stormwater Program, such as soil erosion and sediment control, illicit discharge detection and elimination, or stormwater best management practices (BMPs) that can be used to protect and improve water quality.

Measurable Goal(s):

- Sponsor or co-sponsor workshop on stormwater-related topics.
- Track workshops and events.

A.5 Classroom Education Material

Upon request, SMC will contribute to the development and compilation of material for inclusion in a stormwater education kit that can be distributed to local students and teachers and/or other local stakeholders. Additionally, upon request, SMC will provide information, materials, and training to local students and teachers and/or other local stakeholders interested in conducting storm drain stenciling.

Measurable Goal(s):

- Upon request, develop and compile materials for inclusion in a stormwater education kit.
- Upon request, provide information, materials, and training to local students and teachers and/or stakeholders interested in conducting storm drain stenciling.

A.6 Other Public Education

SMC maintains a website that contains a variety of materials and resources related to stormwater management. The website provides information about IEPA's NPDES Stormwater Program, provide information about stormwater best management practices (BMPs), allow for download of stormwater management-related publications and documents, provide notices of upcoming meetings and ongoing projects, includes watershed plans and watershed workgroup information, and provide links to a number of other stormwater management-related resources

Measurable Goal(s):

- Maintain and update the portion of the SMC website dedicated to IEPA's NPDES Stormwater Program with resources such as model ordinances, case studies, brochures, and links including information related to climate change.
- Make "The Big Picture: Water Quality, Regulations & NPDES" presentation available to Lake County MS4s.
- Make available via the Lake County SMC website, Community Awareness Illicit Discharge Education and Elimination Videos. The online videos are available in English and Spanish; English version, (URL hyperlink); Spanish version (URL hyperlink).

B. Public Participation/Involvement

SMC will continue to support Lake County MS4s in the development and implementation of their stormwater management programs by performing activities related to the Public Participation/Involvement minimum control measure, as described below.

B.1 Public Panel

SMC provides procedural guidance and implements its Citizen Inquiry Response System (CIRS) for receiving and taking action on information provided by the public regarding post-construction stormwater runoff control. SMC coordinates and conducts public meetings as well as committee meetings that are open to the public.

Measurable Goal(s):

- Implement and provide guidance on existing CIRS procedures.
- Provide notice of public meetings on SMC website.
- Track number of meetings conducted.

B.3 Stakeholder Meeting

SMC is actively involved in watershed planning throughout Lake County. SMC believes that the watershed planning process cannot happen and will not be successful without the input, interest, and commitment of the watershed stakeholders. Watershed stakeholders may include municipalities, townships, drainage districts, homeowner associations, lakes management associations, developers, landowners, and local, county, state, and federal agencies.

Measurable Goal(s):

- Provide notice of stakeholder meetings on SMC website.
- Track number of watershed committee meetings conducted.
- Establish watershed planning committees for each new watershed planning effort.

B.6 Program Involvement

Consistent with Lake County's comprehensive, countywide approach to stormwater management, SMC serves as a Qualifying Local Program (QLP) for all Lake County MS4s. In this role, in 2002, SMC proactively formed the Municipal Advisory Committee (MAC) to provide a forum for representatives of local MS4s, which include municipalities, townships, and drainage districts, to discuss, among other topics, the implementation of IEPA's NPDES Stormwater Program. SMC will continue to facilitate MAC meetings and will continue to provide general support to Lake County MS4s as they continue to develop and implement their stormwater management programs. SMC will prepare an annual report on its stormwater management activities and will provide guidance to Lake County MS4s in preparing their own annual reports.

Measurable Goal(s):

- Track number of MAC meetings conducted.
- Prepare annual report template for use by Lake County MS4s including a description of the Qualifying Local Program stormwater management activities.
- Prepare/maintain SMPP template for use by Lake County MS4s in creating their own SMPP.

C. Illicit Discharge Detection and Elimination

SMC will continue to support Lake County MS4s in the development and implementation of their stormwater management programs by performing activities related to the Illicit Discharge Detection and Elimination minimum control measure, as described below. Note, however, that the primary responsibility for the implementation of the Illicit Discharge Detection and Elimination minimum control measure lies with the MS4.

Measurable Goal(s):

- Continue to make available information regarding prioritization of outfalls for illicit discharge screening activities.
- Continue to make available compiled GIS data related to the County's existing stormwater infrastructure (e.g. storm sewer atlases, stream inventories and detention basin inventories).

C.2 Regulatory Control Program

SMC provides local MS4s with model and example illicit discharge ordinances that prohibit all non-stormwater discharges, including illegal dumping, to the storm sewer system. Additionally, the WDO includes provisions that prohibit illicit discharges to the storm sewer system during construction (i.e., prior to final site stabilization) on development sites.

Measurable Goal(s):

- Provide model and example illicit discharge ordinances to Lake County MS4s.
- Continue to administer and enforce the WDO.

C.10 Other Illicit Discharge Controls

SMC regularly sponsors and co-sponsors educational and technical training workshops on a variety of stormwater management-related topics.

Measurable Goal(s):

- Sponsor or co-sponsor and track the number of attendees at an Illicit Discharge Detection and Elimination workshop or other training workshop related to IEPA's NPDES Stormwater Program.
- Distribute informational materials about the hazards of illicit discharges and illegal dumping from "take away" rack at SMC and SMC website.

D. Construction Site Runoff Control

Lake County has adopted a countywide Watershed Development Ordinance (WDO) that establishes the minimum stormwater management requirements for development in Lake County, including requirements for construction site runoff control.

D.1 Regulatory Control Program

The WDO is the regulatory mechanism that requires the use of soil erosion and sediment controls on development sites throughout Lake County. SMC has also created a Designated Erosion Control Inspector (DECI) program, a program designed to closely mirror the inspection requirements of IEPA's General NPDES Permit No. ILR10.

Measurable Goal(s):

- Continue to administer and enforce the WDO.
- Continue to administer the Designated Erosion Control Inspector (DECI) program outlined by the WDO.

D.2 Erosion and Sediment Control BMPs

§600 of the WDO specifies the soil erosion and sediment control measures that must be used in conjunction with any land disturbing activities conducted on a development site. SMC maintains technical guidance resources and documents to accompany the WDO.

Measurable Goal(s):

- Continue to administer and enforce the WDO.
- Continue to maintain technical guidance documents.

D.3 Other Waste Control Program

The WDO includes several provisions that address illicit discharges generated by construction sites. The applicant is required to prohibit the dumping, depositing, dropping, throwing, discarding, or leaving of litter and construction material and all other illicit discharges from entering the stormwater management system.

Measurable Goal(s):

- Continue to administer and enforce the provisions of the WDO related to the control of waste and debris during construction on development sites.

D.4 Site Plan Review Procedures

A community's designated enforcement officer is responsible for reviewing and permitting development plans and for administering and enforcing the provision of the WDO. Within certified communities the responsibility lies with the MS4; within non-certified communities the designated enforcement officer is SMC's chief engineer. SMC administers this enforcement officer program, providing training on an as-needed basis to all enforcement officers to assist them in passing the exam, and maintains an up-to-date list identifying each community's designated enforcement officer. In addition to administering the enforcement officer program, SMC periodically reviews each community's WDO administration and enforcement records,

using the results of such review to evaluate the performance of certified communities and designated enforcement officers.

Measurable Goal(s):

- Administer the Enforcement Officer (EO) program outlined by the WDO.
- Maintain an up-to-date list identifying each community's designated enforcement officer.
- Periodically review each community's WDO administration and enforcement records. Re-Certification Procedure.
- Continue to maintain technical guidance documents.

D.5 Public Information Handling Procedures

SMC provides a number of opportunities for the receipt and consideration of information submitted by the public.

Measurable Goal(s):

- Document and track the number of soil erosion and sediment control-related complaints received and processed by SMC.

D.6 Site Inspection/Enforcement Procedures

Article 11 of the WDO contains both recommended and minimum requirements for the inspection of development sites. Within certified communities, the community's designated enforcement officer is responsible for conducting these inspections; within certified communities, SMC's chief engineer is responsible for conducting these inspections. Article 12 of the WDO specifies the legal actions that may be taken and the penalties that may be imposed if the provisions of the WDO are violated.

Measurable Goal(s):

- Document and track the number of site inspections conducted by SMC.

E. Post-Construction Runoff Control

As described above, Lake County has adopted a countywide Watershed Development Ordinance (WDO) that establishes the minimum stormwater management requirements for development in Lake County, including requirements for post-construction runoff control.

E.2 Regulatory Control Program

Proposed stormwater management strategies must address the runoff volume reduction requirements described in §503 of the WDO and must include appropriate stormwater BMPs to address the other applicable post-construction runoff control requirements of the WDO.

Measurable Goal(s):

- Continue to administer and enforce the WDO.

E.3 Long Term O&M Procedures

§401 of the WDO requires that maintenance plans be developed for all stormwater management systems and, §500 further details deed or plat restriction requirements for all stormwater management systems.

Measurable Goal(s):

- Continue to administer and enforce the WDO.

E.4 Pre-Construction Review of BMP Designs

As described above, a community's designated enforcement officer is responsible for reviewing and permitting development plans and for administering and enforcing the provisions of the WDO. This includes a review of the stormwater BMPs that will be used to meet the post-construction runoff control requirements of the WDO and adherence to the Runoff Volume Reduction standards of §503.

Measurable Goal(s):

- Continue to administer and enforce the WDO.

E.5 Site Inspections During Construction

As described above in MCM D.6 Article 11 of the WDO contains both recommended and minimum requirements for the inspection of development sites.

Measurable Goal(s):

- Continue to administer and enforce the WDO.

E.6 Post-Construction Inspections

SMC has collaborated on a number of watershed-based plans throughout the County. These watershed plans included a stream and detention basin inventories. The plans also include a list of site-specific best management practices within various communities based on an assessment of these inventories and other data. SMC is currently developing an application to assist communities in identifying potential project sites, recommended in adopted watershed plans, within their jurisdictional boundaries.

Measurable Goal(s):

- Continue to administer and enforce the WDO.
- Develop an application, for use by MS4s, to identify adopted watershed plan recommendations within their communities.
- Watershed Planning Status Map, (URL hyperlink).
- Lake County Watershed Based Plans, (URL hyperlink).

E.7 Other Post-Construction Runoff Controls

Through the Watershed Management Board (WMB), SMC provides partial funding for flood damage reduction and surface water quality improvement projects. The WMB, which includes representatives from the Lake Michigan, North Branch of the Chicago River, Fox River, and Des Plaines River watersheds, meets annually to review potential projects and to make recommendations on stormwater BMP project funding. Members of the WMB include chief municipal elected officials, township supervisors, drainage district chairmen, and county board members from each district found within each of Lake County's four major watersheds. The goal of the WMB program is to maximize opportunities for local units of government and other groups to have input and influence on the solutions used to address local stormwater management problems. Previous WMB-funded projects have reduced flooding, improved surface water quality, and enhanced existing stormwater management facilities throughout Lake County.

Measurable Goal(s):

- Conduct annual WMB meeting.
- Contribute funding to flood damage reduction and water quality improvement projects through the WMB.

F. Pollution Prevention/Good Housekeeping

SMC will continue to support Lake County MS4s in the development and implementation of their stormwater management programs by performing activities related to the Pollution Prevention/Good Housekeeping minimum control measure, as described below. Note, however, that the primary responsibility for the implementation of the Pollution Prevention/Good Housekeeping minimum control measure lies with the MS4.

F.1 Employee Training Program

SMC will assist Lake County MS4s with the development and implementation of their employee training programs by maintaining a list of known employee training resources and opportunities,

making available a software-based employee training program, and providing technical assistance to local MS4s. In addition, each year, SMC will sponsor or co-sponsor training workshops.

Measurable Goal(s):

- Maintain a list of known employee training resources and opportunities.
- Make available the Excal Visual Storm Watch: Municipal Storm Water Pollution Prevention software-based employee training program.
- Make available the Excal Visual IDDE: A Grate Concern software-based employee training program.
- Sponsor or co-sponsor a training workshop related to pollution prevention/good housekeeping or other training workshop related to IEPA's NPDES Stormwater Program.

F.5 Flood Management/Assess Guidelines

In working toward meeting its primary goals of flood damage reduction and surface water quality improvement, SMC follows a set of stormwater management policies that were created to define its roles and responsibilities for stormwater management in Lake County. One of these policies is to integrate multi-objective opportunities (e.g., flood damage reduction, surface water quality improvement, environmental enhancement) into SMC-sponsored projects. In accordance with this policy, SMC will evaluate all SMC-sponsored projects for multi-objective opportunities.

Measurable Goal(s):

- Track number of SMC-sponsored projects that are reviewed for multi-objective opportunity.

F.6 Other Municipal Operations Controls

SMC develops and distributes chloride reduction documents and materials. Each year, SMC will sponsor or co-sponsor at least one workshop on a topic related to winter de-icing. Lake County also publishes a "Lake County Winter Maintenance Preferred Providers" list. Providers included on this list have successfully completed a Lake County Deicing Training Workshop and passes the associated course exam.

Measurable Goal(s):

- Advise MS4 communities of watershed groups addressing issues associated with the use of chlorides (i.e. road salt).
- Sponsor or co-sponsor at least one workshop on a topic related to winter de-icing.
- Make available chloride reduction documents on take-away racks and the website.

STORMWATER MANAGEMENT PROGRAM PLAN

City OF Lake Forest

LAKE COUNTY, ILLINOIS

February 2018

SMPP

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STORMWATER MANAGMENT PROGRAM PLAN
CITY OF LAKE FOREST, ILLINOIS

TABLE OF CONTENTS

1.0 OVERVIEW OF THE STORMWATER MANAGEMENT PROGRAM PLAN 8
1.1 Introduction 8
1.2 Water Quality Standards 9
1.2.1 Designated Uses 9
1.2.2 Water Quality Criteria 9
1.2.3 Monitoring 9
1.2.4 Total Maximum Daily Load (TMDL) 9
1.3 Watershed, Sub-watersheds and Receiving Waters 10
1.3.1 Watershed Descriptions 10
1.3.1.1 North Branch of the Chicago River Watershed 10
1.3.1.2 Lake Michigan Watershed 13
1.3.1.3 Des Plaines River Watershed 14
1.3.2 Identifying Outfalls (BMP C.1) 15
1.4 Status of Waters 17
1.5 Countywide Approach to NPDES Compliance 19
2.0 PROGRAM MANAGEMENT 21
2.1 Implementation of this SMPP 21
2.2 Intra-Department Coordination 21
2.2.1 Stormwater Coordinator 21
2.2.2 Engineering Department 23
2.2.3 Public Works Department 23
2.3 Coordination with Lake County Stormwater Management Commission 23
2.4 Coordination with Consultants 23
2.5 Coordination of Contractors 23
2.6 Coordination with the Public 24
2.7 Coordination with the IEPA 24
2.8 Coordination with the Development Community 24
3.0 STORMWATER MANAGEMENT PROGRAM – THE QUALIFYING LOCAL PROGRAM 25
3.1 Public Education 25
3.1.1. Distributed Paper Materials (BMP-A.1) 26
3.1.2 Speaking Engagement (BMP-A.2) 26
3.1.3 Public Service Announcement (BMP-A.3) 27

3.1.4 Outreach Events (BMP-A.4) 27
3.1.5 Classroom Educational Material (BMP-A.5) 27
3.1.6 Other Public Educational - Website (BMP-A.6) 28
3.2 Public Outreach 28
3.2.1 Public Panel (BMP-B.1) 28
3.2.2 Stakeholder Meeting (BMP-B.3) 29
3.2.3 Program Involvement (BMP-B.6) 29
3.3 Illicit Discharge Program 29
3.3.1 Regulatory Control Program (BMP-C.2) 30
3.3.2 Other Illicit Discharge Controls (BMP C.10) 30
3.4 Construction Site Runoff Control 30
3.4.1 Regulatory Control Program (BMP D.1) 31
3.4.2 Erosion and Sediment Control BMPs (BMP D.2) 31
3.4.3 Other Waste Control Programs (BMP D.3) 32
3.4.4 Site Plan Review Procedures (BMP D.4, E.4) 32
3.4.5 Site Inspection/Enforcement Procedures (BMP D.6, E.5) 33
3.4.6 Public Information Handling Procedures (BMP D.5) 33
3.4.7 BMP Reference Information 34
3.5 Post-Construction Runoff Control 34
3.5.1 Regulatory Control Program (BMP E.2) 34
3.5.2 Long Term O&M (BMP E.3) 35
3.5.3 Runoff Volume Reduction Hierarchy (BMP E.4) 35
3.5.4 Other Post-Construction Runoff Controls (BMP E.7) 36
3.6 Pollution Prevention / Good Housekeeping 36
3.6.1 Employee Training Program (BMP F.1) 36
3.6.2 Flood Management / Assess Guidelines (BMP F.5) 36
3.6.3 Winter Roadway Deicing (BMP F.6) 37
3.7 Watershed Plans 37
3.7.1 North Branch of the Chicago River Watershed 37
3.7.2 Lake Michigan Watershed 37
4.0 STORM WATER MANAGEMENT PROGRAM PLAN - CITY OF LAKE FOREST PROGRAM 39
4.1 Public Education and Outreach 40
4.1.1 Stormwater Management Policy 41
4.1.2 Distribution of Paper Materials (BMP A.1) 41
4.1.3 Outreach Events (BMP A.4) 42
4.1.4 Other Public Education - Web Site (BMP A.6) 42

4.1.5 Other Public Education – City Newsletter (BMP A.6) ... 43
4.1.6 Storm Drain Stenciling & Markers (BMP A.6) ... 43
4.1.7 Household Hazardous Wastes (BMP A.4) ... 43
4.1.8 Septic System Maintenance (BMP A.6) ... 44
4.1.9 Vehicle Fluid Maintenance (BMP A.6) ... 44
4.1.10 Car / Outdoor Washing (BMP A.6) ... 45
4.1.11 Lawn and Garden Care (BMP A.6) ... 45
4.1.12 Green Infrastructure (BMP A.6) ... 45
4.1.13 Pool Dewatering (BMP A.6) ... 46
4.2 Public Participation and Involvement ... 46
4.2.1 Public Review Process (BMP B.1) ... 46
4.2.2 Environmental Justice Areas ... 47
4.2.3 Complaints, Suggestions and Requests (BMP B.7) ... 47
4.3 Illicit Discharge Detection and Elimination ... 48
4.3.1 Regulatory Authority (BMP C.2) ... 48
4.3.1.1 Watershed Development Ordinance ... 48
4.3.1.2 Illicit Discharge Ordinance ... 49
4.3.1.3 Subdivision and Sediment Grading, Drainage and Erosion Ordinances ... 49
4.3.2 Understanding Outfalls and Illicit Discharges ... 49
4.3.2.1 Potential Sources of Illicit Discharges ... 49
4.3.2.2 Exclusions ... 50
4.3.2.3 Prohibited Discharges ... 50
4.3.3 Indirect Connection Program (BMP C.3) ... 51
4.3.3.1 Groundwater Seepage ... 51
4.3.3.2 Spills ... 51
4.3.3.3 Dumping ... 51
4.3.3.4 Outdoor washing activities ... 51
4.3.3.5 Non-target irrigation from landscaping or lawns ... 52
4.3.4 Direct Connection Illicit Discharge Program (BMP C.3 – C.8) ... 52
4.3.4.1 Program Planning ... 52
4.3.4.2 Outfall Inspection (BMP C.3) ... 53
4.3.4.3 Follow-Up Investigation and Program Evaluation (BMP C.4) ... 55
4.3.4.4 Removal of Illicit Discharges (BMP C.5) ... 56
4.4 Construction Site Runoff Control ... 57
4.4.1 Regulatory Program (BMP D.1) ... 57
4.4.2 Responsible Parties (BMP D.1) ... 58

4.4.2.1 Applicant 58
4.4.2.2 DECI – Designated Inspectors 58
4.4.2.3 Enforcement Officer 59
4.4.2.4 Municipal Contact – Stormwater Coordinator 59
4.4.3 Erosion and Sediment Control BMPs (BMP D.2) 59
4.4.4 Construction Site Waste Control (BMP D.3) 59
4.4.5 Site Plan Review (BMP D.4, E.4) 59
4.4.6 Site Inspection Procedures (BMP D.6, E.5) 60
4.4.7 Public Information Handling Procedures (BMP D.5) 61
4.4.8 Performance Guarantees (BMP D.6) 61
4.4.9 Violation Notification Procedures (BMP B.6) 61
4.5 Post Construction Runoff Control 62
4.5.1 Regulatory Program (BMP E.2) 62
4.5.2 Long Term Operation and Maintenance (BMP E.3) 62
4.5.3 Runoff Volume Reduction Hierarchy (BMP E.4) 63
4.5.4 Watershed Plans (BMP E.7) 63
4.5.5 Site Inspections (BMP E.6) 63
4.5.5.1 Shorelines, Streambanks and Stream Bed Sediment Accumulation 63
4.5.5.2 Detention / Retention Pond 65
4.6 Pollution Prevention and Good Housekeeping 66
4.6.1 Inspection and Maintenance Program (BMPs F.2 – F.4) 66
4.6.1.1 Schedule 66
4.6.1.2 Housekeeping BMPs 66
4.6.1.3 Street Sweeping 67
4.6.1.4 Drainageways 67
4.6.1.5 Landscape Maintenance 68
4.6.1.6 Snow Removal and Ice Control 69
4.6.1.7 Vehicle and Equipment Operations 69
4.6.1.8 Animal Nuisance Control 70
4.6.1.9 Chemical, Oil and Waste Management (BMP F.4) 70
4.6.1.11 Water Conservation & Irrigation 71
4.6.1.12 Green Infrastructure 71
4.6.1.13 Special Events 71
4.6.2 Spill Response Plan (BMP F.6, C.9) 72
4.6.2.2 Spill Prevention 72
4.6.2.2 Non-Hazardous Spills/Dumping 72

4.6.2.3 Hazardous Spills 73
4.6.2.3 Employee Training (BMP F.1) 73
5.0 Program and Performance Monitoring, Evaluation and Reporting 75
5.1 Monitoring Program 75
5.1.1 Lake and Beach Monitoring - Lake County Health Department 75
5.1.1.1 Lake Michigan 76
5.1.1.2 Inland Beaches 76
5.1.2 Ravine Monitoring - SCM and City of Lake Forest 78
5.1.3 Other Community Monitoring - City of Lake Forest 78
5.2 Program Evaluation (BMP C.6) 78
5.2.1 Monitoring Program Evaluation 80
5.2.2 IDDE Program Evaluation 80
5.2.3 SMPP Document Evaluation 81

FIGURES

1 Lake County Watersheds and Subwatersheds 10
2 North Branch Chicago River Watershed 11
3 Lake Michigan Watershed 13
4 Lake Forest MS4 Outfalls
5 Status Lake Forest Receiving Waters
6 Roles of the MS4
7 Watershed-Based Plan Status
8 SMC Stream and Detention Basin Inventory Status
9 Impaired Lake Michigan Segments
10 Additional Community Monitoring Locations

TABLES

1 Water Quality Standards - Status of Receiving Waters Located in Lake Forest

APPENDICIES

A YEARLY TRACKING FORM
B DEWATERING FACT SHEET
C DESCRIPTION OF POLLUTANT INDICATORS
D ILLICIT DISCHARGE INCIDENT TRACKING FORMS
E STORM WATER OUTFALL SCREENING EQUIPMENT CHECKLIST
F STORM WATER OUTFALL INSPECTION DATA FORMAND INSTRUCTIONS
G PRE-CONSTRUCTION MEETING FORM

H	SE/SC INSPECTION FORM
I	SAMPLE NOTICE OF VIOLATION LETTERS
J	SAMPLE MAINTENANCE PLAN
K	SPILL RESPONSE NOTICE

ABBREVIATIONS AND ACRONYMS	
BMP	Best Management Practices
CIRS	Citizen Inquiry Response System
CMAP	Chicago Metropolitan Agency for Planning
CWA	Clean Water Act
CWP	Center for Watershed Protection
DECI	Designated Erosion Control Inspector
EOPCC	Engineers Opinion of Probable Construction Cost
I&M	Inspection and Maintenance
IDDE	Illicit Discharge Detection and Elimination
IDOT	Illinois Department of Transportation
IEPA	Illinois Environmental Protection Agency
ION	Incidence of Non-compliance (with IEPA)
LCDOT	Lake County Division of Transportation
LFCEL	Lake Forest Collaborative for Environmental Leadership
LMU	Lakes Management Unit of Lake County
MAC	Municipal Advisory Committee of Lake County
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer Systems
NRCS	Natural Resources Conservation Service
NOI	Notice of Intent
NOT	Notice of Termination (with IEPA)
NPDES	National Pollutant Discharge Elimination System
QLP	Qualify Local Program
RVR	Runoff Volume Reduction
SE/SC	Soil Erosion and Sediment Control
SMC	Lake County Stormwater Management Commission
SWALCO	Solid Waste Agency of Lake County
SMPP	Stormwater Management Program Plan
SPCC	Spill Prevention Countermeasure and Control
TAC	Technical Advisory Committee of Lake County
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
USACE	United States Army Corps of Engineers
WDO	Lake County Watershed Development Ordinance
WDP	Watershed Development Permit
WMB	Watershed Management Board

1.0 OVERVIEW OF THE STORMWATER MANAGEMENT PROGRAM PLAN

1.1 Introduction

This Stormwater Management Program Plan (SMPP) was developed by the City of Lake Forest utilizing a SMPP template provided by the Lake County Stormwater Management Commission (SMC). 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), located partially or fully in urbanized areas based on the 2000 census, obtain stormwater permits for their discharges into receiving waters. The Illinois Environmental Protection Agency (IEPA) has issued a new version of its MS4 Permit which 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 the City of Lake Forest toward the goal of reducing the discharge of pollutants within stormwater runoff in order to comply with Federal standards. Compliance with the SMPP 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 City of Lake Forest:

- 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.

The NPDES permit process regulates the discharge from MS4s, construction sites and industrial activities based on amendments to the federal Clean Water Act (CWA) made in 1987 and the subsequent regulations promulgated by the USEPA in 1990 and 1999.

In Illinois, the USEPA has delegated administration of the federal NDPES program to the 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 (BMPs) 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.

1.2 Water Quality Standards

The 1987 Water Quality Act also established new requirements and funding, through the CWA Section 319, for states to development 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) development a nonpoint source water pollution plan on a watershed-by-watershed basis. The IEPA created a program to comply with these federal regulations. This program has 3 basic components.

1.2.1 Designated Uses

One of IEPA's first steps in achieving compliance with the CWA was to identify all uses its waters should support. IEPA identified seven designated uses; primary contact, secondary contact, fish consumption, public and food processing water supply, indigenous aquatic life, aquatic life and aesthetic quality. Then, each navigable water was evaluated to identify the designated uses it should support.

1.2.2 Water Quality Criteria

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

1.2.3 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.

1.2.4 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 of impairment. 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.

1.3 Watershed, Sub-watersheds and Receiving Waters

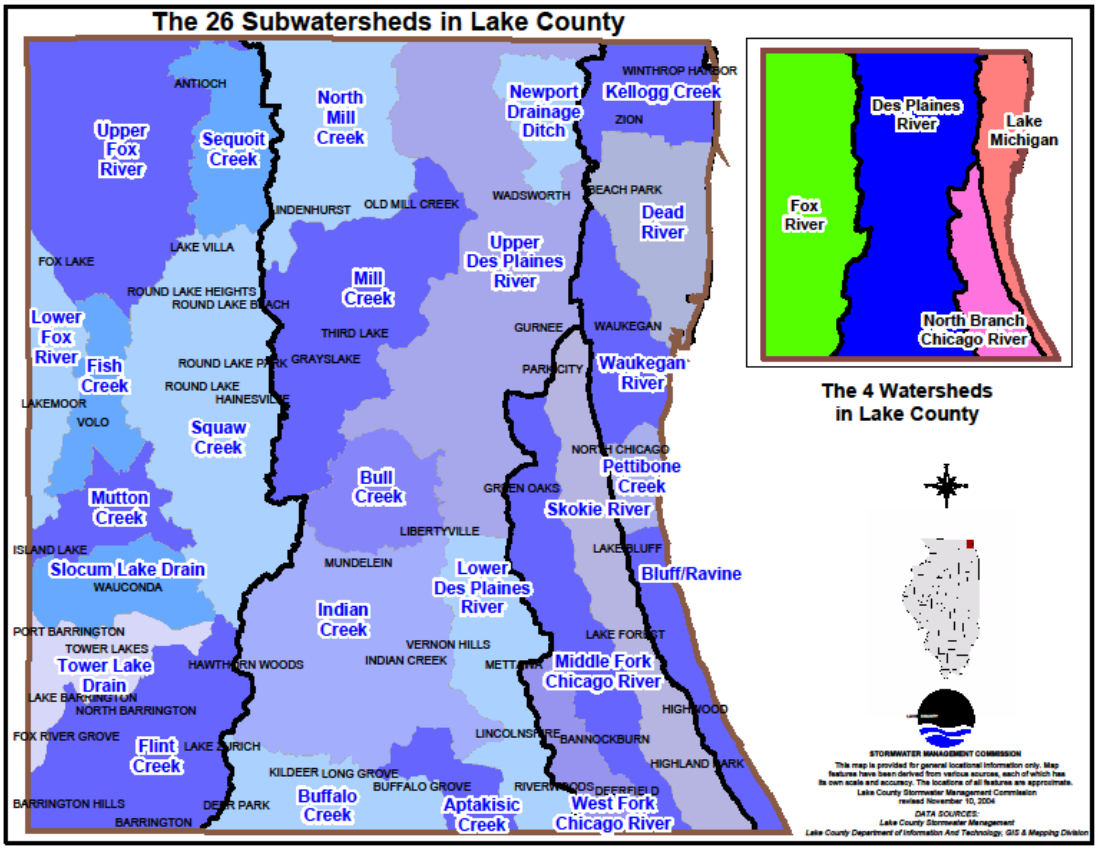


FIGURE 1 - LAKE COUNTY WATERSHEDS

A watershed is the land area that contributes storm water to receiving water. A Receiving Water is a natural or man-made system into which storm water or treated wastewater is discharged. In Lake County, these include three major rivers and their tributary streams (North Branch of the Chicago River, the Des Plaines River and the Fox River), as well as Lake Michigan. A Sub-Watershed is the land area that contributes storm water to a tributary to a receiving water. Figure 1 above depicts the watersheds and subwatersheds in Lake County.

1.3.1 Watershed Descriptions

1.3.1.1 North Branch of the Chicago River Watershed

The majority of the City of Lake Forest lies within the North Branch of the Chicago River watershed. Figure 2 on the following page presents a detailed mapping of this watershed.

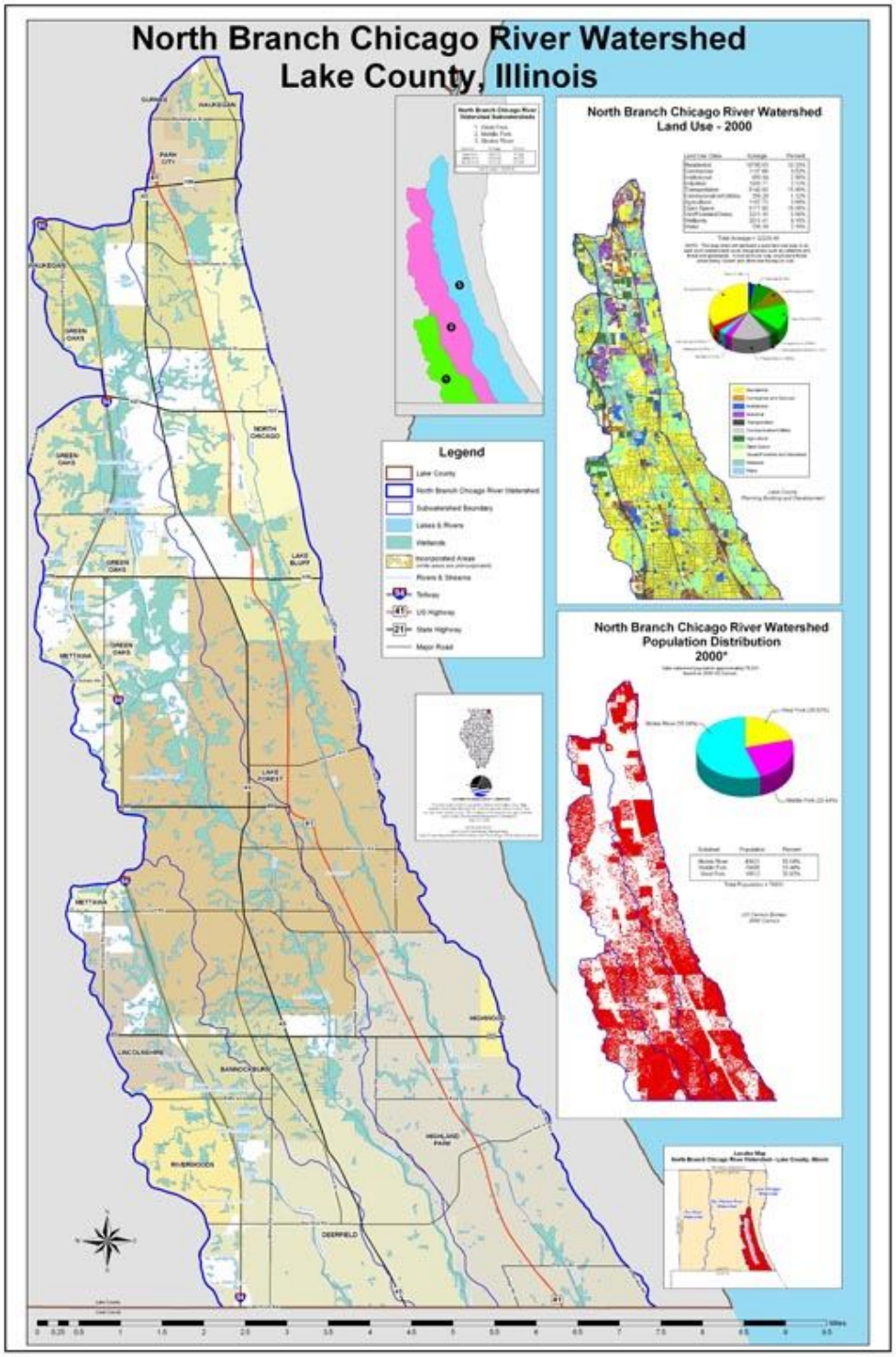

North Branch Chicago River Watershed
Lake County, Illinois
North Branch Chicago River Watershed
Land Use - 2000
North Branch Chicago River Watershed
Population Distribution
2000*
Legend
Lake County
North Branch Chicago River Watershed
Subwatershed Boundary
Lakes & Rivers
Wetlands
Incorporated Areas
Rivers & Streams
Tollway
US Highway
State Highway
Major Road
GURNEE
WAUKEGAN
PARK CITY
GRAYSLAKE
GREEN OAKS
NORTH CHICAGO
LAKE BLUFF
METTAWA
LAKE FOREST
HIGHWOOD
LINCOLNSHIRE
BANNOCKBURN
HIGHLAND PARK
RIVERWOODS
DEERFIELD

FIGURE 2 - NORTH BRANCH CHICAGOE RIVER WATERSHED

The North Branch of the Chicago River (North Branch) watershed area covers an area of about 50 square miles in Lake County and 45 square miles in Cook County. It is the most urbanized of the four major Lake County watersheds. There are three main tributaries of the North Branch Chicago River, each identified as separate subwatersheds: the West Fork, Middle Fork, and the Skokie River. Portions of the City of Lake Forest lie within the Middle Fork and the Skokie River subwatersheds.

The North Branch watershed is tributary to the larger Chicago River Watershed that is formed of the North and South Branches of the Chicago River. The Chicago River Watershed is a sub-basin of the larger Illinois River Watershed.

The North Branch watershed in Lake County roughly extends from Route 132 (Grand Avenue in Waukegan) on the north and continues into Cook County. The western boundary is approximately ½ mile to a mile west of Interstate 94; the eastern boundary follows Green Bay Road. Portions of Gurnee, Park City, Waukegan, North Chicago, Lake Bluff, Green Oaks, Mettawa, Lake Forest, Highwood, Highland Park, Deerfield, Riverwoods, Lincolnshire and Bannockburn make up the North Branch Chicago River watershed in Lake County.

1.3.1.2 Lake Michigan Watershed

The eastern portion of the City of Lake Forest lies within the Lake Michigan Watershed. Figure 3 on the following page presents a detailed mapping of this watershed.

The Lake Michigan watershed drains 54 square miles of Lake County. Channels in this area generally flow toward the east into Lake Michigan with the western limits at about Green Bay Road. That portion of Lake Forest located within the Lake Michigan watershed is more specifically located within the Bluff/Ravine Subwatershed.

The topography of the Lake Michigan watershed ranges from gently sloping topography to a steep/ravine bluff system. A coastal beach-ridge plain is located along the lakeshore from the state line south to the Waukegan harbor. The northern third of the watershed has increasingly become suburbanized while the southern third is mostly entirely suburbanized. While the Lake Michigan watershed contains some of the most urbanized area of the county, it boasts Illinois Beach State Park and Spring Bluff and Fort Sheridan Forest Preserves with high quality water, wetland and ravine resources.

Lake County communities located wholly or predominantly in the watershed include Beach Park, Lake Bluff, Lake Forest, Highwood, Highland Park, North Chicago, Winthrop Harbor, Waukegan and Zion. The Great Lakes Naval Base is also located in the watershed.

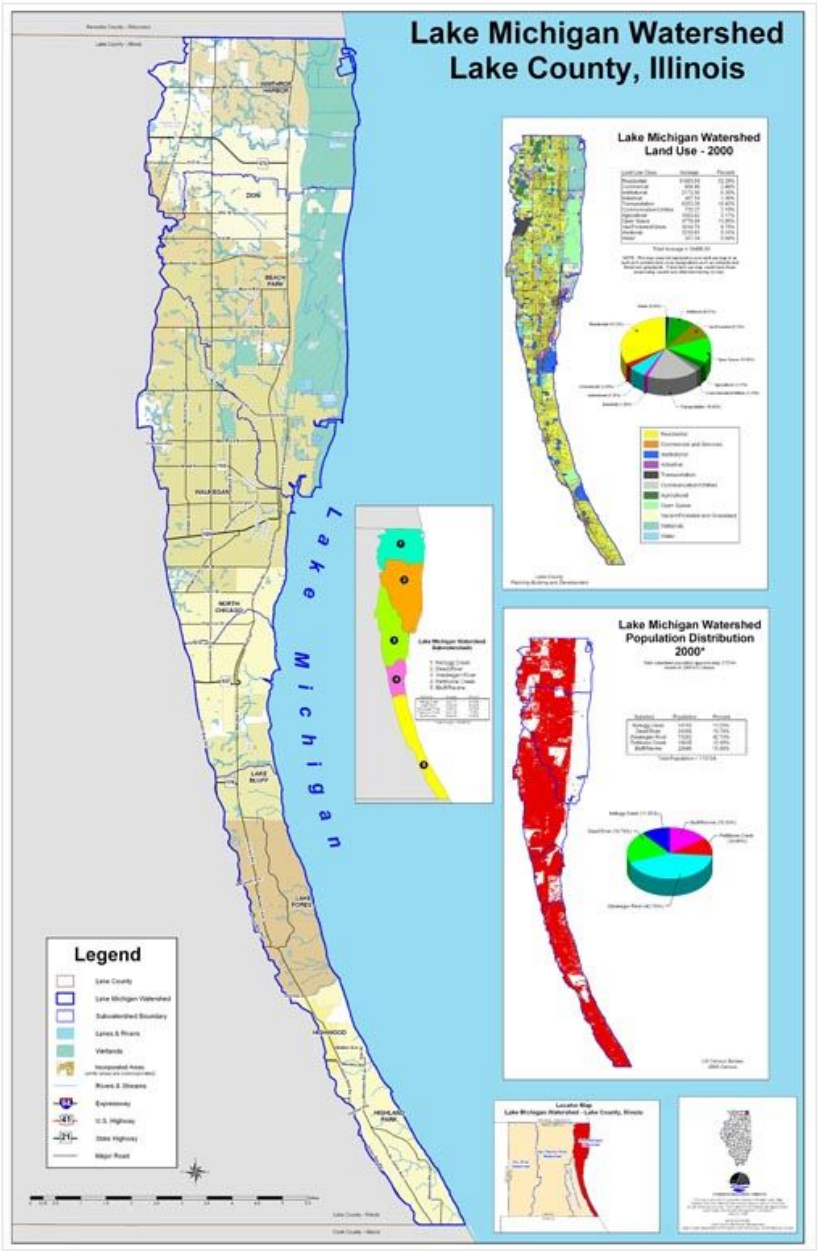


FIGURE 3

FIGURE 3 - LAKE MICHIGAN WATERSHED

1.3.1.3 Des Plaines River Watershed

A very small area of the City of Lake Forest lies within the Des Plaines River watershed; essentially a small portion of land east of the Interstate 90 Tollway south of Highway 60.

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.

It is noted that there are no outfalls associated with the Des Plaines River watershed within the City of Lake Forest municipal limits.

1.3.2 Identifying Outfalls (BMP C.1)

An Outfall (as 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 have been initially identified based on 1) land use of the area draining to the outfall, 2) the size of the outfall, and 3) areas where storm water impacts resulting from the outfall (e.g., erosion damage) are known to exist. To date six outfalls have been identified as high priority outfalls using these criteria; these are identified in Figure 4 below.

Upon completion of the ravine assessment program described in Subsection 5.1.2 and the dry-weather inspections described in Subsection 4.3.4.2, a re-assessment of the High Priority Outfall list will be made.

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 (Subsection 4.3.4.2); 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

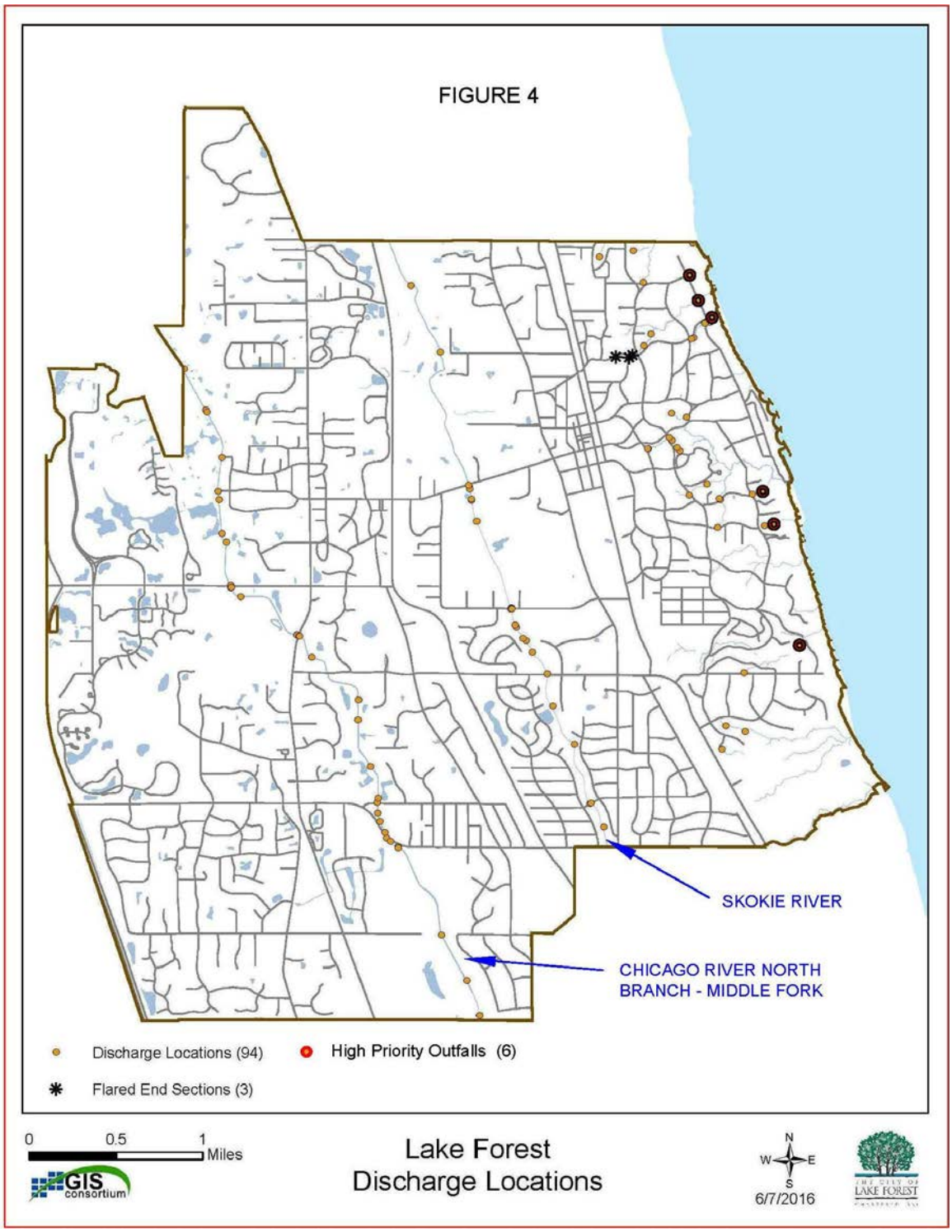


FIGURE4 - LAKE FOREST STORM SEWER DISCHRGE LOCATIONS AND SIGNIFICANT OUTFALLS

1.4 Status of Waters

Table 1 below summarizes the status of receiving waters within the City of Lake Forest. This information is also depicted on Figure 5. All stretches of the Middle Fork of the North Branch and the Skokie River located within the municipal boundaries of the City of Lake Forest are designated as impaired. In addition, that stretch of Lake Michigan bordering the City is also designated as impaired. Finally, Eagle Lake is also designated as impaired. No other water bodies within the municipal limits of the City have been assessed.

The most recent 303(d) list may be found at http://www.epa.state.il.us/water/water-quality/index.html.

Information regarding TMDLs may be found at http://www.epa.state.il.us/water/tmdl/.

TABLE 1
WATER QUALTY STANDARD - STATUS OF RECEIVING WATERS LOCATED WITHIN CITY OF LAKE FOREST

Water Body	Segment / Assessment ID	Impairment	Potential Cause	TMDL Status
Chicago River, North Branch - West Fork	HCCB-05	Aquatic Life	Aldrin, Chloride, DDT, Endrin Hexachlorobenzene, Oxygen, dissolved, Phosphorus, total, Total suspended solids (TSS)	Stage 3 (Chloride and Oxygen, dissolved)
		Primary Contact Recreation	Fecal Coliform	Stage 3
Chicago River, North Branch - Middle Fork	HCCC-02	Aesthetic Quality	Bottom deposits, Phosphorus, total	--
		Aquatic Life	Chloride, DDT, Hexachlorobenzene, Oxygen, dissolved, Sedimentation/Siltation, Total suspended solids (TSS)	Stage 3 (Chloride and Oxygen, dissolved)
		Primary Contact Recreation	Fecal Coliform	Stage 3
Chicago River, North Branch - Skokie River	HCCD-01	Aquatic Life	Chloride, Oxygen, dissolved, Phosphorus, total, Total suspended solids (TSS)	Stage 3
		Primary Contact Recreation	Fecal Coliform	Stage 3
Eagle Lake	UHH	Aesthetic Quality	Phosphorus, total, Total suspended solids (TSS)	Stage 3

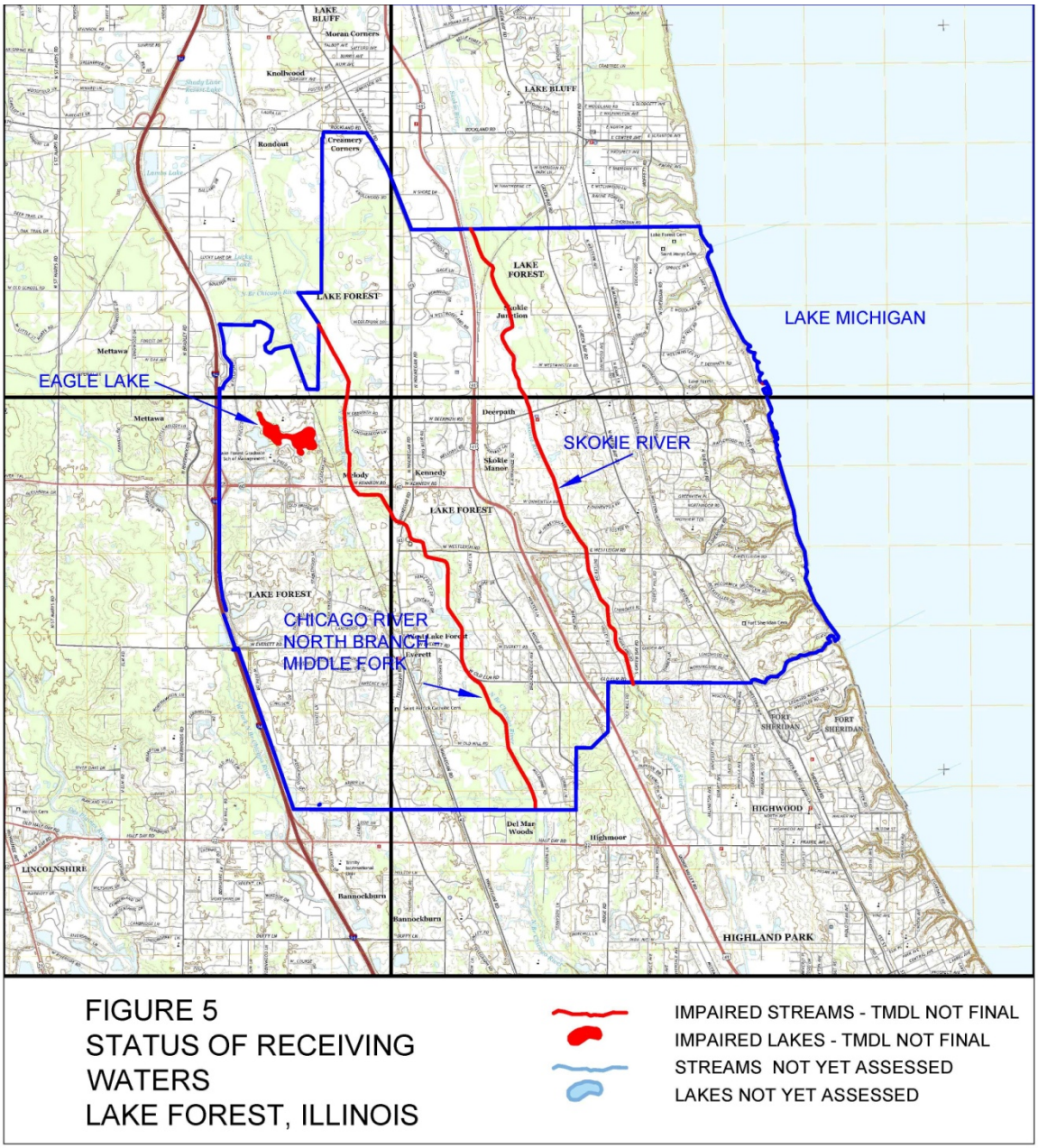


FIGURE 5: STATUS OF RECEIVING WATERS

At this time no TMDL requirements have been issued for receiving waters within the City of Lake Forest. TMDL statuses will be reviewed as part of each year's annual reports. Upon issuance of a TMDL requirement, an implementation strategy or plan will be created and described in the annual report incorporated into the next SMPP revision.

1.5 Countywide Approach to NPDES Compliance

The SMC is a countywide governmental agency created by county ordinance under the authority of Illinois Revised Statute 55/5-1062. SMC's goals include the reduction of flood damage and water quality degradation. Another purpose of SMC is to assure that new development addresses non-point source pollution, does not increase flood and drainage hazards to others, or create

unstable conditions susceptible to erosion. To accomplish this, the SMC works cooperatively with individuals, groups, and units of government as well as serving as the corporate enforcement authority for the Lake County Watershed Development Ordinance (WDO). The City of Lake Forest is a certified community, and is responsible for enforcing the WDO. SMC utilizes technical assistance, education programs and watershed planning to increase public awareness of natural resources and the impacts of urbanization on stormwater quality. In addition, SMC provides solutions to problems related to stormwater and identifies effective ways of managing natural resources.

The General Permit allows for MS4s to take credit for activities being performed by a Qualifying Local Program (QLP) toward meeting its permit requirements. The SMC is a QLP for MS4s in Lake County. As part of their ongoing services, SMC performs some functions related to each of the six minimum control measures (MCM). SMC has been providing services under four of the six minimum control categories since it began implementing a comprehensive, countywide stormwater program in 1991. However, MS4s are required to provide additional services for each of the MCMs with the greatest effort in the Illicit Discharge Detection and Elimination (IDDE) and Pollution Prevention/Good Housekeeping categories. A detailed discussion of the QLP program is described in Section 3.

2.0 PROGRAM MANAGEMENT

This Section describes the organizational structures of the City of Lake Forest, the County and IEPA. It further discusses the roles and responsibilities of the various involved parties.

2.1 Implementation of this SMPP

The SMPP includes detailed discussions on the types of tasks that are required to meet the permit conditions under the NPDES II program and how to perform these tasks. **Appendix A** includes related tracking forms. The tracking forms are broken out into three categories (based on the frequency of occurrence). There are three different tracking forms included: Annual, As-Needed and On-Going. These forms should be printed annually and the progress of all tasks tracked. At the end of the yearly reporting period (March 1 – February 28/29) the forms should be filed in a binder to document SMPP related activities to IEPA, or their authorized agent, in the case of an audit. It is anticipated that implementation of this SMPP constitutes compliance with the program. The SMPP must be posted on the City of Lake Forest's website (Subsection 4.1.3).

Annual Reports, Monitoring Data, NOI and Stormwater Management Plans shall be kept for a minimum of 5 years after the expiration of this permit (March 1, 2022).

2.2 Intra-Department Coordination

The City Council is the policy and budget setting authority for the City of Lake Forest. The Departments of Engineering and Public Works work together to implement this SMPP. The Stormwater Coordinator has primary responsibility for managing the overall program.

2.2.1 Stormwater Coordinator

The Supervisor of Sewer and Water is the Stormwater Coordinator and is responsible for the oversight and implementation of this SMPP. The Stormwater Coordinator has many different responsibilities, he/she:

- is the lead contact for coordination with the SMC, the IEPA, contractors, the development community and other external regulatory agencies;
- understands the requirements of ILR40, ensures that the SMPP meets the requirements of the permit and that the City of Lake Forest effectively implements the SMPP;
- ensures, or assists the Enforcement Officer in ensuring, that the City of Lake Forest complies with all minimum WDO provisions;
- ensures that the Facilities comply with all minimum ILR40 permit requirements;
- is aware when a Project is required to be authorized under the ILR10 permit. In these cases the Stormwater Coordinator should ensure that the NOI is received by IEPA at least 30 days prior to the start of construction;
- assists the development community in understanding when a ILR10 permit is required and whether construction sites comply with the general ILR10 and WDO permit conditions; and

- understands the role illicit discharges play in the overall NPDES II program. In general, an incidence of non-compliance must be filed with IEPA for illicit discharges exiting an MS4's outfall into a receiving water. Additionally, if the illicit discharge is generated by a construction site, it may be necessary for both the applicant and the MS4 to file the Incidence of Noncompliance (ION) form with IEPA.

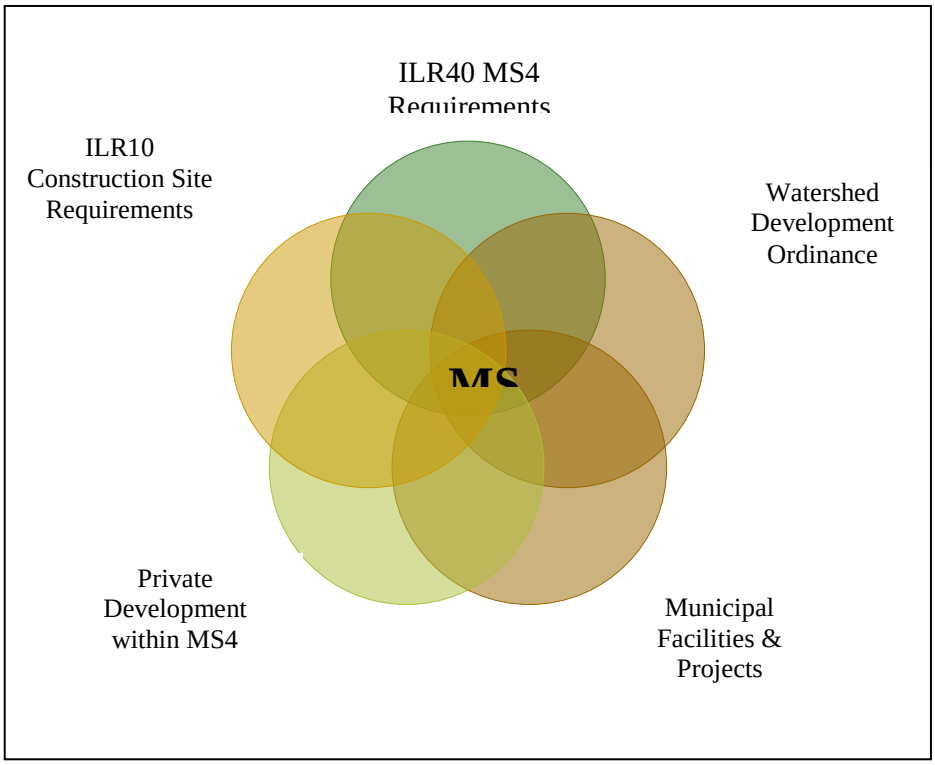


FIGURE 6: ROLES OF MS4 [1]

[1] Figure provided by Gewalt Hamilton & Associates

2.2.2 Engineering Department

Engineering personnel support the Stormwater Coordinator in obtaining compliance with both the NDPES and WDO programs.

The City of Lake Forest Supervisor of Engineering is also the Enforcement Officer with respect to the administration and enforcement of the WDO. Additionally, the Enforcement Officer is responsible for performing inspections and monitoring the development. Review and inspection efforts can be performed by personnel under his/her direct supervision. A full description of the Enforcement Officer responsibilities is included in Appendix E of the WDO. The Enforcement Officer follows established procedures for notifying applicants of deficiencies and obtaining site compliance (i.e. enforcement). The Enforcement Officer has the responsibility to concur that projects meet WDO standards prior to the issuance of permits, and oversee site inspections during construction. Refer to Subsections 3.4, 3.5, 4.4, and 4.5 for additional information on this process.

2.2.3 Public Works Department

Infrastructure maintenance activities within the City of Lake Forest are carried out by Public Works personnel. Public Works personnel are designated as the primary entity responsible for performing the duties specified under Subsection 4.3 - Illicit Discharge Detection and Elimination and Subsection 4.6 - Pollution Prevention and Good Housekeeping.

2.3 Coordination with Lake County Stormwater Management Commission

Coordination between the City of Lake Forest and the SMC occurs through both participation in the SMC sponsored Municipal Advisory Committee (MAC) forums and through the Certified Community Status under the WDO. The City of Lake Forest's Stormwater Coordinator is the lead contact for participation in the MAC forums.

SMC is the primary entity responsible for meeting Public Education and Outreach and Public Participation and Involvement MCMs. As a Certified Community, the City of Lake Forest's Officer has lead responsibility for Construction Site Runoff Control and Post Construction Runoff Control MCMs.

2.4 Coordination with Consultants

The City of Lake Forest may enlist the services of consultants to assist in the implementation of the WDO (including, but not limited to, plan review, site inspections and enforcement), and the design of MS4 projects.

2.5 Coordination of Contractors

The City of Lake Forest also has a responsibility to hire contractors who are knowledgeable of the applicable requirements of the ILR40 and ILR10 permits. To provide appropriate training, or require documentation that appropriate training has been attended, for all contractors responsible for municipal green infrastructures and ensure they are aware of good housekeeping/pollution prevention practices.

2.6 Coordination with the Public

Coordination with the Public occurs on several levels. In addition to the avenues described in this SMPP the Public has the opportunity to comment on proposed preliminary and final plats through the Plan Commission and Municipal Board process established in the Municipal Code.

2.7 Coordination with the IEPA

The City of Lake Forest is required to complete annual reports which describes the status of compliance with the ILR40 permit conditions and other related information as presented on the annual report template provided by the QLP. The annual report must be posted on the inset City's website and submitted to the IEPA by the first day of June each year. Annual reporting to IEPA should consist of "implemented SMPP" for all tasks completed in accordance with this SMPP. Additional information should be provided for areas of enhancement or tasks not completed.

Records regarding the completion and progress of the SMPP commitments must be kept by the community. The tracking form, described in Subsection 2.1, should be updated throughout the year. The completed forms should be located in a binder with necessary supporting documentation. The binder must be available for inspection by both IEPA and the general public.

2.8 Coordination with the Development Community

The City of Lake Forest has a responsibility to assist the development community in understanding when an ILR10 permit is required and whether construction sites comply with the general ILR10 and WDO permit conditions. In general, an incidence of non-compliance must be filed with IEPA for illicit discharges exiting an MS4's outfall into a receiving water. Additionally, if the illicit discharge is generated by a construction site, it may be necessary for both the applicant and the MS4 to file an ION form with IEPA.

Furthermore, the municipality has a responsibility to inform the development community that they are required to hire contractors which meet the qualifications necessary under the program, refer to Subsection4.4.2 for additional information on qualified personnel.

3.0 STORMWATER MANAGEMENT PROGRAM – THE QUALIFYING LOCAL PROGRAM

The City of Lake Forest's SMPP addresses six MCM categories, each of which is necessary in an effort to reduce/eliminate stormwater pollution in receiving water bodies. The QLP role in addressing each MCM is described in this Section. Additional MS4 efforts conducted by the City of Lake Forest are described in Section 4.0. Both this Section and Section 4 address the following control measures:

- Public education and outreach
- Public participation
- IDDE
- Construction
- Post Construction
- Housekeeping

The SMC requires, through the WDO, local stormwater management programs to implement one or more of the MCMs specified in the IEPA's General NPDES Permit No. ILR40 (MS4 Permit), making it a QLP. Consistent with the County's comprehensive, countywide approach to stormwater management, as a QLP, SMC has been working since the early 2000's, when began the process of expanding its NPDES Stormwater Program to include small MS4s, to assist Lake County MS4s in developing and implementing efficient and effective stormwater management programs. Although SMC is not itself an MS4, as it does not own or operate a separate storm sewer system, it does perform activities related to each of the six MCMs described in IEPA's General NPDES Permit No. ILR40. SMC remains committed to performing a variety of stormwater management activities across the County – which are described in more detail below – to provide Lake County with a baseline Countywide stormwater management program that can be built upon by each of the individual MS4s. In addition to the stormwater management activities described below, SMC program is continually evolving, to better assist Lake County MS4s in meeting the requirements of the new 2016 MS4 Permit.

Measurable Goal(s):

- Provide NOI template in accordance with 2016 ILR40s permit.
- Provide yearly annual reporting template including a description of QLP activities for the applicable permit year.
- Research, compile, and make available information regarding receiving waters, impaired waters, pollutants causing such impairments, and the status of TMDL development on such waters. Expand the "State of Lake County Water's segment of the annual report template accordingly.
- Provide Stormwater Pollution Plan template for use by Lake County MS4s.

3.1 Public Education

SMC will continue to support Lake County MS4s in the development and implementation of their stormwater management programs by performing activities related to the Public Education and Outreach MCM, as described below.

3.1.1. Distributed Paper Materials (BMP-A.1)

SMC compiles, develops, and distributes throughout Lake County a variety of materials related to stormwater management. SMC has produced a number of pamphlets and brochures related to stormwater management and prepares a quarterly newsletter, "Mainstream," as well as an Annual Report, which highlight successful stormwater management activities conducted throughout Lake County. SMC also prepares project fact sheets that provide information about ongoing and recently completed stormwater management projects. In addition, SMC has developed or collaborated on a number of manuals related to stormwater management, such as "Riparian Areas Management: A Citizen's Guide," "A Citizen's Guide to Maintaining Stormwater Best Management Practices," and the "Streambank Stabilization Manual," and will continue to develop or collaborate on such manuals or manual updates on an as-needed basis.

Additionally, SMC researches and compiles materials related to stormwater management from a variety of sources including the QLP, IEPA, USEPA, CWP, Chicago Metropolitan Agency for Planning or CMAP (previously Northeastern Illinois Planning Commission "NIPC"), University of Wisconsin Extension, Solid Waste Agency of Lake County (SWALCO) and other agencies and organizations. SMC is a clearing house for MS4 communities by making available the following types of materials available through their take-a-way rack or web-site:

- Informational sheets/pamphlets regarding storm water BMPs including cost-benefits and implementation guidance,
- Informational sheets/pamphlets regarding water quality BMPs,
- Informational sheets/pamphlets regarding construction site activities (soil erosion and sediment control BMPs),
- Storage and disposal of fuels, oils and similar materials used in the operation of or leaking from, vehicles and other equipment;
- Use of soaps, solvents or detergents used in the outdoor washing of vehicles, furniture and other property,
- Paint and related décor;
- Lawn and garden care; and
- Winter de-icing material storage and use.
- Informational sheets/pamphlets regarding green infrastructure strategies such as green roofs, rain gardens, rain barrels, bioswales, permeable piping, dry wells and permeable pavement.
- Informational sheets/pamphlets regarding the hazards associated with illegal discharges and improper disposal of waste and the manner in which to report such discharges.

Measurable Goal(s):

- Distribute informational materials from "take away" rack at SMC.
- Upon request, distribute informational materials directly to Lake County MS4s for local distribution.

3.1.2 Speaking Engagement (BMP-A.2)

SMC provides educational presentations related to IEPA's NPDES Stormwater Program on a regular basis at MAC meetings. Upon request, SMC will provide educational presentations related to IEPA's NPDES Stormwater Program to Lake County MS4s.

Measurable Goal(s):

- Provide educational presentations related to IEPA's NPDES Stormwater Program at MAC meetings.
- Upon request, provide educational presentations related to IEPA's NPDES Stormwater Program (e.g., "The Big Picture: Water Quality, Regulations & NPDES") to Lake County MS4s.

3.1.3 Public Service Announcement (BMP-A.3)

A public service announcement related to IEPA's NPDES Stormwater Program will be included in SMC's quarterly newsletter, "Mainstream," at least once each year. SMC will coordinate with the Lake County Department of Transportation (LCDOT) to post watershed identification signage in watersheds where watershed planning or project implementation efforts have occurred or are occurring.

SMC also utilizes social media to reach out to additional target audiences. Both Facebook and Twitter feeds are updated to include relevant water quality information and promote educational opportunities across the County.

Measurable Goal(s):

- Include public service announcement related to IEPA's NPDES Stormwater Program in its quarterly newsletter, "Mainstream," at least once each year.
- Post watershed identification signage in cooperation and collaboration with LCDOT.
- Provide information via social media (Facebook and Twitter).

3.1.4 Outreach Events (BMP-A.4)

SMC regularly sponsors and co-sponsors educational and technical training workshops on a variety of stormwater management-related topics. Each year, SMC will sponsor or co-sponsor at least one workshop on a topic related to IEPA's NPDES Stormwater Program, such as soil erosion and sediment control or stormwater BMPs that can be used to protect and improve water quality. SMC also offers an annual deicing workshop and a training workshop on green infrastructure practices; made available to both public employees and contractors.

Measurable Goal(s):

- Sponsor or co-sponsor workshop(s) on topics related to IEPA's NPDES Stormwater Program.
- Track workshops and events.

3.1.5 Classroom Educational Material (BMP-A.5)

Upon request, SMC will contribute to the development and compilation of materials for inclusion in a stormwater education kit that can distributed to local students and teachers and/or other local stakeholders. Additionally, upon request, SMC will provide information, materials, and training to local students and teachers and/or other local stakeholders interested in conducting storm drain stenciling.

Measurable Goal(s):

- Upon request, develop and compile materials for inclusion in a stormwater education kit.
- Upon request, provide information, materials, and training to local students, teachers and/or stakeholders interested in conducting storm drain stenciling.

3.1.6 Other Public Educational - Website (BMP-A.6)

SMC maintains a website that contains a variety of materials and resources related to stormwater management. The website provide information about IEPA's NPDES Stormwater Program, provide information about stormwater BMPs, allow for download of stormwater management-related publications and documents, provide notices of upcoming meetings and ongoing projects, includes watershed plans and watershed workgroup information, and provide links to a number of other stormwater management-related resources including materials described in Subsection 3.1.1.

SMC will research, compile and make available materials about the impacts of climate change on precipitation and stormwater runoff and the pollution prevention practices that can be used by private property owners, and an evaluation of the impacts of climate change on existing flood control techniques and practices used to achieve runoff volume reduction (RVR). A link to the USEPA's climate change website http://www3.epa.gov/climatechange is included on SMC's website.

Measurable Goal(s):

- Maintain and update the portion of the SMC website dedicated to IEPA's NPDES Stormwater Program with resources such as model ordinances, case studies, brochures, and links including information related to climate change.
- Make "The Big Picture: Water Quality, Regulations & NPDES" presentation available to Lake County MS4s.

3.2 Public Outreach

SMC will continue to support Lake County MS4s in the development and implementation of their stormwater management programs by performing activities related to the Public Participation/Involvement MCMs, as described below.

3.2.1 Public Panel (BMP-B.1)

SMC provides procedural guidance and implements its Citizen Inquiry Response System (CIRS) for receiving and taking action on information provided by the public regarding post-construction stormwater runoff control. SMC coordinates and conducts public meetings as well as committee meetings that are open to the public. A monthly SMC meeting is open to the public and involves the SMC Board of Commissioners, which includes six municipal representatives and six county board members.

The Technical Advisory Committee (TAC) was created in 1992 to assist in the development, review, and revision of the WDO and the associated administrative policies and procedures. TAC is made up of representatives from the development, environmental, municipal, and consulting engineering fields. TAC meetings are held monthly or on an as-needed basis.

The MAC is made up of municipal, township, drainage district, consulting firm, and county representatives. MAC has worked to discuss, coordinate, and collaborate on the implementation of

IEPA's NPDES Stormwater Program. MAC will continue to meet quarterly or as needed to assist Lake County MS4s with the implementation of IEPA's NPDES Stormwater Program.

The Watershed Management Board (WMB) meets annually to make recommendations on stormwater BMP project funding. WMB members include chief municipal elected officials, township supervisors, drainage district chairs, and county board members from each district within each of Lake County's four major watersheds.

Measurable Goal(s):

- Implement and provide guidance on existing CIRS procedures.
- Provide notice of public meetings on SMC website.
- Track number of meetings conducted

3.2.2 Stakeholder Meeting (BMP-B.3)

SMC is actively involved in watershed planning throughout Lake County. SMC believes that the watershed planning process cannot happen and will not be successful without the input, interest, and commitment of the watershed stakeholders. Watershed stakeholders may include municipalities, townships, drainage districts, homeowner associations, lakes management associations, developers, landowners, and local, county, state, and federal agencies.

Measurable Goal(s):

- Provide notice of stakeholder meetings on SMC website.
- Track number of watershed committee meetings conducted.
- Establish watershed planning committees for each new watershed planning effort.

3.2.3 Program Involvement (BMP-B.6)

Consistent with Lake County's comprehensive, countywide approach to stormwater management, SMC serves as a QLP for all Lake County MS4s. In this role, in 2002, SMC proactively formed the MAC to provide a forum for representatives of local MS4s, which include municipalities, townships, and drainage districts, to discuss, among other topics, the implementation of IEPA's NPDES Stormwater Program. SMC will continue to facilitate quarterly MAC meetings and will continue to provide general support to Lake County MS4s as they continue to develop and implement their stormwater management programs. SMC will prepare an annual report on its stormwater management activities and will provide guidance to Lake County MS4s in preparing their own annual reports.

Measurable Goal(s):

- Track number of MAC meetings conducted.
- Prepare annual report template for use by Lake County MS4s including a description of the QLP stormwater management activities.
- Prepare SMPP template for use by Lake County MS4s in creating their own SMPP.

3.3 Illicit Discharge Program

SMC will continue to support Lake County MS4s in the development and implementation of their stormwater management programs by performing activities related to the IDDE MCM, as described

below. Note, however, that the primary responsibility for the implementation of the IDDE MCM lies with the MS4.

Measurable Goal(s):

- Continue to make available information regarding prioritization of outfalls for illicit discharge screening activities.
- Continue to make available compiled GIS data related to the County's existing stormwater infrastructure (e.g. storm sewer atlases, stream inventories and detention basin inventories).

3.3.1 Regulatory Control Program (BMP-C.2)

SMC provides local MS4s with model and example illicit discharge ordinances that prohibit all non-stormwater discharges, including illegal dumping, to the storm sewer system. Additionally, the WDO includes provisions that prohibit illicit discharges to the storm sewer system during construction (i.e., prior to final site stabilization) on development sites.

Measurable Goal(s):

- Provide model and example illicit discharge ordinances to Lake County MS4s.
- Continue to administer and enforce the WDO.

3.3.2 Other Illicit Discharge Controls (BMP C.10)

SMC regularly sponsors and co-sponsors educational and technical training workshops on a variety of stormwater management-related topics. Each year, SMC will sponsor or co-sponsor an IDDE workshop or other training workshop related to IEPA's NPDES Stormwater Program and track the number of attendees that attend the workshop as previously described in Subsection 3.1.4.

Additionally, as part of its public education and outreach efforts, SMC distributes informational materials throughout Lake County about the hazards associated with illegal discharges and the improper disposal of waste.

As described in Subsection 5.1 the Lake County Health Department's Lake Management Unit (LMU) performs extensive monitoring of inland lakes and Lake Michigan Beaches. Upon receiving a request for service, LMU staff investigates possible pollution sources, fish kills and other lake or pond related inquires throughout the county. Although the Lakes Management Unit is not an enforcement agency, they direct non-jurisdictional issues to appropriate agencies for enforcement, if necessary.

Measurable Goal(s):

- Sponsor or co-sponsor and track the number of attendees at an IDDE workshop or other training workshop related to IEPA's NPDES Stormwater Program.
- Distribute informational materials about the hazards of illicit discharges and illegal dumping from "take away" rack at SMC and SMC website.

3.4 Construction Site Runoff Control

The goal of the WDO is to ensure that new development does not increase existing stormwater problems or create new ones. The WDO establishes countywide standards for runoff maintenance,

detention sites, soil erosion and sediment control, water quality, wetlands and floodplains. These provisions are only applicable for regulated development activities as defined by the WDO. Applicants that hydrologically disturb greater than 1-acre are also required to seek coverage under the statewide construction general permit by filing an NOI with IEPA.

The WDO is implemented primarily at the local level. The majority of the fifty-three municipalities in the county were "Certified Communities." The designation allows those communities to enforce WDO standards within their own jurisdictions. Note, however, that the primary responsibility for the implementation of the Construction Site Runoff Control MCM in certified communities (i.e., communities certified by SMC to administer and enforce the provisions of the WDO) lies with the MS4.

SMC will continue to support Lake County MS4s in the implementation of the Construction Site Runoff Control MCM by administering and enforcing the WDO and performing other stormwater management activities, as described below. SMC administers the WDO and issues permits for the developments within the Non-Certified Communities.

3.4.1 Regulatory Control Program (BMP D.1)

The WDO is the regulatory mechanism that requires the use of soil erosion and sediment controls on development sites throughout Lake County. The soil erosion and sediment control provisions are included in Article 6 of the WDO. At a minimum, these standards apply to any development project that hydrologically disturbs 5,000 square feet of land or more.

SMC has also created a Designated Erosion Control Inspector (DECI) program. The purpose of the program is to facilitate positive communication between the permit issuing agency, whether such agency be SMC or a certified community, and the permit holder, by creating a single point of contact for the discussion and resolution of site soil erosion and sediment control issues and concerns. Furthermore, the program is intended to improve site conditions, minimize environmental impacts, and educate contractors, developers, and inspectors about the use of soil erosion and sediment control BMPs. It is worth noting that the DECI program was designed to closely mirror the inspection requirements of IEPA's General NPDES Permit No. ILR10.

Measurable Goal(s):

- Continue to administer and enforce the WDO.
- Continue to administer the DECI program outlined by the WDO.

3.4.2 Erosion and Sediment Control BMPs (BMP D.2)

§600 of the WDO specifies the soil erosion and sediment control measures that must be used in conjunction with any land disturbing activities conducted on a development site. Ordinance provisions include but are not limited, to the following:

- Grading, soil erosion and sediment control plan. The plan must:
  - Minimize soil disturbance
  - Prevent discharge of sediment from the site through the implementation of soil erosion control practices, primarily, and sediment control secondarily
  - Protect receiving waters, natural areas and adjacent properties from damage which may result from the proposed grading

    - complete installation of soil erosion and sediment control features prior to commencement of hydrologic disturbance
    - stabilize disturbed areas within 7 days of active disturbance
    - avoid disturbance of streams whenever possible
    - use controls that are appropriate for the size of the tributary drainage area
    - protect functioning storm sewers from sediment
    - prevent sediment from being tracked onto adjoining streets
    - limit earthen embankments to slopes of 3H:1V
    - identify soil stockpile areas
    - utilize statewide standards and specifications as guidance for soil erosion and sediment control.
- Waste control;
- RVR Hierarchy and Water Quality;
- Established inspection duties for the applicant and procedures for inspections;
- Record keeping and reporting procedures;
- Security deposits to ensure faithful performance;
- Enforcement measures to achieve compliance; and
- One year warranty period, for applicable developments.

SMC has maintains technical guidance documents to accompany the WDO. The guidance documents and the Illinois Urban Manual 2014 are used to guide the creation of development plans that are in compliance with the provisions of the WDO and provides detailed information on the use of soil erosion and sediment control BMPs.

As part of the permit review process, applicants that hydrologically disturb greater than 1-acre are also required to seek coverage under the statewide construction general permit by filing a NOI with IEPA. During construction, applicants are required to submit to IEPA ION forms, as necessary. After the site is substantially stabilized, the applicant is required to submit a Notice of Termination (NOT).

Measurable Goal(s):

- Continue to administer and enforce the WDO.
- Continue to maintain technical guidance documents.

3.4.3 Other Waste Control Programs (BMP D.3)

The WDO includes several provisions that address illicit discharges generated by construction sites. The applicant is required to prohibit the dumping, depositing, dropping, throwing, discarding or leaving of litter and construction material and all other illicit discharges from entering the stormwater management system.

Measurable Goal(s):

- Continue to administer and enforce the provisions of the WDO related to the control of waste and debris during construction on development sites.

3.4.4 Site Plan Review Procedures (BMP D.4, E.4)

A community's designated Enforcement Officer is responsible for reviewing and permitting development plans and for administering and enforcing the provisions of the WDO. Within

certified communities (i.e., communities certified by SMC to administer and enforce the provisions of the WDO), responsibility for reviewing and permitting development plans and for administering and enforcing the provisions of the WDO lies with the MS4; within non-certified communities, the designated enforcement officer is SMC's chief engineer. All designated Enforcement Officers must pass an exam in order to qualify to act as such. SMC administers this enforcement officer program, providing training on an as-needed basis to all enforcement officers to assist them in passing the exam, and maintains an up-to-date list identifying each community's designated enforcement officer. In addition to administering the enforcement officer program, SMC periodically reviews each community's WDO administration and enforcement records, using the results of such review to evaluate the performance of certified communities and designated enforcement officers.

SMC maintains technical guidance documents to accompany the WDO. These documents are used to guide the creation of development plans that are in compliance with the provisions of the WDO and provide additional guidance on the administration and enforcement of the ordinance.

Measurable Goal(s):

- Administer the Enforcement Officer program outlined by the WDO.
- Maintain an up-to-date list identifying each community's designated enforcement officer.
- Periodically review each community's WDO administration and enforcement records.
- Continue to maintain technical guidance documents.

3.4.5 Site Inspection/Enforcement Procedures (BMP D.6, E.5)

Article 5 of the WDO contains both recommended and minimum requirements for the inspection of development sites. Within certified communities, the community's designated enforcement officer is responsible for conducting these inspections; within non-certified communities, SMC's chief engineer is responsible for conducting these inspections. Per the ordinance, these inspections may be conducted by a community's designated enforcement officer at any stage in the construction process. For major developments, as defined by the WDO, the enforcement officer conducts site inspections, at a minimum, upon completion of installation of soil erosion and sediment controls, prior to the start of any other land disturbing activities, and after final stabilization and landscaping, prior to the removal of soil erosion and sediment controls.

Article 12 of the WDO specifies the legal actions that may be taken and the penalties that may be imposed if the provisions of the WDO are violated. If development activities on a development site are not in compliance with the requirements of the WDO, the enforcement officer may issue a stop work order on all development activity on the development site or on the development activities that are in direct violation of the WDO. In addition, failure to comply with any of the requirements of the WDO constitutes a violation of the WDO, and any person convicted of violating the WDO may be fined.

Measurable Goal(s):

- Document and track the number of site inspections conducted by SMC.

3.4.6 Public Information Handling Procedures (BMP D.5)

SMC provides a number of opportunities for the receipt and consideration of information submitted by the public. SMC's CIRS documents and tracks the resolution of problems and complaints reported by the public. SMC's website provides information on "who to call" for various

stormwater-related problems and concerns. An Interagency Coordination Agreement between SMC, the US Army Corps of Engineers (USACE), and the Natural Resources Conservation Service (NRCS) specifies that if any of these agencies receive a report of a soil erosion and sediment control issue, they will relay such report to SMC. SMC will then investigate the report and prescribe appropriate corrective actions, sharing the results of such investigation with the property owner and any applicable local, state, or federal agencies. Within certified communities, such investigations are coordinated with the community's designated enforcement officer.

Measurable Goal(s):

- Document and track the number of soil erosion and sediment control-related complaints received and processed by SMC.

3.4.7 BMP Reference Information

Reference information includes, but is not limited to, the following sources:

- Native Plant Guide,
- Lake County SMC's Technical Reference Manual,
- Illinois Urban Manual, 2014
- SMC's
  - soil erosion and sediment checklist,
  - soil erosion and sediment control notes,
  - typical construction sequencing,
- Construction details are available on the website,
- CMAP (previously Northeastern Illinois Planning Commission) Course Manuals,
- Illinois Department of Transportation (IDOT) manuals,
- Center for Watershed Protection (CWP) documents, and
- IEPA and USEPA publications.

3.5 Post-Construction Runoff Control

As described above, Lake County has adopted a countywide WDO that establishes the minimum stormwater management requirements for development in Lake County, including requirements for post-construction runoff control. SMC will continue to support Lake County MS4s in the implementation of the Post-Construction Runoff Control MCM by administering and enforcing the WDO and performing other stormwater management activities, as described below. Note, however, that the primary responsibility for the implementation of the Post-Construction Runoff Control MCM in certified communities (i.e., communities certified by SMC to administer and enforce the provisions of the WDO) lies with the MS4.

3.5.1 Regulatory Control Program (BMP E.2)

The WDO requires all applicants to adopt stormwater management strategies for controlling post-construction stormwater runoff on development sites. As outlined in Section 5 of the WDO, all applicants must adopt stormwater management strategies that minimize increases in stormwater runoff rates, volumes, and pollutant loads from development sites. Proposed stormwater management strategies must address the RVR requirements described in §503 of the WDO and

must include appropriate stormwater BMPs to address the other applicable post-construction runoff control requirements of the WDO.

Measurable Goal(s):

- Continue to administer and enforce the WDO.

3.5.2 Long Term O&M (BMP E.3)

The WDO requires that maintenance plans be developed for all stormwater management systems designed to serve major developments, as defined by the WDO. Such maintenance plans must include: a description of all maintenance tasks; an identification of the party or parties responsible for performing such maintenance tasks; a description of all permanent maintenance easements or access agreements, overland flow paths, and compensatory storage areas; and a description of dedicated sources of funding for the required maintenance. The WDO also requires that all stormwater management systems be located within a deed or plat restriction (e.g., easement) to ensure that the system remains in place in perpetuity and that access to the system is maintained in perpetuity for inspection and maintenance purposes.

Concerns related to a completed development or re-development shall be route to the Enforcement Officer, or designee. Site inspections and/or follow-up maintenance recommendations will be made to the property owner on a case by case basis.

Measurable Goal(s):

- Continue to administer and enforce the WDO.

3.5.3 Runoff Volume Reduction Hierarchy (BMP E.4)

As described above, a community's designated enforcement officer is responsible for reviewing and permitting development plans and for administering and enforcing the provisions of the WDO. This includes a review of the stormwater BMPs that will be used to meet the post-construction runoff control requirements of the WDO. Developments that exceed the thresholds identified in the WDO are required to quantify the RVR provided by the site design, including a combination of structural and/or non-structural BMPs that will reduce the discharge of pollutants, the volume and velocity of storm water flow to the maximum extent practicable. The permittee should ensure that the development plan addresses these provisions during the plan review process. The WDO was written to specifically address the following ILR40 permit requirements.

Each permittee is also required to adopt strategies that incorporate storm water infiltration, reuse and evapotranspiration of storm water into the project to the maximum extent practicable in accordance with the qualitative RVR provisions of the WDO. Types of techniques include green roofs, rain gardens, rain barrels, bioswales, permeable piping, dry wells and permeable pavement.

Measurable Goal(s):

- Continue to administer and enforce the WDO.

3.5.4 Other Post-Construction Runoff Controls (BMP E.7)

Through the WMB, SMC provides partial funding for flood damage reduction and surface water quality improvement projects. The WMB, which includes representatives from the Lake Michigan, North Branch of the Chicago River, Fox River, and Des Plaines River watersheds, meets annually to review potential projects and to make recommendations on stormwater BMP project funding. Members of the WMB include chief municipal elected officials, township supervisors, drainage district chairmen, and county board members from each district found within each of Lake County's four major watersheds. The goal of the WMB program is to maximize opportunities for local units of government and other groups to have input and influence on the solutions used to address local stormwater management problems. Previous WMB-funded projects have reduced flooding, improved surface water quality, and enhanced existing stormwater management facilities throughout Lake County.

Measurable Goal(s):

- Conduct annual WMB meeting.
- Contribute funding to flood damage reduction and water quality improvement projects through the WMB.

3.6 Pollution Prevention / Good Housekeeping

SMC will continue to support Lake County MS4s in the development and implementation of their stormwater management programs by performing activities related to the Pollution Prevention/Good Housekeeping MCM, as described below. Note, however, that the primary responsibility for the implementation of the Pollution Prevention/Good Housekeeping MCM lies with the MS4.

3.6.1 Employee Training Program (BMP F.1)

SMC will assist Lake County MS4s with the development and implementation of their employee training programs by maintaining a list of known employee training resources and opportunities, making available a software-based employee training program, and providing, upon request, technical assistance to local MS4s in developing and implementing their employee training programs. The CWP's *URSM Manual 9: Municipal Pollution Prevention Practice* is a key resource. In addition, each year, SMC will sponsor or co-sponsor training workshops as previously described in Subsection 3.1.4.

Measurable Goal(s):

- Maintain a list of known employee training resources and opportunities.
- Make available the Excal Visual Storm Watch: Municipal Storm Water Pollution Prevention software-based employee training program.
- Sponsor or co-sponsor a training workshop related to pollution prevention/good housekeeping or another training workshop related to IEPA's NPDES Stormwater Program.

3.6.2 Flood Management / Assess Guidelines (BMP F.5)

In working toward meeting its primary goals of flood damage reduction and surface water quality improvement, SMC follows a set of stormwater management policies that were created to define its roles and responsibilities for stormwater management in Lake County. One of these policies is

to integrate multi-objective opportunities (e.g., flood damage reduction, surface water quality improvement, environmental enhancement) into SMC-sponsored projects. In accordance with this policy, SMC will evaluate all SMC-sponsored projects for multi-objective opportunities.

Measurable Goal(s):

- Track number of SMC-sponsored projects that are reviewed for multi-objective opportunities.

3.6.3 Winter Roadway Deicing (BMP F.6)

Measurable Goal(s):

- Advise MS4 communities of watershed groups addressing issues associated with the use of chlorides (i.e. road salt).

3.7 Watershed Plans

SMC has collaborated on a number of watershed based plans throughout the County. Watershed plans are implemented by SMC and local communities and organizations as plan recommended BMPs and projects are fleshed out with designs and budgets and funding is secured.

These plans were created in part to identify opportunities for watershed communities to integrate multi-objective watershed management in community decisions and activities; establish an inventory of stormwater and pollutants; and to improve degraded conditions in the watershed by implementing BMPs and programs to retrofit existing flood control techniques and problem areas and prevent future problems from occurring. The adoption of these Plans will guide the successful implementation of a series of individual site-specific projects and watershed-wide programmatic actions to: improve water quality, reduce flood damage potential, protect and enhance natural resources including the watershed's lakes, streams and wetlands; and in addition, will provide watershed education and recreation opportunities and improve community cooperation and participation in watershed improvement activities.

The creation and adopted watershed based plans were completed on a voluntary basis and not to meet any ILR40 permit requirements. However, implementation of individual site-specific projects or programmatic actions without the use of 319 funding can be cited by an MS4 community toward meeting ILR40 permitting requirements. The status of the County's watershed planning efforts is depicted on Figure 7 on the following page.

3.7.1 North Branch of the Chicago River Watershed

Completed watershed plans include the North Branch of the Chicago River Watershed-Based Plan, North Branch Chicago River Open Space Plan and the Skokie River Headwaters/North Chicago Flood Damage Reduction Study.

3.7.2 Lake Michigan Watershed

Watershed-based plans have been completed and approved for the Dead River Kellogg Creek, and Waukegan subwatersheds. Extensive ravine and stream inventories have been completed for the entire Lake Michigan Watershed, excluding stream segments in the coastal plain of Illinois Beach State Park.

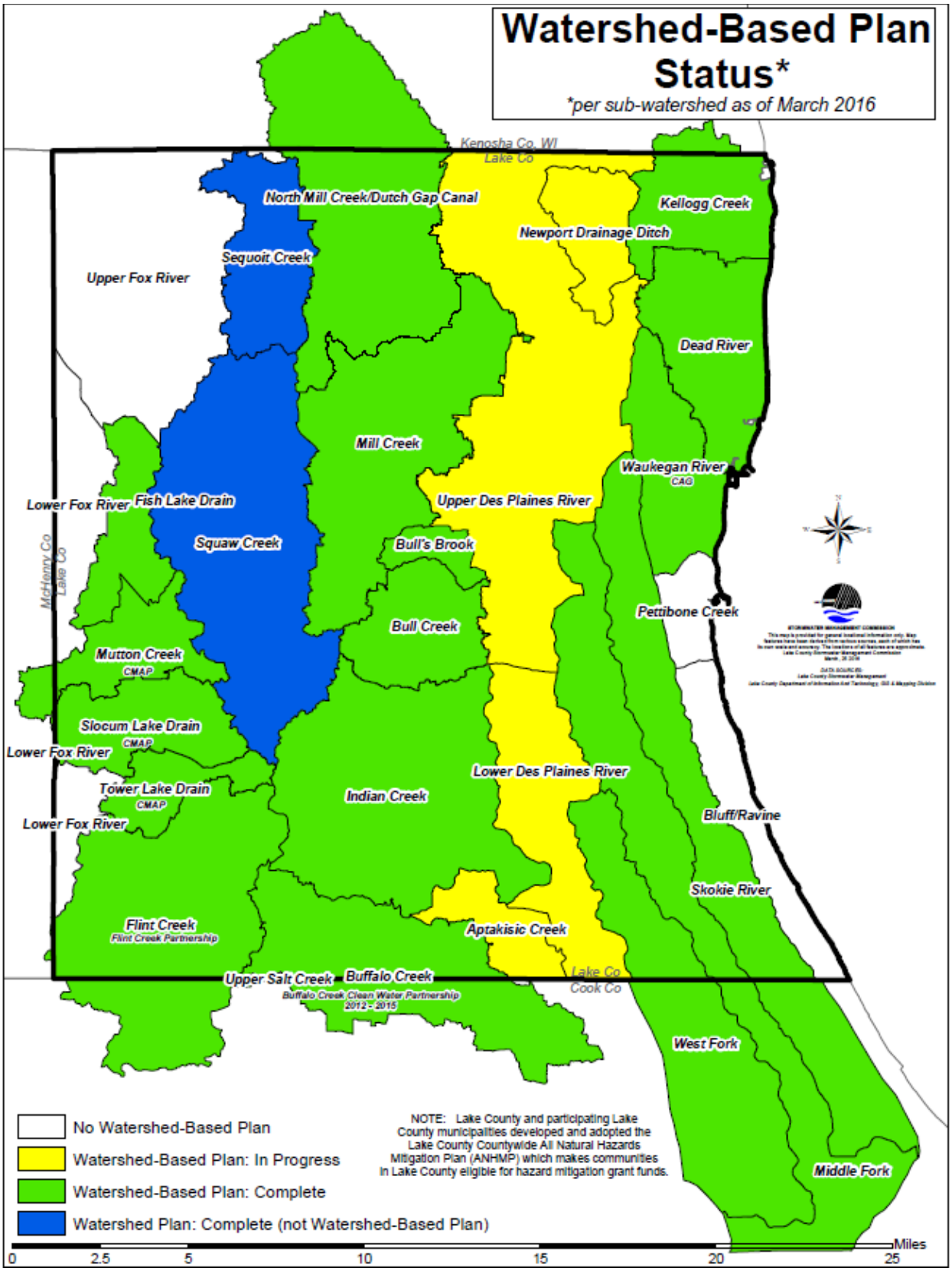


FIGURE 7 - STATUS OF WATERSHED-BASED PLANS

4.0 STORM WATER MANAGEMENT PROGRAM PLAN - CITY OF LAKE FOREST PROGRAM

This section describes that portion of the City of Lake Forest's Stormwater Management Program that is implemented by the City of Lake Forest, in collaboration with other local stakeholder partners.

The City of Lake Forest is a member of the Lake Forest Collaborative for Environmental Leadership (LFCEL); other members include Lake Forest Open Lands, Lake Forest College, Lake Forest Community High School District 115 and Lake Forest Elementary District 67. The LFCEL has the following stated goals:

- *To promote awareness of environmental concerns associated with the decline of ecosystems and the loss of biological diversity and recognize the value of protecting our natural heritage and open spaces. These environmental concerns include water quality, ravine and bluff degradation, eradication of invasive species, air quality issues, tree disease and pest threats, and reduction of waste.*
- *To promote awareness of community-wide projects and programs aimed at improving the natural environment in Lake Forest and improving the quality of life of residents.*
- *To engage a network of resident volunteers to work and take action within our community to address environmental issues and manage the natural resources of the City.*
- *To facilitate community governance and subsequent action through collaboration with Collaborative members' groups and City residents.*
- *Provide collaboration in the development of responsible environmental standards, City ordinances and policies, and promotion of educational awareness for environmental practices in our community.*

The LFCEL provides a unique stakeholder partnership to promote goals that are in common with those of the City's Stormwater Management Program. The LFCEL meets on a monthly basis. A representative of the City of Lake Forest's Public Works Department actively participates in these meetings. The LFCEL maintains a webpage (http://www.cityoflakeforest.com/environmental-initiatives) that can be accessed on the City's Environmental Initiatives webpage @ http://www.cityoflakeforest.com.

In July 2016, the City in conjunction with the LFCEL published the Lake Forest Sustainability Plan. This Plan, (also available on the LFCELs webpage), addresses storm water management and water usage, ecosystem vitality and ravine conservation and waste management among other topics.

The goals for each of these topics set forth in the Sustainability Plan are as follows:

Stormwater Management and Water Usage:

- *Reduce the volume of stormwater entering the ravines, Skokie River, and Middlefork of the Chicago River North Branch using stormwater infrastructure best management practices*
- *Improve the quality of water entering Lake Michigan through the ravines*

- *Increase water conservation*
- *Educate residents on the importance of Lake Forest-specific water issues*

Ecosystem Vitality and Ravine Conservation:

- *Preserve, protect, and when possible, expand open spaces and parks, particularly ravines*
- *•Use sustainable land management practices throughout the community*
- *•Increase native plantings*
- *•Preserve existing trees and increase native tree canopy coverage, particularly oak varieties.*

Waste Management:

- *Reduce the amount of landfilled waste*
- *Improve recycling rates and increase awareness of recycling and responsible disposal alternatives*
- *Increase composting*
- *Increase material reuse*

The City of Lake Forest possesses a number of ravines; unique habitats located within the Lake Michigan watershed. These natural erosional features harbor unique plant communities, but are susceptible to un-natural and accelerated erosion due to changes in stormwater flow. They are addressed in the City's Sustainability Plan, and also are the focus of habitat assessment and restoration activities undertaken by the City as well as by various stakeholders, including the SMC, Alliance for the Great Lakes, with Lake Michigan Watershed Ecosystem Partnership. These susceptible habitats are thus a special focus of the stormwater management efforts being undertaken by the City of Lake Forest, as described in this section of the SMPP.

As identified in the Sustainability Plan the City has developed a Steep Slope Ordinance (Lake Forest Construction Standard - Section 46-15 Steep Slopes). The City also has a Landscaper Certification Program which insures the Contractor carries appropriate liability insurance. The City is also investigating the development of a Pesticide Protocol. .

In 2017, the City of Lake Forest has also undertaken a Ravine Assessment Program; which entails a field assessment of each of the ravines located within the City. This program is detailed in Subsection 5.1.2.

4.1 Public Education and Outreach

In additional to the extensive QLP efforts, which are described in more detail in Subsection 3.1, the City of Lake Forest utilizes a variety of methods to educate and provide outreach to the public about the importance of managing pollutants that potentially could enter the stormwater system. The program includes the following activities which are discussed in greater detail within this Subsection.

- Preparation of a Stormwater Management Policy.

- Distribution of pamphlets regarding stormwater BMPs, water quality BMPs, and proper hazardous waste use and disposal.

- Distribute information on water quality/stormwater via the City of Lake Forest's Dialogue newsletter.

- Attend/sponsor outreach activities to homeowners / property owner associations, commercial / industrial facilities, schools, and other events.

- Coordinate, publicize, and participate in annual SWALCO events.

- Maintain a website which offers links to additional educational information, and ways to contact the City of Lake Forest personnel.

- Advise on the potential impacts and effects on stormwater discharge due to climate change http://epa.gov/climatechange.

4.1.1 Stormwater Management Policy

The City of Lake Forest City Council adopted a Stormwater Management Policy in 2016. The purpose of the policy is to address and educate residents on home and property drainage issues relating to stormwater within the City of Lake Forest. The Policy provides procedures for conducting inspections and maintenance relating to stormwater concerns raised by property owners. The official policy is available on the City's website @ https://www.cityoflakeforest.com/assets/1/7/Stormwater_Management_Policy.pdf.

A policy flyer is also available on the City's website @ https://www.cityoflakeforest.com/assets/1/7/Stormwater_Management_Flyer2.pdf

4.1.2 Distribution of Paper Materials (BMP A.1)

The City of Lake Forest provides educational materials including outreach publications prepared by a variety of regulatory and private organizations that address stormwater management and encourage residences to report environmental concerns.

- City of Lake Forest "Stormwater Management Brochure"
- "Steep Slopes, Long Legacy" brochure.
- "Steep Slopes, Long Legacy" brochure for homeowners near ravines.

These publications are provided in the following manner:

- At outreach events (Subsection 4.1.2).
- On-line at the LFCEL website (Subsection 4.1.3).
- At scheduled meetings with the general public. These meetings are on an as-needed or as-requested basis and may be with the home owners associations, businesses, or local schools.

Measurable Goal(s):

- Support QLP efforts.
- Distribute informational materials including the LFCEL website.

4.1.3 Outreach Events (BMP A.4)

In addition to the QLP's efforts to sponsor or co-sponsor workshops and provide educational presentations, which are described in more detail in Subsection 3.1, the City of Lake Forest will attend and/or sponsor outreach events and scheduled meetings with the general public on stormwater management-related topics. Events sponsored by the QLP often offer the opportunity to share information and facilitate a collective focus on potential solutions to the challenges faced by the County, municipalities, and other stakeholders.

The City of Lake Forest and/or the LFCEL will host at least on public meeting per year that will address issues related to storm water management, water use and proper household waste management. Audiences may include the home owners associations, lake associations, businesses, and neighborhood groups. Notifications of these meeting will be provided on the City website (Subsection 4.1.3) and / or the City's Dialogue newsletter (Subsection 4.1.4). Presentations will be linked at the LFCEL website.

Measurable Goal(s):

- Host one public meeting annually.
- Support QLP efforts.

4.1.4 Other Public Education - Web Site (BMP A.6)

In addition to the QLP's efforts to distribute information via its website, which are described in more detail in Subsection 3.1.6, the City of Lake Forest and the LFCEL have added stormwater information via the LFCEL webpage that is available through the LECELs website @ http://www.cityoflakeforest.com/environmental-initiatives.

This webpage that contains materials and resources related to stormwater management. It includes a webpage that provides:

- Information about IEPA's NPDES Stormwater Program,
- Information about the stormwater management program, including its SMPP, NOI, Permit, Annual Report and Green Practices,
- Copies of informational brochures and/or website links, including those described in Subsection 4.1.2. as well as those which that address the following specific BMPs:
    - Vehicle fluid maintenance (Subsection 4.1.8)
    - Car / Outdoor Washing (Subsection 4.1.9)
    - Lawn and Garden Care (Subsection 4.1.10)
    - Green Infrastructure (Subsection 4.1.11)
    - Pool dewatering (Subsection 4.1.12)
- Links to a number of other stormwater management-related resources, including the Lake County SMC (i.e., the QLP's) website at:

https://www.lakecountyil.gov/553/Stormwater-Management-Commission

Measurable Goal(s):

- Maintain and update the portion of the website dedicated to its stormwater management program including links to SMC, IEPA and SWALCO.
- Post SMPP, the NOI and current and previous Annual Reports on the website.

4.1.5 Other Public Education – City Newsletter (BMP A.6)

The City of Lake Forest provides the "Dialogue" newsletter, a quarterly publication that is mailed to all residents and also published on the City's website @ http://www.cityoflakeforest.com/lake-forest-life/residents/city-dialogue-newsletter. The Dialogue includes sections on Sanitation/Recycling, as well as Stormwater, and provide a venue for notifying residents of up-coming events.

4.1.6 Storm Drain Stenciling & Markers (BMP A.6)

The City of Lake Forest supports the efforts of private entities to stencil or apply stickers to inlets, and their purchase of factory stamped inlet grates. Stamped or stenciled inlets assist in educating the public about stormwater runoff pollution. Efforts include:

- Providing the "Guide to Storm Drain Marking" (by SMC) to Home Owners Associations, school groups etc. that express interest.
- Encouraging new development to furnish stamped inlet grates.
- Encouraging Home Owners Associations to annually paint the embossed area of any stamped inlet grates within the subdivision.
- Instituting a program to add "stickers" or other markers to existing inlets through the use of municipal staff or private groups.
- Existing inlet grates that are not factory stamped which need to be replaced, will be replaced with a factory stamped inlet grate.

Measurable Goal(s):

- Support QLP and private efforts.

4.1.7 Household Hazardous Wastes (BMP A.4)

The SWALCO implements programs throughout Lake County aimed at reducing our reliance on landfills through source reduction, recycling and energy recovery. These programs help residents dispose of problem wastes, such as household chemicals, electronic equipment, and yard waste. Their recycling programs are targeted at both commercial and residential markets to divert as much solid waste as possible from reaching landfills. They also administer a public information and education program including the "Earth Flag" and "Earth Flag Every Day" programs in the schools, promoting SWALCO events, and publishing various resources and public service announcements.

The City of Lake Forest utilizes the following to support SWALCO and provide information on household hazardous waste, including paint wastes generated by households, by:

- Coordinating and hosting annual household hazardous waste event with SWALCO for the residents of the City and Lake County.
- Encouraging participation in this event by publishing the event on the City's website.
- Providing a link to SWALCOs website on the LFCEL website (Subsection 4.1.3).
- Additional outreach materials provided on the LFCELs website (Subsection 4.1.3). Specifically, the following website links and/or brochures may be accessed through the website:
    - USEPA webpage on household hazardous waste @ https://www.epa.gov/hw/household-hazardous-waste-hhw

- Illinois EPA webpage on managing household hazardous waste @ http://www.epa.illinois.gov/topics/waste-management/waste-disposal/household-hazardous-waste/index
- Illinois EPA factsheet on waste paint @ http://www.epa.illinois.gov/topics/waste-management/factsheets/paint/index

In addition, the City also posts links to websites maintained by the USEPA and the IEPA on managing household hazardous waste and paint waste.

Measurable Goal(s):

- Support and publicize SWALCO efforts.
- Maintain links to USEPA and IEPA websites for managing household waste.

4.1.8 Septic System Maintenance (BMP A.6)

Failing septic systems can be a major source of bacteria, nitrogen, and phosphorus, depending on the overall density of systems present in a subwatershed. Failure results in illicit surface or subsurface discharges to streams. Septic systems are a classic case of out of sight and out of mind. Many owners take their septic systems for granted, until they back up or break out on the surface of their lawn. Subsurface failures, which are the most common, go unnoticed. In addition, inspections, pump outs, and repairs can be costly, so many homeowners tend to put off the expense until there is a real problem. Lastly, many septic system owners are not aware of the link between septic systems and water quality.

Under Ordinance 150.384, the City of Lake Forest requires homeowners to conduct an annual septic system inspection by a certified contractor. This information is to be submitted by the homeowner to the City.

4.1.9 Vehicle Fluid Maintenance (BMP A.6)

Dumping of automotive fluids into storm drains can cause major water quality problems, since only a few quarts of oil or a few gallons of antifreeze can severely degrade a small stream. Dumping introduces hydrocarbons, oil and grease, metals, and other pollutants to streams, which can be especially toxic during dry-weather conditions when existing flow cannot dilute these discharges. The major culprit is often the backyard mechanic who changes his or her own automotive fluids. The City of Lake Forest utilizes the following to minimize such illicit discharges:

- Outreach materials provided on the LFCELs website (Subsection 4.1.3). Specifically, the following website links and/or brochures may be accessed through the website:
  - Illinois EPA used oil webpage @ http://www.epa.illinois.gov/topics/waste-management/waste-disposal/used-oil/index
- Information distributed via the City's Newsletter and at outreach events (Subsections 4.1.2 and 4.1.4)
- Providing a City contact for reporting illicit discharges (Subsection 4.2.3)
- Providing for fines and other enforcement actions for illicit discharges (Subsection 4.3.1.2).
- Promoting oil recycling at the annual SWALCO event.

Measurable Goal(s):

- Promote safe vehicle maintenance through previously described BMPs: Outreach Events, Web Site and City Newsletter.

4.1.10 Car / Outdoor Washing (BMP A.6)

Car washing is a common neighborhood behavior that can produce transitory discharges of sediment, nutrients and other pollutants to the curb, and ultimately the storm drain. The City of Lake Forest utilizes the following to address this issue:

- Outreach materials provided on the LFCELs website (Subsection 4.1.3). Specifically, the following website links and/or brochures may be accessed through the website:
    - Mid-America regional Council "Wash Your Car the Right Way" brochure (https://cfpub.epa.gov/npstbx/files/KSMO_CarWashing.pdf).
- Information distributed via the City's Newsletter and at outreach events (Subsections 4.1.2 and 4.1.4)

Measurable Goal(s):

- Promote safe car washing through previously described BMPs via the LFCEL's Website, City's Dialogue Newsletter, and/or Outreach Events.

4.1.11 Lawn and Garden Care (BMP A.6)

Fertilization decisions should be based on the nutritional and growth requirements of plant and the soil conditions. Adding unneeded fertilizer to a yard does not benefit plants and could end up in the storm water system or polluting streams, lakes, and aquifers. By taking care of lawns and gardens properly, Lake Forest residents can save money, time and help the environment. Greenscaping encompasses a set of landscaping practices that can improve the health and appearance of your lawn and garden while protecting and preserving natural resources. This is further described in EPA's Greenscaping Publication. This publication is linked at the LFCEL website.

https://www.epa.gov/sites/production/files/2014-04/documents/greenscaping_-_the_easy_way_to_a_greener_healthier_yard.pdf

Measurable Goal(s):

- Promote safe lawn and garden care through previously described BMPs via the LFCEL's Website, City's Dialogue Newsletter, and Outreach Events.

4.1.12 Green Infrastructure (BMP A.6)

The City of Lake Forest encourages residents' use of storm water infiltration, reuse and evapotranspiration of storm water practices on their properties. Types of techniques include green roofs, rain gardens, rain barrels, bioswales, permeable piping, dry wells and permeable pavement.

The City of Lake Forest utilizes the following to address this issue:

- Outreach materials provided on the LFCELs website (Subsection 4.1.3). Specifically, the following website links and/or brochures may be accessed through the website:
    - USEPA Brochure "Water Efficient Landscaping" (https://www3.epa.gov/npdes/pubs/waterefficiency.pdf)
    - USEPA green infrastructure website (https://www.epa.gov/green-infrastructure)

- Prairie Rivers Network brochure "Rain Gardens for Illinois" (https://prairierivers.org/wp-content/uploads/2012/08/Rain-Garden-Brochure-20121.pdf)
- Rain Garden Network website on building rain gardens (http://www.raingardennetwork.com/how-to-build-a-rain-garden-in-10-steps/)

Measurable Goal(s):

- Promote the use of green infrastructure on private property through previously described BMPs via the LFCEL's Web Site , City's Dialogue Newsletter, and Outreach Events

4.1.13 Pool Dewatering (BMP A.6)

Chlorinated water discharged to surface waters, roadways or storm sewers has an adverse impact on local stormwater quality. High concentrations of chlorine are toxic to wildlife, fish and aquatic plants. Waters possessing extreme pH can also be detrimental to aquatic organisms; the pH of the water should be between 6.5 and 8.5. Algaecides such as copper or silver can interrupt the normal algal and plant growth in receiving waters and should not be present when draining. Prepare appropriately before draining down a pool. It is recommended that one of the following measures be used:

1) De-chlorinate the water in the pool prior to draining through mechanical or chemical means; these types of products are available at local stores.

2) De-chlorinate the water in the pool through natural means. Pool water must sit at least 2 days with a reasonable amount of sun, after the addition of chlorine or bromine. It is recommended that the chlorine level be tested after 2 days to ensure that concentrations are at a safe level (below 0.1-mg/l).

Measurable Goal(s):

- Promote safe pool dewatering through previously described BMPs via the LFCEL's Web Site, City's Dialogue Newsletter, and Outreach Events.
- Efforts should be targeted each fall, preferably September and may incorporate the use of the *Pool Dewatering Fact Sheet* presented in **Appendix B**.

4.2 Public Participation and Involvement

The public participation and involvement program allows input from citizens during the development and implementation of the SMPP.

4.2.1 Public Review Process (BMP B.1)

In addition to the QLP's efforts to coordinate and conduct public meetings as well as committee meetings that are open to the public throughout Lake County, the City of Lake Forest presents each year's annual report to the Public Works Committee during an open meeting and provide for input from the public as to the adequacy of the permittee's MS4 program. Annual reports will summarize the Annual Facility Inspection Report (AFIR) made to the IEPA in accordance with the ILR40 Permit, and will be presented at the first Committee meeting held after submission of the AFIR to the IEPA, which typically is the July meeting. The annual report will be listed as an agenda item for the meeting, which are posted on the City of Lake Forest's website. Comments are evaluated for inclusion and incorporated into the next revision of the SMPP as appropriate.

Measurable Goal(s):

- Present each year's annual report to the Public Works Committee during an open meeting and provide for input from the public as to the adequacy of the permittee's MS4 program.
- Support QLP efforts.

4.2.2 Environmental Justice Areas

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

EPA has this goal for all communities and persons across this nation. It will be achieved when everyone enjoys:

- the same degree of protection from environmental and health hazards, and
- equal access to the decision-making process to have a healthy environment in which to live, learn, and work.

Potential EJ communities will be identified based on IEPA guidance, to include communities with a low-income and/or minority population greater than twice the statewide average. In addition, a community may be considered a potential EJ community if the low-income and/or minority population is less than twice the state-wide average but greater than the statewide average and that has identified itself as an EJ community. If the low-income and/or minority population percentage is equal to or less than the statewide average, the community should not be considered a potential EJ community.

The City of Lake Forest utilized the following web application as another resource that can be used to determine if an area would qualify for consideration as an environmental justice community: https://ejscreen.epa.gov/mapper/index.html. This assessment has revealed that Lake Forest is not an EJ community.

Measurable Goal(s):

- Identify EJAs, if any, within the community and ensure that BMP efforts are targeted at these areas.

4.2.3 Complaints, Suggestions and Requests (BMP B.7)

The City of Lake Forest encourages the submission of complaints, suggestions and requests related to its stormwater program. Calls are screened, logged and routed to the appropriate department for action. General program related calls are directed to the Stormwater Coordinator, or designee. Construction activity related telephone calls are directed to the Enforcement Officer, or designee. Reports of dumping, spills or illicit discharges are directed to the Stormwater Coordinator.

Measurable Goal(s):

- Encourage submission of complaints, suggestions and requests by publicizing contact information on previously described BMPs via the LFCEL's Web Site and the City's Dialogue Newsletter.

4.3 Illicit Discharge Detection and Elimination[2]

Currently, illicit discharges (defined in 40 CFR 122.26(B)(2)) contribute considerable pollutant loads to receiving waters. There are two primary situations that constitute illicit discharges; these include non-stormwater runoff from contaminated sites and the deliberate discharge or dumping of non-stormwater. Illicit discharges can enter the storm sewer system as either an indirect or direct connection.

Program objectives and procedures for the identification and removal of direct connections of pollutants into the storm water management systems (including wetlands and receiving waters) are included in this manual. Step-by-step instructions for identifying storm sewers suspected of containing pollutants, suggestions for actions to be taken to determine the sources of identified pollutants, and steps for correcting identified problems are provided. The results of the procedures presented in this manual are intended to serve as indicators of pollution, rather than to provide specific quantitative analysis. If the presence of pollutants is indicated, the detective work of identifying the source of the discharge can begin. Once the source is identified, it can then be corrected.

4.3.1 Regulatory Authority (BMP C.2)

Effective implementation of an Illicit Discharge Detections and Elimination (IDDE) program requires adequate legal authority to remove illicit discharges and prohibit future illicit discharges. This regulatory authority is achieved through adoption of the WDO and the local IDDE Ordinance. Additionally, IEPA has regulatory authority to control pollutant discharges and can take the necessary steps to correct or remove an inappropriate discharge over and above MS4 jurisdiction.

4.3.1.1 Watershed Development Ordinance

Several provisions of the WDO prohibit illicit discharges as part of the development process. These provisions are only applicable for regulated development activities as defined by the WDO. Regulated developments are required to meet the soil erosion and sediment control standards of the WDO. Furthermore, the WDO requires that the applicant prohibit illicit discharges into the stormwater management system generated during the development process.

The WDO allows the City of Lake Forest to require inspection deposits, performance bonds, and to adopt/enforce violation procedures. These tools assist in achieving complaint construction sites. These items are further discussed in Subsections 3.4, 3.5, 4.4 and 4.5.

Measurable Goal(s):

- Support QLP efforts.
- Enforce WDO

[2] Subsection 4.3 is a revision of the Lake Michigan Watershed Stormwater Outfall Screening Program Training Program (April 1994 by SMC), and incorporates material from the Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (October 2004 by the Center for Watershed Protection and Robert Pitt, University of Alabama).

4.3.1.2 Illicit Discharge Ordinance

The City of Lake Forest has created and adopted an Illicit Discharge Ordinance – Ordinance 2014-34; codified as Paragraph 150.401 under Title XV - Land Use and Development of the City of Lake Forest, Illinois Code of Ordinances. This Ordinance is the mechanism to allow for the execution and enforcement of the SMPP and is enforced.

Measurable Goal(s):

- Enforce Illicit Discharge Ordinance

4.3.1.3 Subdivision and Sediment Grading, Drainage and Erosion Ordinances

The City of Lake Forest has created and adopted a Subdivision Ordinance and a Sediment Grading, Drainage and Erosion Control Ordinances (Chapters 156 and 151, respectively under Title XV - Land Use and Development of the City of Lake Forest, Illinois Code of Ordinances). These Ordinances are administered by the Building and Engineering Departments and can be used to further support the activities required by the SMPP.

Measurable Goal(s):

- Enforce Subdivision and Sediment Grading, Drainage and Erosion Control Ordinances.

4.3.2 Understanding Outfalls and Illicit Discharges

Understanding the potential locations and the nature of illicit discharges in urban watersheds is essential to find, fix and prevent them.

4.3.2.1 Potential Sources of Illicit Discharges

Inspecting storm water outfalls during dry-weather conditions reveals whether non-storm water flows exist. If non-storm water flows are observed, they can be screened and tested to determine whether pollutants are present.

There are two primary situations that constitute illicit discharges; these include non-storm water runoff from contaminated sites and the deliberate discharge or dumping of non-storm water. Deliberate discharge or dumping can enter the storm sewer system in two ways:

- direct connections – through direct piping connections to the storm sewer system, and
- indirect connections – through subtle connections, such as dumping or spillway of materials into storm sewer drains.

Direct connections are more likely to result in continuous pollutant discharges than indirect connections, which often produce limited, intermittent discharges of pollutants. USEPA guidance indicates that direct connections to storm sewer systems most likely originate from commercial/industrial facilities. Thus, the focus of this manual is the identification of illicit discharges from commercial/industrial facilities.

4.3.2.2 Exclusions

It is noted that not all dry-weather flows are considered inappropriate discharges. Under certain conditions, the following discharges are not considered inappropriate by USEPA or IEPA:

- Water line flushing,
- Landscaping irrigation,
- Diverted stream flows,
- Rising groundwater,
- Uncontaminated groundwater infiltration,
- Uncontaminated pumped groundwater,
- Discharges from potable water sources,
- Flows from foundation drains,
- Air conditioning condensation,
- Irrigation water,
- Springs,
- Water from crawl spaces,
- Lawn watering,
- Individual car washing,
- Flows from riparian habitats and wetlands,
- Dechlorinated swimming pool water, and
- Street wash water.
- Discharges from dewatering activities, if managed by appropriate controls as specified in a project's SMPP, erosion and sediment control plan, or stormwater management plan.

4.3.2.3 Prohibited Discharges

It is noted the following non-stormwater discharges are prohibited by the ILR40 permit:

- Concrete and wastewater from washout of concrete (unless managed by an appropriate control),
- Drywall compound,
- Wastewater from washout and cleanout of stucco
- Paint
- Form release oils
- Curing compounds and other construction materials
- Fuels
- Oils or other pollutants used in vehicle and equipment O&M,
- Soaps, solvents, or detergents,
- Toxic or hazardous substances from a spill or other release
- Any other pollutant that could cause or tend to cause water pollution

Appendix C provides a description of pollutant indicators. This description is adapted from New Hampshire Estuaries Project and the IDDE Guidance Manual by the CWP.

4.3.3 Indirect Connection Program (BMP C.3)

Indirect connections are subtle connections, such as dumping or spillage of materials into storm sewer drains. Flash dumping is a common type of indirect connection. Generally, indirect modes of entry produce intermittent or transitory discharges, with the exception of groundwater seepage. There are five main modes of indirect entry for discharges.

Upon observing or receiving notification of a potential illicit discharge, the Illicit Discharge Incident Tracking Form, found in **Appendix D,** is used to log and investigate the incident. Appropriate procedures found within this Section are implemented in the event an illicit discharge has been confirmed.

Measurable Goal:

- Track efforts related to indirect illicit discharges.

4.3.3.1 Groundwater Seepage

Seepage discharges can be either continuous or intermittent, depending on the depth of the water table and the season. Groundwater seepage usually consists of relatively clean water that is not an illicit discharge by itself, but can mask other illicit discharges. If storm drains are located close to sanitary sewers, groundwater seepage may intermingle with diluted sewage. Addressing seepage that is observed during the outfall screening process is described in more detail in this Subsection.

4.3.3.2 Spills

These transitory discharges occur when a spill travels across an impervious surface and enters a storm drain inlet. Spills can occur at many industrial, commercial and transport-related sites. A very common example is an oil or gas spill from an accident that then travels across the road and into the storm drain system. The Spill Response Plan is described in Subsection 4.6.2.

4.3.3.3 Dumping

Dumping a liquid into a storm drain inlet: This type of transitory discharge is created when liquid wastes such as oil, grease, paint, solvents, and various automotive fluids are dumped into the storm drain. Liquid dumping occurs intermittently at sites that improperly dispose of rinse water and wash water during maintenance and cleanup operations. A common example is cleaning deep fryers in the parking lot of fast food operations. The Storm Drain Stenciling, Household Hazardous Wastes, Vehicle Fluid Maintenance and Pool Dewatering programs are designed to minimize dumping; these programs were previously described in Subsection 4.1. The procedure for handling a dumping incident is described in Subsection 4.6.2.

4.3.3.4 Outdoor washing activities

Outdoor washing may or may not be an illicit discharge, depending on the nature of the generating site that produces the wash water. For example, hosing off individual sidewalks and driveways may not generate significant flows or pollutant loads. On the other hand, routine washing of fueling areas, outdoor storage areas, and parking lots (power washing), and construction equipment cleanouts may result in unacceptable pollutant loads. Individual washing activities are addressed through the Public Education and Outreach Program in Subsection 4.1, whereas

observed/documented routine washing activities should be addressed through the Removal of Illicit Discharges Procedure in Subsection 4.3.4.4.

4.3.3.5 Non-target irrigation from landscaping or lawns

Irrigation can produce intermittent discharges from over-watering or misdirected sprinklers that send tap water over impervious areas. In some instances, non-target irrigation can produce unacceptable loads of nutrients, organic matter or pesticides. The most common example is a discharge from commercial landscaping areas adjacent to parking lots connected to the storm drain system. This type of discharge is addressed by the Public Education and Outreach Program in Subsection 4.1.9.

4.3.4 Direct Connection Illicit Discharge Program (BMP C.3 – C.8)

Direct connections enter through direct piping connections to the storm sewer system, and since direct connections exist regardless of whether or not a stormwater event (e.g. rain or melting snow) is occurring, they are most easily detected during dry-weather periods. Inspection of stormwater outfalls during dry-weather conditions reveals whether non-stormwater flows exist. If non-stormwater flows are observed, they can be screened and tested to determine whether pollutants are present. If the presence of pollutants is indicated, the detective work of identifying the source of the discharge can begin. Once the source is identified, it can then be corrected. A direct connection illicit discharge program consists of three principal components: 1) outfall inspection, and 2) follow-up investigation and 3) removal.

4.3.4.1 Program Planning

Program Planning involves the office work, planning, and organization required to conduct outfall screening and follow-up investigative activities of the program. This includes the identification of the staffing and equipment needed to conduct the outfall screening and scheduling inspection activities. Program planning also identifies the regulatory authority to remove directly connected illicit discharges and the identification of the outfalls and receiving waters in the municipality (both discussed earlier in this Subsection).

Staffing - Personnel for an outfall inspection screening program are required for program administration, effort for conducting the outfall screening, and any follow-up investigations. Typically, a two-member crew is required for the outfall screening and follow-up portions of the program.

Equipment Needs - General field equipment and specialized outfall screening equipment are required for IDDE programs. The method of collecting and managing inspection screening data is driven by available technology. A complete list of recommend equipment and supplies is found on the Stormwater Outfall Screening Equipment Checklist (**Appendix E)**. Field Crews carry basic safety items, such as cell phones, surgical gloves, and first aid kits. Additional safety precautions are described following the Equipment Checklist.

Scheduling - Perform all pre-screening and follow-up inspections preceding a dry-weather period, a period of 72 hours of dry weather. A period of 72 hours is selected to allow local detention facilities to drain and local groundwater flows to recede after precipitation events. However, some judgment may be exercised in evaluating the 72-hour period to sampling. For example, if very light rain or drizzle occurred and no runoff was experienced, it is likely that dry-weather conditions would exist and outfall inspection could be conducted.

Pre-Screening - Pre-screening is on-going, in coordination with the outfall inventory, refer to Subsection 4.3.4.2. High priority dry weather flow locations will be identified in 2016, in accordance with the new ILR40 permit. It is recommended that all outfalls be re-screened in 2022 and every 5 years thereafter.

Pre-screening should generally take place during the late summer or fall months, ideally in August, September, or October, although other summer months may be acceptable, depending on weather conditions. This time period is generally warm, which improves field efficiency as well as reliability and consistency of field-testing. This time period is also more likely to have extended dry periods with little or no precipitation, which is required for the inspection activities.

Outfall Inspections - Upon completion of the pre-screening efforts, review collected data to identify outfalls with observed dry weather flow or other indicators of an illicit discharge, refer to Subsection 4.3.4.2. Schedule outfall inspections so that all identified outfalls with potential illicit discharges are investigated within the following 5-years, ensuring that outfalls with the greatest potential for the presence of an illicit discharge are investigated first. Annual inspection of all high priority outfalls, as identified in Subsection 1.3.1, is required.

4.3.4.2 Outfall Inspection (BMP C.3)

The identification of potential illicit discharge locations is primarily a two part process, pre-screening and follow-up inspections. Pre-screening is performed by a rapid inspection of all outfalls in a pre-determined area such as along a receiving water. Follow-up inspections are required for those pipes found to have dry weather flow. Once probable illicit discharges are found, identify the sources of illicit discharges and correct per the removal procedure of Subsection 4.3.4.4. Outfall inspection consists of the following tasks:

(1) Pre-Screening

(2) Outfall Inspection, and

(3) Outfall Assessment and Documentation.

Pre-Screening - Pre-screening consists of a rapid inspection of outfalls, during dry weather flow conditions. During pre-screening basic information should be obtained for each outfall. Recommended information includes basic data about the structure (such as size, shape, material, condition), presence of dry weather flow determination and a photograph. The Outfall Inventory was previously described in Subsection 1.3.1.

Measurable Goal:

- Pre-screen outfalls and search for new outfalls, repeat every five years.

Outfall Inspection - An outfall inspection is required for those outfalls identified during pre-screening inspections with dry weather flow or other indicators of a potential illicit discharge. The intent is to gather additional information to determine if an illicit discharge is present. Upon arriving at an outfall, the field crew should inspect the outfall by approaching the outfall on foot to a proximity that allows for visual observations to be made. Outfalls should be screened to determine which one of the three following conditions applies:

- The outfall is dry or damp with no observed flow,

- Flowing discharges are observed from the outfall, or
- The outfall is partially or completely submerged with no observed flow or is inaccessible.

The field crew should photograph the outfall and complete applicable sections of the Storm Water Outfall Inspection Data Form (**Appendix F).** The need for on-site testing and obtaining grab samples for laboratory analysis is determined by using the flow chart as guidance. Testing results are used to identify potential sources. Instructions for Completing the Storm Water Outfall Inspection Data Form and an associated Outfall Inspection Procedure Flow Chart (used to identify applicable sections of the form that must be filled out) are included in **Appendix F**. Initial testing results are NOT intended to document the event for future removal and/or enforcement actions. If the initial testing results identify a potential illicit discharge, proceed to the follow-up investigation procedures discussed in Subsection 4.3.4.3.

Locating an upstream sampling point may be required if any of the following conditions exist at an outfall:

- The outfall discharge is submerged or partially submerged due to backwater conditions,
- Site access and safety considerations prevent sample collection,
- Other special considerations.

Make reasonable efforts to location upstream sampling location(s) using the available storm sewer atlas and development plan information. Manholes, catch basins, or culvert crossings can be used for upstream sampling locations. If no dry weather flow is present (i.e. the submerged outfall is based solely on a backwater condition, follow the above Scenario 1 procedure. If dry weather flow is identified in an upstream manhole, follow the above Scenario 2 procedure. If the upstream manhole(s) are inaccessible, resolve the problem in the office with appropriate supervisory personnel.

Measurable Goal:

- Inspect outfalls identified during pre-screening inspections with dry weather flow or other indicators of a potential illicit discharge over a 5-year period.
- Inspect all high priority outfalls, as identified in Subsection 1.3.1 annually.

<u>Outfall Assessment and Documentation</u> - Complete the Storm Water Outfall Inspection Data Form ***(*Appendix F**) for all outfall screening and grab sampling activities. All completed forms must be dated, legible, and contain accurate documentation of each outfall inspection. *A separate data form must be completed for each outfall*. It is recommended that non-smearing pens be used to complete the forms and that all data be objective and factual. Once completed, these data forms are considered accountable documents and are maintained as part of the municipality's files. In addition to standard information, the data form is used to record other information that is noted at the time the outfall inspection is conducted. For example, observations of dead or dying plants, fish kills, algal blooms (excessive algae growth), construction activities, and other activities that might provide information regarding the potential for illicit connections or inappropriate discharges should be recorded on the form.

Measurable Goal:

- Document all outfall inspections.

4.3.4.3 Follow-Up Investigation and Program Evaluation (BMP C.4)

Follow-up investigation and program evaluation will entail the following steps:

1. Review inspection results.
2. Conduct detailed storm sewer investigation.
3. Conduct tracing.
4. Removal of inappropriate discharges.
5. Program evaluation.

Measurable Goal:

- Continue investigation for outfalls identified through outfall inspection efforts to have a potential illicit discharge.

Outfall Screening Results Review and Assessment - Follow up inspections are required for outfalls identified to have potential illicit discharges during the outfall inspection procedure. This is accomplished by reviewing the Stormwater Outfall Inspection Data Forms ***(*Appendix F)** collected during outfall investigations to determine which outfalls require a follow up investigation, target sewer system areas (using available mapping and atlas information) for detailed investigation.

Independent Verification - If the initial outfall assessment identifies potential illicit discharges (through either the on-site of off-site testing procedures), additional sampling is required. The results of the inspection and testing should be discussed with the Stormwater Coordinator. Contract an independent laboratory to take and test an additional sample and verify preliminary finding. Use the established procedure to coordinate the independent laboratory sample and testing.

Source Identification - Follow up investigation is required for all outfalls with positive indicators for pollutant discharges during the pre-screening efforts.

Mapping and Evaluation (BMP C.1) - For each outfall to be investigated, a large-scale working map should be obtained (digitally or in paper form) that includes the entire upstream storm sewer network, outfall locations and parcel boundaries indicated. This map product is based on information from the storm sewer atlas and outfall inventory. Land use information is evaluated to determine the types of residential, commercial, and industrial areas that might contribute the type of pollution identified at the outfall. An attempt is then made to match detected indicators with upstream activities.

Storm Sewer Investigation - After conducting the mapping evaluation, a manhole-by-manhole inspection is conducted to pinpoint the location of the inappropriate discharge, into the storm sewer / conveyance system. This inspection requires a field crew to revisit the outfall where the polluted dry-weather discharge was detected. The field crew should be equipped with the same testing and safety equipment and follow similar procedures as used during the outfall inspection.

After confirming that dry-weather flow is present at the outfall, the field crew continues moving to the next upstream manhole or access point investigating for dry weather flow. In cases where more than one source of dry-weather discharge enters a manhole, the field crew records this information on the screening form and then tracks each source separately. All sources are tracked upstream, manhole-by-manhole, until the dry-weather discharge is no longer detected. Finally, the last manhole where dry-weather flow is present is identified and potential sources to that manhole are accessed. This data is important for source identification.

The field crew should also determine whether there has been a significant change in the flow rate between manholes. If the flow rate appears to have changed between two manholes in the system, the illicit connection likely occurs between the two manholes. Changes in the concentration of pollutant parameters could also aid in confirming the presence of an illicit connection between the two manholes.

Tracing - Once the manhole inspection has identified the reach area, between two manholes suspected of containing an inappropriate discharge, testing may be necessary. If there is only one possible source to this section of the storm sewer system in the area, source identification and follow-up for corrective action is straightforward. Multiple sources, or non-definitive sources, may require additional evaluation and testing in order to identify the contributing source. The method of testing must be approved by the PWD Director prior to testing. Potential testing methods include fluorometric dye testing, smoke testing, and/or remote video inspections. Once identified, clearly log the contributing source.

4.3.4.4 Removal of Illicit Discharges (BMP C.5)

Removal of illicit discharge connections is required at all identified contributing sources. The following eight steps are taken to definitively identify and remove an inappropriate discharge to the storm sewer system:

Step 1. Have an outside laboratory service take a grab sample and test for the illicit discharge at the manhole located immediately downstream of the suspected discharge connection.

Step 2: Conduct an internal meeting with appropriate personnel including Public Works Personnel, Public Works Director, Building Department Code Enforcement Officer, and Stormwater Coordinator to discuss inspection and testing results and remedial procedures.

Step 3: The Public Works Administration shall send a notification letter to the owner/operator of the property/site suspected of discharging a pollutant. The letter should request that the owner/operator describe the activities on the site and the possible sources of non-stormwater discharges including information regarding the use and storage of hazardous substances, chemical storage practices, materials handling and disposal practices, storage tanks, types of permits, and pollution prevention plans.

Step 4: Arrange a meeting for an inspection of the property with Public Works Personnel, the Building Department Code Enforcement Officer, and the owner/operator of the property where the pollution source is suspected. Most illicit connections and improper disposal can probably be detected during this step. Notify the site owner/operator of the problem and instruct them to take corrective measures.

Step 5: Conduct additional tests as necessary if the initial site inspection is not successful in identifying the source of the problem. The Public Works Director is responsible for determining the appropriate testing measure to pinpoint the source.

Step 6: If the owner/operator does not voluntarily initiate corrective action, the Building Department Code Enforcement Office issues a notification of noncompliance. The notification includes a description of the required action(s) a time frame in which to assess the problem and take corrective action. Upon notification of noncompliance, the owner can be subject to any penalties stipulated in the IDDE Ordinance.

Step 7: Conduct follow-up inspections after stipulated time frame has elapsed to determine whether corrective actions have been implemented to: 1) remove the illicit connection or 2) eliminate the improper disposal practice.

Step 8: If corrective actions have been completed (i.e. and the illicit discharge has been eliminated) the Public Works Administration sends a notification of compliance letter to the owner/operator of the property/site suspected of discharging a pollutant.

If corrective actions have not been completed an additional internal meeting with appropriate municipal) personnel (likely including involved Public Works Personnel, Public Works Director, Building Department Code Enforcement Officer, and Stormwater Coordinator) is held to determine appropriate steps to obtain compliance. Appropriate actions may include monetary or other penalties.

Note, the City of Lake Forest may abbreviate and or circumvent this eight step process in order to address illicit discharges that are believed to be creating a condition of imminent hazard or harm to human health and/or the environment.

Measurable Goal:

- Administer Removal Procedures for outfalls with illicit discharges.

4.4 Construction Site Runoff Control

4.4.1 Regulatory Program (BMP D.1)

In addition to the QLP efforts described in Subsection 3.4, the City of Lake Forest has adopted the WDO and is currently a Certified Community for the review, permitting, inspection and enforcement of the provisions of the WDO. The community designates an Enforcement Officer; this person is responsible for the administration and enforcement of the WDO. The City of Lake Forest has created an Inspection and Violation Notification Procedure to ensure compliance with the WDO.

Measurable Goal:

- Support QLP efforts
- Enforce WDO

4.4.2 Responsible Parties (BMP D.1)

4.4.2.1 Applicant

The applicant is ultimately responsible for ensuring compliant soil erosion and sediment control measures on-site during construction. General contractors, sub-contractors and other hired employees of the applicant can assist the applicant in maintaining a compliant site; however the applicant remains the responsible party. The applicant is also responsible for obtaining all other required state and federal permits, including an NOI with IEPA and upholding all permit conditions (including completing inspection logs).

4.4.2.2 DECI – Designated Inspectors

As previously described in Subsection 3.4.1, the purpose of the DECI program is to facilitate positive communication between the City of Lake Forest and the permit holder by creating a single point of contact for soil erosion/sediment control issues with the idea that it is easier to prevent soil erosion and sediment control problems than it is to correct them after they have occurred. Further, the program is intended to improve site conditions, minimize environmental impacts, and educate contractors/developers/inspectors about proper soil erosion/sediment control BMPs.

The applicant, for sites that exceed the WDO thresholds per §601, is required to hire or employ a DECI.

- All development with 10 acres or more of hydrologic disturbance
- All development with 1 acre or more of hydrologic disturbance ***and*** regulatory floodplain ***or*** wetlands on site or on adjoining properties.

The DECI can work for the permittee's contractor, subcontractor, consultant, etc. He does not have to be a direct employee of the permittee. SMC keeps a list of DECIs that have been approved.

The DECI has the responsibility to conduct inspections as required, document inspections, keep inspections and project plans available on site, report noncompliance issues promptly, recommend soil erosion/sediment control measures. Assuming the DECI is competently completing these steps, the DECI is considered to meet the requirements of the program. Ultimately, liability for a development in noncompliance may fall to the owner, the applicant, the contractor, the developer, the DECI, or anyone else involved as determined on a case by case basis.

Sites that do not require a DECI may still require a designated inspector under the NPDES II permit process. Significant efforts have been made to minimize overlap between the two programs. Currently all sites with greater than 1 acre or more of hydrologic disturbance require a permit from IEPA and a designated inspector (which is more stringent than the DECI requirements). A designated inspector, under the IEPA program, does not need to be a DECI recognized by SMC; however a DECI can fulfill both rolls. However, the site inspection logs can typically meet the permit conditions of both the WDO and the IEPA.

The DECI reports to the Enforcement Officer. However, SMC administers the DECI program. During the course of a project, the DECI must notify the Enforcement Officer within any if the development site is determined to be noncompliant with the soil erosion and sediment control plan.

The City of Lake Forest's Stormwater Coordinator should also be contacted within 24-hours. It is highly recommended that the Stormwater Coordinator remind the DECI to also file an ION with IEPA. If the discharge from the construction site enters a receiving water within the MS4 jurisdictional boundaries, it is highly recommended that the MS4 also file an ION with IEPA.

4.4.2.3 Enforcement Officer

It is also both the right and the responsibility of the Enforcement Officer to ensure that all incidences of non-compliance received from a DECI are resolved. Furthermore it is the Enforcement Officer's right and the responsibility to notify the SMC if a DECI listed by SMC is not adequately performing the DECI responsibilities. SMC may remove a DECI from the approved DECI list. However, a DECI may be removed from a development by the Enforcement Officer at their sole discretion.

4.4.2.4 Municipal Contact – Stormwater Coordinator

The City of Lake Forest has the responsibility to designate a contact with both the SMC and the IEPA. The City of Lake Forest has designated the Water and Sewer Supervisor to fulfill both roles. SMC refers to this person as their community contact. The community contact provides support and coordinates with SMC on development related activities within the community. The IEPA considers this person the Stormwater Coordinator - Subsection 2.2.1 provides additional information regarding the role of the Stormwater Coordinator.

4.4.3 Erosion and Sediment Control BMPs (BMP D.2)

As described in the QLP section above, the site plan is required to comply with minimum prescribed practice requirements set forth in the WDO. The WDO also allows for the City of Lake Forest to require additional measures, above and beyond MCMs, to prevent the discharge pollutants from construction sites.

Measurable Goal:

- Support QLP efforts
- Enforce WDO

4.4.4 Construction Site Waste Control (BMP D.3)

As described in the QLP section, the WDO includes appropriate waste control provisions.

Measurable Goal:

- Support QLP efforts
- Enforce WDO

4.4.5 Site Plan Review (BMP D.4, E.4)

The City of Lake Forest is a certified community for the enforcement of the Stormwater Provisions of the WDO. Applicants are directed to Engineering Department for information pertaining to the permitting process. Developments that exceed the WDO minimum thresholds are provided with a WDO application form. Applicants submit the completed form and supporting documentation to the Engineering Department for review and comment. The Engineering Department performs a

review of the proposed site plan and provides comments to the applicant on any plan deficiencies and/or recommended plan enhancements. The plan review also assists in identifying other approvals that the applicant may be required to obtain. The permit is issued once all applicable provisions of the WDO have been addressed. The permit lists any additional conditions that are applicable for the development, including providing prior notification of the pre-construction meeting to the City of Lake Forest or SMC. Attendance of the pre-construction meeting shall be made a condition of the permit for all major developments. The applicant is required to post the permit at the construction site.

Measurable Goal:

- Support QLP efforts
- Enforce WDO

4.4.6 Site Inspection Procedures (BMP D.6, E.5)

WDO provisions are described in the QLP section above. Representatives of the City of Lake Forest are authorized to enter upon any land or water to inspect development activity and to verify the existing conditions of a development site that is under permit review.

The City of Lake Forest may inspect site development at any stage in the construction process.

Site Inspection Process:

- The City of Lake Forest or SMC attends the pre-construction meeting on applicable development sites. Complete the Pre-Construction Meeting Form **(Appendix G)**. It is also recommended that the inspector request to see the SMPP and IEPA NOI for applicable construction sites.
- The applicant notifies the City of Lake Forest or SMC when initial sediment and runoff controls measures have been installed.
- The City of Lake Forest or SMC inspects the initial sediment and runoff control measures and authorizes the start of general construction.
- The City of Lake Forest or SMC inspects the stormwater management system and authorizes additional site improvement activities.
- The City of Lake Forest or SMC performs site inspections at the recommended intervals listed above and completes the Soil Erosion Sediment Control (SE/SC) Inspection Form **(Appendix H).**
- For sites that exceed the WDO thresholds per §601 a DECI is required, refer to Subsection 4.4.2.2 for additional information regarding the program.
- The City of Lake Forest or SMC requires as-built documentation of the stormwater management system prior to final site stabilization. Tags of the seed mixes are kept by the developer for inspection and approval. Upon approval of the as-builts, the applicant shall permanently stabilize the site.

Measurable Goal:

- Support QLP efforts
- Enforce WDO

4.4.7 Public Information Handling Procedures (BMP D.5)

The QLP has established a CIRS which processes both citizen and agency inquiries. Additionally, the Community frequently receives phone calls regarding a development, either during the review or construction phase. Both site design and construction related phone calls are directed to the Enforcement Officer, or designee. Site design comments are handled on a case by case basis. Construction related calls are typically addressed by performing a site inspection.

Measurable Goal:

- Support QLP CIRS efforts
- Enforce WDO

4.4.8 Performance Guarantees (BMP D.6)

Pre-construction meeting – No deposit required.

Performance Guarantee (surety) is required for public improvements (i.e. sewer, water, right-of-way work), stormwater management system and landscaping. The Engineers Opinion of Probable Construction Cost (EOPCC) is provided to City of Lake Forest for review/approval. The required surety amount shall be 110% of the approved EOPCC. In cases where the SMC requires a surety the Community will only hold a surety for the portions of the EOPCC that is not being held by SMC. Alternatively, the Community will provide SMC with a letter indicating that the City of Lake Forest will hold the surety and not reduce the surety amount until SMC approval has been obtained.

The City of Lake Forest will hold 10% of the surety for a minimum of 1-yr after site stabilization is complete, and as-built drawings are accepted, to ensure that the vegetation is established and no failures occur. For sites with native vegetation, this portion of the surety will be held for a minimum of 3-yr after site stabilization.

Measurable Goal:

- Enforce WDO

4.4.9 Violation Notification Procedures (BMP B.6)

In general the compliance due date should be within 5-working days. However, if the inspector determines that the violation is or will result in significant environmental, health or safety hazards a 24-hour due date should be set. For time-critical violations, the developer should also be advised to complete an ION report with IEPA for all sites that were required to obtain a n NOI with IEPA. If the discharge from the construction site enters a receiving water within the MS4 jurisdictional boundaries, it is highly recommended that the MS4 also file an ION with IEPA. The SE/SC Inspection Form is found in **Appendix H**. The violation procedure is included in **Appendix I** along with a sample letter of violation.

Measurable Goal:

- Enforce WDO

4.5 Post Construction Runoff Control

The City of Lake Forest complies with NDPES permit requirements by incorporating Ordinance and BMP standards to minimize the discharge of pollutants of development projects. This Subsection describes how the compliance with stormwater discharge permit requirements for long-term post-construction practices that protect water quality and control runoff flow is achieved.

This SMPP creates and references extensive policies and procedures for regulating design and construction activities for protecting receiving waters. The design and construction site practices selected and implemented by the responsible party for a given site are expected to meet BMP measures described through the Lake County Technical Reference Manual and IEPA's Program recommendations. All proposed permanent stormwater treatment practices must be reviewed and approved by the Enforcement Officer.

4.5.1 Regulatory Program (BMP E.2)

As described in the QLP section, the WDO includes numerous performance standards on Grading, Stormwater and Soil Erosion/Sediment Control that must be met for all parties undertaking construction. The Lake County Technical Reference Manual is a guidance tool that describes BMP and implementation procedures for enforcing the WDO.

Measurable Goal:

- Support QLP efforts
- Enforce WDO

4.5.2 Long Term Operation and Maintenance (BMP E.3)

As described in the QLP section, the WDO requires that maintenance plans be developed for all stormwater management systems designed to serve major developments. The SMPP includes two long term maintenance plans. These sample maintenance plans are included in **Appendix J**.

- The first plan is the recommended plan for existing detention and stormwater management facilities, whether publicly or privately maintained. The intent of this sample plan is to provide guidance for the maintenance of facilities that do not have an approved plan. If an existing facility already has an adequate plan; this document would supersede the sample plan. Attempts should be made to provide the sample maintenance plan to pre-WDO sites with stormwater management facilities.
- The second plan is provided to applicants during the permit review period. This plan should be reviewed and enhanced by the applicant to reflect the sites specific design. Receipt of the signed and recorded maintenance plan is required prior to issuance of the Watershed Development Permit (WDP) or listed as a permit condition.

Measurable Goal:

- Support QLP efforts
- Enforce WDO
- Allow for public submission of concerns related to post-construction stormwater runoff control. Follow-up with concerns as appropriate.

4.5.3 Runoff Volume Reduction Hierarchy (BMP E.4)

Developments that exceed the thresholds identified in the WDO are required to quantify the RVR provided by the site design. The Community recommends that projects be designed to effectively capture 85% of the average annual rainfall events, as documented in Appendix O of the WDO

Measurable Goal:

- Support QLP efforts
- Enforce WDO

4.5.4 Watershed Plans (BMP E.7)

SMC has collaborated on a number of watershed based plans throughout the County as described in Subsection 3.7. The City of Lake Forest will adopt watershed plans that extend into its corporate limits and review recommended individual site-specific projects and programmatic actions. The City of Lake Forest encourages private property owners to implement the recommendations. Implementation of recommendations by the MS4 will be evaluated on a yearly basis as part of its fiscal planning/budgeting process keeping in mind that ONLY the implementation of individual site-specific projects or programmatic actions WITHOUT the use of 319 funding can be cited by an MS4 community toward meeting ILR40 permitting requirements.

Measurable Goals:

- Encourage private property owners to implement watershed plan recommendations
- Evaluate feasibility of implementing watershed plan recommendations as part of its fiscal planning/budgeting process.

4.5.5 Site Inspections (BMP E.6)

The inspection program for its general facilities is discussed in detail in Subsection 4.6.1. The inspection procedure for site inspections during construction is described in Subsection 4.4.6. This section focuses on post-construction inspections of previously developed sites, streambanks / shorelines, streambeds, and detention / retention ponds.

4.5.5.1 Shorelines, Streambanks and Stream Bed Sediment Accumulation

As described previously in Subsection 3.7, SMC has collaborated on a number of watershed based plans throughout the County. The Chicago River North Branch Watershed Plan included a stream and detention basin inventory, as depicted in Figure 8 on the following page. The plans also include a list of site specific BMPs within the community based on an assessment of these

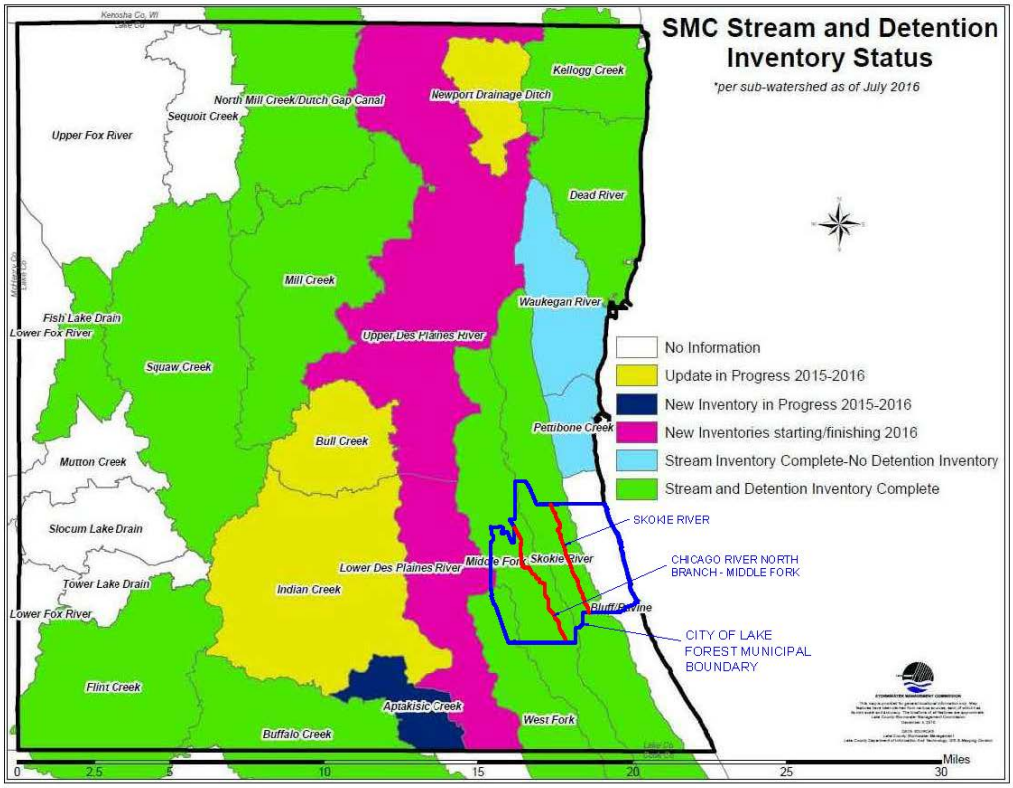


FIGURE 8 - SMC STREAM AND DETENTION BASIN INVENTORY STATUS

inventories and other data. Project categories typically include problem discharge locations, problem hydrologic impediments, stream buffers, logjam-debris removal, streambank stabilization and shoreline stabilization. The MS4 encourages private property owners to implement the recommendations. Implementation of recommendations by the City of Lake Forest will be evaluated on a yearly basis as part of its fiscal planning/budgeting process, keeping in mind that ONLY the implementation of individual site-specific projects or programmatic actions WITHOUT the use of 319 funding can be cited by an MS4 community toward meeting ILR40 permitting requirements.

For those areas of the community not evaluated as part of a watershed plan, the community will inspect streambanks and lake shorelines as part of their periodic outfall pre-inventory and pre-screening process. Within the City of Lake Forest, this includes the Bluff/Ravine Watershed. The 2017 Ravine Inspection Program implemented by the City of Lake Forest documented observed erosion and/or sediment accumulation. Remedial actions might include notifying the property owner or including maintenance activities in the work program.

Measurable Goals:

- Encourage private property owners to recommended retrofits cited in adopted watershed plan(s).

- Evaluate feasibility of implementing retrofits cited in adopted watershed plan(s) as part of fiscal planning/budgeting process.
- Inspect streambanks and lake shorelines as part of their periodic outfall pre-inventory and pre-screening process and recommend remedial actions as appropriate.

4.5.5.2 Detention / Retention Pond

Previously inventoried detention basins - The City of Lake Forest encourages private property owners to implement the detention basin and discharge structure retrofits recommended in the Chicago River North Branch watershed plan. Implementation by the MS4, of recommendations, will be evaluated on a yearly basis as part of its fiscal planning/budgeting process, keeping in mind that ONLY the implementation of individual site-specific projects or programmatic actions WITHOUT the use of 319 funding can be cited by an MS4 community toward meeting ILR40 permitting requirements.

Other detention basins - Portions of the community are located outside of watershed planning areas. Attempts to inspect approximately 20% of all un-assessed properties with stormwater management facilities a year; resulting in a re-occurrence inspection interval of every 5-years.

Inspect the shorelines of these detention basins in the spring and/or fall pending weather conditions (with a goal of inspecting all un-assessed ponds once every 5 years). Observed erosion, seeding/re-seeding or slope stabilization needs are documented. A ranking system has been established to identify ponds that would most benefit from a retrofit or other enhancements.

1. Turf, obstructed or other deficiencies
2. Turf, unobstructed
3. Rock
4. Native, obstructed or other deficiencies
5. Native, unobstructed
6. Turf, recreational

Typical BMP for maintenance of these areas are similar to those for a construction site. SMC's streambank/shoreline stabilization manual is used as a starting point in choosing the appropriate BMP for remediation activities. Remedial actions might include notifying the property owner of recommended maintenance activity, deficiencies or additional enhancements or including maintenance activities in the City of Lake Forest's work program. Recommendations will take into consideration potential impacts and effects due to climate change.

Measurable Goals:

- Encourage private property owners to implement detention basin and discharge structure retrofits cited in adopted watershed plan(s).
- Evaluate feasibility of detention basin and discharge structure retrofits cited in adopted watershed plan(s) as part of fiscal planning/budgeting process.
- Inspect approximately 20% of all un-assessed stormwater management facilities and recommend remedial actions as appropriate.

4.6 Pollution Prevention and Good Housekeeping

The City of Lake Forest is responsible for the care and upkeep of the general facilities, municipal roads, its general facilities and associated maintenance yards. Many maintenance activities are most regularly performed directly by staff; however from time to time contractors are employed to perform specific activities. This Subsection describes how compliance with permit requirements is achieved by incorporating pollution prevention and good housekeeping stormwater quality management into day-to-day operations. On-going education and training is provided to ensure that all of its employees have the knowledge and skills necessary to perform their functions effectively and efficiently.

4.6.1 Inspection and Maintenance Program (BMPs F.2 – F.4)

This subsection presents a schedule for developing a Pollution Prevention Inspection and Maintenance Plan (I&M Plan). This Plan will address the various housekeeping BMPs which comprise the City's Housekeeping Program; this program is described in the remainder of this Subsection.

4.6.1.1 Schedule

The City of Lake Forest will conduct an inventory of exterior storage areas and other operations that could impact storm water quality associated with all municipally owned properties. This inventory will be completed in calendar year 2018.

Upon completion, a schedule for regular inspection of any areas of outdoor storage that possess the potential for stormwater impacts will be developed. This schedule will be in addition to any existing inspection procedures currently conducted by the City, for example under the Spill Prevention Countermeasure and Control (SPCC) Plan currently utilized by the Vehicle Maintenance Garage (Subsection 4.6.2). This inspection protocol will include procedures for corrective action and follow up. In addition, recommendations will be made for placing storm water controls to avoid exposure via moving storage indoors, building shelters to prevent storm water exposure and/or providing secondary containment and control devices to reduce or eliminate potentially contaminated storm water discharge.

Measurable Goal for all of 4.6.1:

- Conduct and Implement I&M Plan
- Implement the SMPP.

4.6.1.2 Housekeeping BMPs

The City of Lake Forest's Housekeeping Program addresses the following activities/areas that require inspection and their inspection frequency. It further details maintenance activities and subsequent tracking procedures for each of the tasks.

- Street Sweeping Operations
- Drainageways
- Landscape Maintenance
- Snow Removal and Ice Control
- Pet Waste
- Vehicle and Equipment Operations

- Animal Nuisance Control
- Waste Management
- Water Conservation and Irrigation
- Green Infrastructure
- Special Events

4.6.1.3 Street Sweeping

Street sweeping operations are performed to reduce potential illicit discharges and to provide a clean environment. The curb lines of all streets are cleaned on a rotating basis. The rotation maybe changed or interrupted. Each street is typically swept/cleaned approximately 2 to 4 times per year. Sweeper waste is collected and disposed of in the spoil waste area. The intended frequency of street sweeping operations is as follows:

- December to April – no sweeping due to winter operations/conditions
- April to June – as needed
- June to September – as needed
- September to December – daily (due to falling leaves the sweeping operations are assisted by a dump truck to increase the speed of operations).

4.6.1.4 Drainageways

Drainageways include any river, stream, creek, brook, branch, natural or artificial depression, ponded area, lakes, flowage, slough, ditch, conduit, culvert, gully, ravine, swale, wash, or natural or man-made drainageway, in or into which surface or groundwater flows, either perennially or intermittently. Primary drainageways are described in Subsection 1.4. Minor drainageways include roadside and side yard swales, overland flow paths, pond outlets, etc.

Driveway Culverts - Maintenance and replacement of driveway culverts is the property owner's responsibility. A minimum 12" diameter culvert is required per Code. Permits are required for culvert replacement; a soil erosion and sediment control plan may be required as part of the permit. The Engineering Department inspects the culvert after backfilling has occurred.

Catch Basins - Catch basin locations are identified on the **Storm Sewer Atlas**. The goal is to annually clean approximately 20% of all catch basins, to a minimum sump depth of 2 feet. If catch basin debris is at the invert elevation of the downstream pipe (i.e. has completely filled the sump area), then the downstream storm sewer system is also cleaned. Likewise, if a water main break or other heavy flow occurs that flushes potential illicit discharges into the storm sewer system, the receiving storm sewer lines are inspected and then cleaned as necessary. Spoil waste obtained from catch basin cleaning is disposed of in the spoil waste area. Locations of cleaned catch basins are tracked.

Catch basins found to have structural deficiencies are noted. Necessary remedial actions are completed or incorporated into a capital project.

Other Inlet and Grate Cleaning - Cleaning of these areas occurs on an as-needed basis (e.g., complaints, incidences, standing water, etc.). Spoil waste that is obtained from inlet and grate

cleaning or vacuuming is disposed of at the Municipal Services Building. Any waste jetted out is picked up with a clapper bar if possible.

Swales and Overland Flow Paths - The ravine assessment program described under Subsection 5.1.2 will be used to document and assess conditions of accelerated erosion or sediment accumulation, along with recommendations for corrective action via habitat restoration activities that may be performed by the City, its collaborative stakeholders and/or other interested parties. Data gathered from this assessment program will be shared with the SMC to further their own efforts to assess and evaluate these unique habitats.

For other areas of the City, Public Works employees who observe any other areas of significant erosion / sedimentation concern during the normal course of their field duties, as well as during specific inspections activities specified in the SMPP (e.g., dry weather inspections [Subsection 4.3.4.2] and monitoring activities [Subsection 5.1] will report such conditions to the Stormwater Coordinator [Subsection 2.2.1]). These areas will be incorporated into a maintenance program. Any observed areas of significant concern located on privately owned property will result in notification of the property owner on an as needed basis for appropriate remediation.

Public Works workers will receive annual training in housekeeping protocols including the procedures for reporting observed areas of concern to the Stormwater Coordinator.

4.6.1.5 Landscape Maintenance

Maintain general facilities, municipal roads, associated maintenance yards, and other public areas. Municipal staff is responsible for control of litter and debris; this issue will also be addressed in annual stormwater training.

A landscape contractor is selected to be responsible for the remainder of the landscape maintenance program under the supervision of the Parks and Recreation Department. Landscape contractors are required to meet ILR40 training requirements and ensure that they adhere to the SMPP.

Litter and Debris - Litter and debris can accumulate on City of Lake Forest property and roadway right-of-ways and should be removed. Each Public Works Division is responsible for the cleanup of their respective facilities. Clean-up at park and recreation areas is the responsibility of the Parks and Recreation Department. Other properties and right-of-ways (including municipal, Township, County and State right-of-ways within the MS4 limits) are cleaned by Public Works personnel or volunteer groups on an as-needed basis.

Private Residence Yard Waste - Yard waste and leaves from private residences are collected throughout the year by the city's Sanitation Section. Yard waste is collected weekly throughout the growing season. The Majority of leaf collection typically starts in October and runs for approximately six weeks.

Fertilizers - The annual landscape contractor is required to be a licensed applicator for fertilizers. The use of pesticides and fertilizers shall be managed in a way that minimizes the volume of storm water runoff and pollutants.

4.6.1.6 Snow Removal and Ice Control

During snow removal and ice control activities, salt, de-icing chemicals, abrasives and snow melt may pollute stormwater runoff. To address these potential pollutants, the following procedures for the winter season (November 1 through May 1) are implemented.

The City of Lake Forest will participate in watershed groups, as identified by the QLP, organized to implement control measures which will reduce chloride concentrations in receiving waters.

Roadway Ice Control - In effort to minimize the deleterious impacts of road salt to run-off, receiving waters and adjacent habitats, the City of Lake Forest will use the minimal amount of salt, de-icing chemicals and additives necessary for effective control. Prior to November 1, preparation work to obtain seasonal readiness is typically completed. These tasks include: inspecting and re-conditioning of spreaders and spinners, install these items onto snow removal vehicles, performing test operations, applying salt in accordance with the City's Salt Reduction Program, and conducting training. The completion of these preparatory tasks helps to ensure that only the necessary level of salt is applied.

The City of Lake Forest will also consider the additional use of calcium chloride if the ambient temperature is below 20-degrees Fahrenheit, to improve the efficiency of snow melting efforts, and to incorporate pre-wetting and alternative deicing methods / materials if appropriate.

Salt delivery and storage - Steps are taken to ensure that the delivery, storage and distribution of salt does not pollute stormwater runoff. The floor of the enclosed salt storage building, and adjacent receiving/unloading area is constructed of impervious material. The limits of the salt pile will be pushed back away from the door opening to minimize potential illicit runoff.

Snow plowing - Snow plowing activities direct snow off the pavement and onto the parkways to reduce the amount of salt, chemical additives, abrasives or other pollutants that go directly into the storm sewer system. When necessary, accumulated snow will be hauled to designated stockpile locations. Snow blowing, plowing or dumping into drainageways is not allowed. Once the snow has melted, the stockpile areas are cleaned with a street sweeper removing any debris deposited.

4.6.1.7 Vehicle and Equipment Operations

Vehicle and equipment fueling and maintenance are performed at the Municipal Services Fleet Maintenance Garage. The garage employs procedures and practices are designed to minimize or eliminate the discharge of pollutants to the stormwater management system, including receiving waters.

Vehicle Washing - Vehicle washing, wheel wash water, and other wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge. The City of Lake Forest has a dedicated wash bay in the fleet maintenance garage.

Vehicle Maintenance - Vehicle maintenance procedures and practices are designed to minimize or eliminate the discharge of petroleum based pollutants to the stormwater management system, including receiving waters. The proper handling and disposal of vehicle maintenance by-products such as used oil, antifreeze, batteries and tires are addressed in 4.6.1.10 - Chemical, Oil and Waste Management.

4.6.1.8 Animal Nuisance Control

Upon receiving notification, The City of Lake Forests collects “road kill” from right-of-way areas. The carcasses are disposed of in the Public Works Complex garbage dumpsters.

4.6.1.9 Chemical, Oil and Waste Management (BMP F.4)

This BMP consists of implementing procedural and structural practices for handling, storing the various chemical materials and petroleum and other oil-based products used by City of Lake Forest operations in the course of conducting maintenance activities, as well as procedures and structural practices for properly managing and disposing of wastes generated by maintenance activities. This helps prevent the release of chemical, petroleum and waste materials into the stormwater management system including receiving waters.

Chemical and Oil Storage and Use:

Maintenance activities involve the use of a variety of chemical and/or oil based products, including fuels, solvents, lubricating oils, paints and coatings, and fertilizers. Improper storage, handling and use of these materials can result in spills, fires or other accidents that can affect storm water and receiving waters.

To the extent practical, chemical and oil storage and handling will be performed indoors. When deemed not practical, such outdoor storage will be conducted in a fashion so as to minimize impacts to storm water.

Any exterior loading and unloading of chemicals and/or oil shall be done in a manner so as to minimize impacts to stormwater. Loading and loading of oil will be conducted in accordance with any facility's Spill Prevention Control and Countermeasure (SPCC) Plan.

The use and storage of chemical and oil products will follow manufacturer's directions. The use and storage of chemicals and/or oils will be conducted in accordance with the applicable portions of the City of Lake Forest's Fire Code.

Waste Management:

To the extent practical, chemical and oil-related wastes storage will be performed indoors. When deemed not practical, such outdoor storage will be conducted in a fashion so as to minimize impacts to storm water.

To the extent practical, waste materials will be reused, recycle and or reclaimed in lieu of actual disposal.

Used motor oil, transmission fluids, gear lubes, brake fluids and other vehicle fluids (except antifreeze) will be managed in accordance with state and Federal used oil regulations which require recycling.

Used antifreeze will be containerized, and sent for recycle or disposal.

Used batteries, mercury containing light bulbs and other Universal Wastes will be managed in accordance with state and Federal universal waste regulations.

Used tires will be managed in accordance with applicable state regulations..

Asphalt and concrete maintenance by-products and excess earth excavation materials are temporarily stored in stock pile maintained at the Compost Center and Municipal Services building. This material is typically stored in dumpsters or other large bins provided by the Sanitation Section. Attempts are made to recycle asphalt and concrete products prior to storage in the spoil stock pile. Licensed waste haulers are contracted to remove and dispose the contents of the spoil stock pile at a licensed landfill. Surface runoff from these areas is largely controlled by the use of enclosed or roofed storage areas.

Contaminated soil/sediment generated during an emergency response or identified during construction activities will be collected and managed for treatment or disposal. The extent possible, attempts are made to avoid stockpiling of the contaminated soil (e.g., by arranging for the direct loading and disposal of such soils when they are generated). If temporary stock piling is necessary, place the stockpile on an impermeable liner, and cover the stockpile with a similar liner (e.g., plastic sheeting). Additionally, BMP (presented in the SMC's Technical Reference Manual or the Illinois Urban Manual, 2014) are used to protect the down slope of the stockpiled area for erosion downstream. Locate the construction access on the upstream side of the temporary stock pile.

All hazardous wastes and non-bulk, non-hazardous special wastes generated by municipal activities will be stored in sealed containers constructed of compatible material and properly labeled. All hazardous wastes will be managed in according to federal and state hazardous waste regulations commensurate with the generator status of the facility where such wastes are generated.

Sanitary waste will be discharged into the sanitary sewer or managed by a licensed waste hauler.

Private certified companies perform most air-conditioning related work; therefore, the disposal of Freon is not handled directly by the City.

4.6.1.11 Water Conservation & Irrigation

Water conservation practices minimize water use and help to avoid erosion and/or the transport of pollutants into the stormwater management system. From May 15 through September 15, a sprinkling/irrigation schedule is enforced. Maintenance activities (performed by the staff or its contractors) preserve water by utilizing vacuum recovery as opposed to water based cleaning when possible.

4.6.1.12 Green Infrastructure

The City of Lake Forest Engineering Department will encourage the application of green infrastructure on municipally owned property.

4.6.1.13 Special Events

Ensure that entities in charge of special events (such as parades, fairs) prohibit the dumping, depositing, dropping, throwing, discarding or leaving of litter and all other illicit discharges from entering the stormwater management system. The Public Works Department and Parks Section will oversee clean-up activities to promote compliance with the SMPP.

4.6.2 Spill Response Plan (BMP F.6, C.9)

The City of Lake Forest has an SPCC Plan that addresses the use and management of oil, as well as oil spill response, at its Municipal Services Fleet Maintenance Garage.

In addition to the spill prevention and control procedures outlined in the SPCC Plan, the City of Lake Forest will implement additional spill control and response actions wherever non-hazardous chemicals and/or hazardous substances are stored or used. These procedures and practices are implemented to prevent and control spills in a manner that minimizes or prevents discharge to the stormwater management system and receiving waters. The following general guidelines are implemented, when cleanup activities and safety are not compromised, regardless of the location of the spill:

- Cover and protect spills from stormwater run-on and rainfall, until the spill materials are removed,
- Dry cleanup methods should be used whenever possible,
- Dispose of used cleanup materials, contaminated materials and recovered spill material in accordance with the all applicable Federal and/or Illinois regulations applicable to hazardous and non-hazardous special waste.
- Contaminated water used for cleaning and decontamination shall not be allowed to enter the stormwater management system,
- Keep waste storage areas clean, well-organized and equipped with appropriate cleanup supplies, and
- Maintain perimeter controls, containment structures, covers and liners to ensure proper function.

4.6.2.2 Spill Prevention

Ensure all hazardous substances are properly labeled. Store all hazardous wastes in sealed containers constructed of compatible material and labeled. Locate items, such as paint, aerosol cans, gasoline, solvents and other hazardous wastes, in non-flammable storage cabinets or on a containment pallet. Do not overfill containers. Provide secondary containers when storing hazardous substances in bulk quantities (>55gl). Dispense and/or use hazardous substances in a way that prevents release.

4.6.2.2 Non-Hazardous Spills/Dumping

Upon observing or receiving notification of a potential illicit discharge into the storm sewer system or any receiving waters, the Illicit Discharge Incident Tracking Form, found in **Appendix D,** is used to log and investigate the incident. Appropriate procedures found within this Section are implemented in the event an illicit discharge has been confirmed.

Non-hazardous spills typically consistent of an illicit discharge of household material(s) into the street or stormwater management system. Upon notification or observance of a non-hazardous illicit discharge, implement the following procedure:

- Sand bag or otherwise isolate with spill control equipment, the receiving inlet to prevent additional discharge into the storm sewer system, as necessary. It may be necessary to sand bag the next downstream inlet.
- Check structures (immediate and downstream). If possible, materials are vacuumed out. The structure(s) are then jetted to dilute and flush the remaining unrecoverable illicit discharge.
- Clean up may consist of applying an inert absorbent (e.g., "Oil Dry") or sand and then sweeping up the remnant material.
- After containment and cleanup activities have been performed, fill out the Spill Response Notice **(Appendix K**) and distributes to adjoining residences/businesses. In residential areas, the hanger should be provided to residences on both sides of the spill and on both sides of the street.
- Document the location, type of spill and action taken on the Indirect Illicit Discharge Tracking Form **(Appendix D)**. .
- If a person is observed causing an illicit discharge, Code Enforcement is notified and appropriate citations issued.

4.6.2.3 Hazardous Spills

Upon notification or observance of a hazardous illicit discharge, Public Works follows the following procedure:

- Call 911, explain the incident.
- If it safe to do so and personnel have received training in spill response, undertake control measures such as shutting down equipment / pumps, placing spill control booms, blankets, and absorbents to control migration of material (e.g., at down gradient storm sewer inlets).
- Public Works provides emergency traffic control, as necessary;
- The Fire Department evaluates the situation and implements control measures as necessary;
- The Fire Department's existing emergency response procedure for hazardous spill containment clean-up activities, is followed;
- Document the location, type of spill and action taken on the Illicit Discharge Incident Tracking Form (**Appendix D**); and,

4.6.2.3 Employee Training (BMP F.1)

The QLP provides training materials and opportunities. Promote education and training employees (or contractors retained to manage City infrastructure) to ensure that they have the knowledge and skills necessary to perform their functions effectively and efficiently. Employees are encouraged to attend all relevant training sessions offered by the QLP and other entities on topics related to the goals/objectives of the SMPP. Key educational topics include the following:

- Stormwater characteristics and water quality issues;

- The roles and responsibilities regarding implementation of the SMPP to consistently achieve Permit compliance;
- Activities and practices that are, or could be sources, of stormwater pollution and non-stormwater discharges;
- Managing and maintaining green infrastructure and low impact design features; and,
- How to use the SMPP and available guidance materials to select and implement BMPs.

Measurable Goal(s):

- Attend QLP offered training.
- Support QLP efforts by providing program information to staff.

Training Approach

Employees are encouraged to attend all relevant training sessions offered by the QLP and other entities on topics related to the goals/objectives of the SMMP. Make available training materials tailored to specific functional groups. The materials focus on storm water pollution prevention measures and practices involved in routine activities carried out by the various functional groups.

Training Schedule and Frequency

Digital and hard copies of the training materials will be kept and shared with applicable new employees as part of their job introduction. Employees are encouraged to share information with other employees via email or other formats. Information may include:

- updates and news which might enhance pollution control activities,
- feedback from field implementation of BMPs, or
- new product information.

IDDE Training

Personnel conducting the IDDE portion of the SMPP shall thoroughly read and understand the objectives of the IDDE subsections of this manual prior to performing any outfall inspections or monitoring efforts.

5.0 PROGRAM AND PERFORMANCE MONITORING, EVALUATION AND REPORTING

The SMPP represents an organized approach to achieving compliance with the stormwater expectations of the NPDES Phase II program for both private and public activities. Land development, redevelopment and transportation improvement projects were required to comply with the provisions of the WDO prior acceptance of the SMPP. This SMPP documents and organizes previously existing procedures and incorporates the objectives of the WDO to create one cohesive program addressing pre-development, construction, post-development activities and municipal operations.

This Section describes how the QLP and the City of Lake Forest will monitor and evaluate the proposed stormwater pollution prevention plan based on the above stated objective. As part of the stormwater management program, the City of Lake Forest:

- reviews its activities,
- inspects its facilities,
- oversees, guides, and trains its personnel, and
- evaluates the allocation of resources available to implement stormwater quality efforts.

5.1 Monitoring Program

As it pertains to watersheds located within the municipal boundaries of the City of Lake Forest, the following monitoring activities are being conducted and/or are being planned:

- Lake and beach monitoring by the Lake County Health Department, Lakes Management Unit.
- Ravine monitoring by the City of Lake Forest and the SMC.
- Chicago River, North Branch - Middle Fork and West Fork and Skokie River monitoring by the City of Lake Forest.

5.1.1 Lake and Beach Monitoring - Lake County Health Department

In accordance with ILR 40 V.A.2.b.ii and ILR 40 V.A.2.b.v, the monitoring efforts performed by the LCHD satisfy the monitoring requirement for the portions of the watershed tributary to an assessed Lake. Due to the length of monitoring efforts performed by the county, trends in water quality impairments and improvements can be best gauged by reviewing current and historic lakes reports.

The Lakes Management Unit (LMU) has been collecting water quality data on Lake County lakes since the late 1960s. This includes collection of data from the following lakes located within the Lake Forest municipal limits:

- Eagle Lake

Since 2000, 176 different lakes each year have been studied and data collected on temperature, dissolved oxygen, phosphorus, nitrogen, solids, pH, alkalinity, chloride, conductivity, water clarity, the plant community and shoreline characteristics. The LMU collects baseline water quality information from at least 12-15 different lakes in the county each year. These lakes must be at least

6 acres in size. Water quality information is obtained through the collection of water samples once per month from May through September, usually at the deepest areas of the lakes.

Analysis - This water is analyzed for nutrients, solids, temperature, dissolved oxygen and various other parameters. A plant survey to analyze the aquatic plant community for different species and their relative occurrence is also conducted once per month from May through September. Additionally, once per summer the shoreline of each lake is characterized for shoreline type, severity of erosion and shoreline plant species (including invasives).

Summary Reports - Summary reports are written and presented to the management entity of the lake and other concerned citizens during the following spring. These reports include the analysis of data collected, a list of threats occurring in or around the lake, and recommendations on how to reduce or eliminate these problems. Lake summary reports can be found https://www.lakecountyil.gov/2400/Lake-Reports.

5.1.1.1 Lake Michigan

In accordance with ILR 40 V.A.2.b.ii and ILR 40 V.A.2.b.v, the monitoring efforts performed by the LCHD satisfy the monitoring requirement for the portions of the watershed tributary to Lake Michigan. A significant portion of the Lake Michigan Beaches are listed as impaired (Figure 9), including Forest Park Beach. From approximately Memorial Day to Labor Day, bacteria concentrations (E coli bacteria) are sampled at Forest Park Beach and other Lake County impaired beaches.

Sanitary surveys have been completed on many of these "beach-sheds". Other than beaches, the LCHF occasionally sample locations within the Lake Michigan watershed. These are limited to special projects (i.e., Waukegan River study, gull/beach pathogen study) or in a response to complaints/issues such as suspect stormwater discharges or calls from citizens.

https://www.lakecountyil.gov/2405/Beach-Monitoring-Technical-Assistance

These results are used, in concert with other data collected by IEPA, to determine if TMDL implementation recommendations have resulted in load reductions and improved overall beach health.

5.1.1.2 Inland Beaches

From May to September, bacteria concentrations are monitored bimonthly at inland beaches and recreational areas by LMU. The water samples are tested for E coli bacteria, which are found in the intestines of almost all warm-blooded animals. Note that not all strains of E coli are the same, and certain strains can make humans sick if ingested in high enough concentrations. If water samples come back high for E coli (235 E coli/100 ml), the management body for the bathing beach is notified and a sign is posted indicating the beach closure. Additionally, since rain events tend to lead to elevated bacteria levels in the water column, the LMU advises that persons avoid swimming for 48 hours after a large rain event.

The IEPA uses the number and duration of swim bans to assess whether or not the beaches support designated uses for primary contact recreation. Within Illinois, Lake Michigan Beaches are found to be "not supporting" of primary contact use when, on average over a three-year period: (1) one or more beach closures occurred per year lasting less than a 2 week; or (2) less than one beach closure occurred per year, but the average closure duration was one week or greater

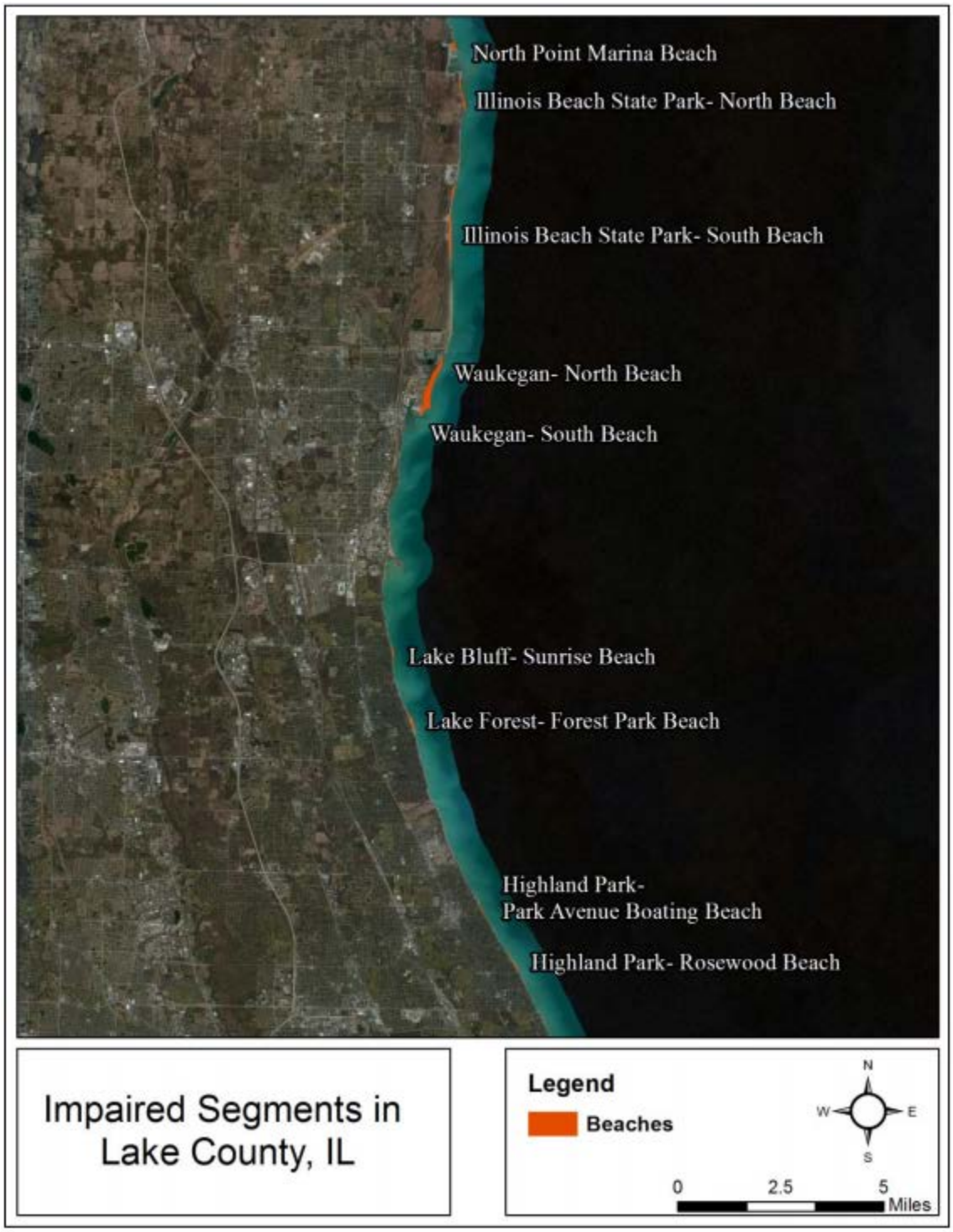


FIGURE 9 - IMPAIRED LAKE MICHIGAN SEGMENTS

5.1.2 Ravine Monitoring - SCM and City of Lake Forest

The ravines found in Lake Forest and other communities bordering Lake Michigan represent unique natural habitats. In recognition of this status and their susceptibility to erosion damage, efforts have been undertaken to assess and monitor ravine susceptibility to erosion. In addition some damaged ravine habitats have undergone restoration..

In the mid to late 2000's, the Alliance for the Great Lakes, in collaboration with Lake Michigan Watershed Ecosystem Partnership, undertook an effort assess the Lake Michigan ravines, including those located Lake County. Each ravine's susceptibility to erosion was scored using a strategic subwatershed identification process (SSIP). Building upon these efforts, in 2010 the SMC undertook a more focused assessment of several of the ravines located in Lake County

In 2017, the City of Lake Forest formalized an assessment program for the ravines located within its municipal boundaries. A ravine rating system was developed with input and assistance from the SMC that assesses erosion susceptibility and water quality. In May 2017, training was provided to Lake Forest personnel by the SMC in ravine assessment protocols.

A total of 15 ravines have been identified within the City of Lake Forest. In 2017, the City conducted an assessment of each of these ravines. This data will be shared with the SMC. As detailed in Subsection 1.3.2, the six high priority outfalls currently identified are all located within ravines. Based on the data generated, a re-assessment will be made of the high priority outfalls that have currently been identified to determine if the list should be amended.

In addition, the SMC plans on conducting additional ravine assessment work in 2018.

5.1.3 Other Community Monitoring - City of Lake Forest

A portion of the City of Lake Forest is located outside of existing monitoring efforts being conducted by the Lake County Health Department.. In accordance with ILR 40 V.A.2.a. the community conducts annual visual observations of stormwater discharge documenting color, odor, clarity, floating solids, settled solids, suspended solids, foams, oil sheen and other indicators of storm water pollution at upstream and downstream locations along receiving streams within the City of Lake Forest, as well as the six defined high priority outfalls. In addition, The City voluntarily collects certain additional water quality data using a portable monitoring instrument. This additional monitoring includes data on pH and turbidity. The locations of these monitoring points are illustrated on Figure 10.

5.2 Program Evaluation (BMP C.6)

At the end of each year the BMPs implemented by the MS4 should be evaluated in order to determine the effectiveness of the program. Include a description of observed areas of program effectiveness, at the end of Part B **Stormwater Management Program Assessment** within each **Annual Report** submitted to IEPA. Program areas which do not appear to be improving should also be identified and described within this portion of the Annual Report. This information will be used to provide insight into how the program may need to evolve. The following are some .

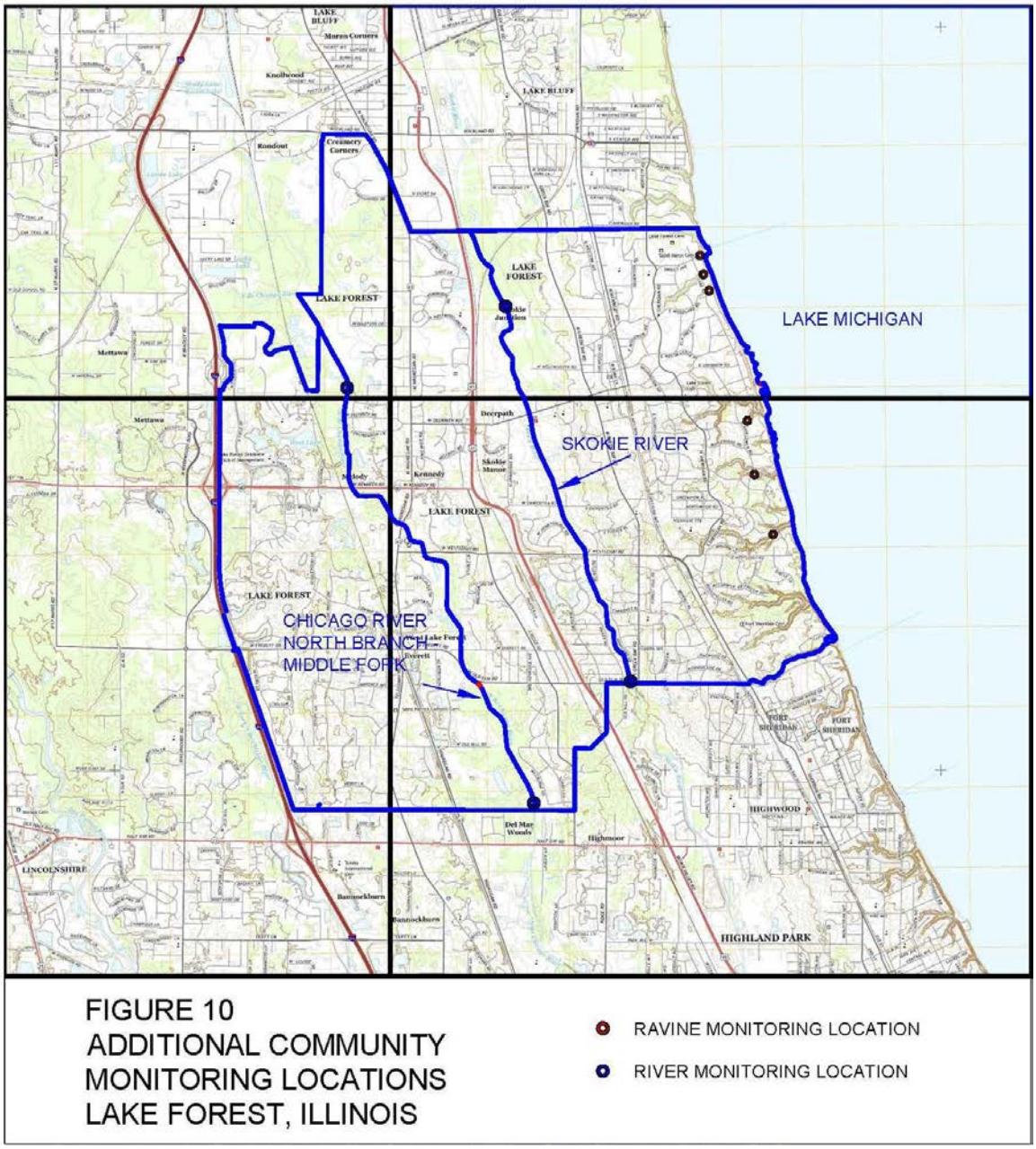


Figure 10: Additional Community Monitoring Locations

indicators that the BMPs are appropriate:

- A reduced number of outfalls having positive indicators for potential pollutants.
- An improvement, or no change, in the annual monitoring results.
- Improved community awareness of water quality and other NPDES program aspects.
- Increased number of hits on website information related to the NPDES program.
- Increased quantities of Household Hazardous Wastes or Electronic collected by SWALCO.
- Reduced number of septic system failures.

- Increased stakeholder involvement.
- Reduced number of SE/SC violations.
- Increase in Streambank and Shoreline stabilization projects, or a decrease in the extent of projects necessary.
- Improved detention pond quality (including conversion of dry bottom or turf basins to naturalized basins; removal of excess sediment accumulation and a general increase in maintenance activity on detention ponds throughout the MS4).
- Reduced use of chloride and phosphorus by the MS4.
- Improved awareness of water quality and other NPDES program aspects by both City of Lake Forest staff and its contractors.

5.2.1 Monitoring Program Evaluation

The results of the monitoring are used to further gage the effects of the SMPP on the physical/habitat-related aspects of the receiving waters and the effectiveness of BMPs. Possible causes of any documented degradation will be investigated and any appropriate corrective actions will be incorporated into the SMPP.

- As part of the QLP section of the Annual Report, SMC provides a detailed discussion of the State of Lake County Waters including a summary of TMDLs, an assessment of the regional water quality monitoring and watershed group efforts and an estimate of the effectiveness of the regional efforts.
- The City of Lake Forest is responsible for providing a discussion of any additional local monitoring efforts within the MS4 portion of the **Annual Report Part C Annual Monitoring and Data Collection.**

5.2.2 IDDE Program Evaluation

Experience gained from the USEPA NPDES program indicates a lower chance of observing polluted dry-weather flows in residential and newer development areas, while older and industrial land use areas having a higher incidence of observed dry-weather flows. Review the results of the screening program to examine whether any trends can be identified that relate the incidence of dry-weather flow observations to the age or land use of a developed area. If so, these conclusions may guide future outfall screening activities.

Indirect or subtle discharges such as flash dumping are difficult to trace to their sources and can only be remedied through public education and reporting. Therefore, it is expected that to some degree they will continue although at a reduced magnitude and frequency. Although the outfall screening program will be successful in identifying and eliminating most pollutants in dry-weather discharges, the continued existence of dry-weather flows and associated pollutants will require an ongoing commitment to continue the outfall screening program.

The first phase of the program was to complete the MS4 wide pre-screening effort, investigate those outfalls exhibiting dry-weather flow and then eliminate identified illicit direct connections. The ILR40 permit issued in 2016 requires that all high-priority outfalls be evaluated annually. It is logical to assume that completion of the Phase 1 efforts and several years of annual screening, the majority of the dry-weather pollution sources will be eliminated. However, new sources may appear in the future as a result of mistaken cross connections from redevelopment, new-development or remodeling. These efforts will determine the effectiveness of the program on a long-term basis and show ongoing improvement through a reduced number of outfalls having positive indicators of potential pollutants. Include a description of the screening and dry-weather

flow investigation, in **Annual Report Part C IDDE Monitoring and Data Collection** submitted to IEPA annually.

5.2.3 SMPP Document Evaluation

Evaluation of the SMPP. The following types of questions/answers are discussed periodically between the QLP, Stormwater Coordinator, Managers and field staff. Suggested improvements are noted and incorporated into a revised SMPP document, approximately every 5-years.

- Are proper stormwater management practices integrated into planning, designing and construction of both public and private projects?
- Are efforts to incorporate stormwater practices into maintenance activities effective and efficient?
- Is the training program sufficient?
- Is the SMPP sufficient with respect to both the BMPs and measurable goals described for each of the six MCM?
- Are the procedures for implementing the SMPP adequate?
- Are there any TMDL Reports within the community and if yes, is there an action plan for compliance?
- Were there any issues of non-compliance and if yes, determine the plan for achieving compliance with a timeline of actions?

APPENDIX A
YEARLY TRACKING FORM

Annual SMPP Tasks

BMP	Task	Resp. Party	Date Compl'd	SMPP Section
A.6	Post NOI, SMPP and Annual Report on website			3.2.B
B.4	Present Annual Report to Board during open meeting			3.3.B
C.1	Update outfall map (new permits, outfall inventory updates)			1.4.B, 3.4.D.3.c
C.1	Inspect for "new" outfalls every 5 years			1.4.B
C.3, C.7	Pre-screen 100% of outfalls (20% per year or 100% within every 5-yrs)			3.4.D.2.a
C.3, C.8	Complete outfall inspection procedure for all outfalls with observed dry weather flow (20% per year or 100% within every 5-yrs). Document.			3.4.D.2.b-c
C.3, C.8	Inspect all high priority outfalls			3.4.D.2.b
C.6	Review the results of the screening program. Include assessment in Part B of the Annual Report.			4.2
C.7	Inspect catch basins, clean approximately catch basins (20% per year or 100% within every 5-yrs). Document.			3.7.A.2.b
E.6, E.7	Consider public implementation of watershed plan recommendations as part of fiscal planning/budgeting			3.6.D, 3.6.E
E.6	Inspect receiving water streambanks for erosion and flowlines for sediment accumulation (in concert with outfall inspection and pre-screening efforts)			3.6.E.1
E.6	Inspect detention basins (20% per year or 100% within every 5-yrs of unassessed facilities)			3.6.E.2
F.2	Inspect and recondition spreaders and spinners. Install these items onto snow removal vehicles, performing test operations, calibrating distribution rates per National Salt Institution Application Guidelines, and conducting better driver training.			3.7.A.4.a
A-F	Review Program, include finding in annual report			4.2
B.6	Evaluate SWPP. Major highlights and deficiencies should be noted annually and the plan revised accordingly on a minimum 5-yr basis, or as necessary.			4.2.C
	Comply with monitoring program commitments, describe in Annual Report			4.1

As needed SMPP Tasks

BMP	Task	Resp. Party	Date Compl'd	SMPP Section
A.1, A.4	Attend/sponsor outreach events and scheduled meetings with the general public and distribute materials			3.2.A, 3.2.C
C.3	Respond to, track and resolve indirect illicit discharges			3.4.C
C.4	Complete source id/tracing procedures for identified illicit discharges. Document.			3.4.D.3
C.5, C.8	Complete removal procedures for found illicit discharges			3.4.D.4
C.9, F.6	Implement Spill Response Plan and provide notice for observed discharges			3.7.B
E.3	Provide sample maintenance plan to pre-wdo sites			3.6.B
F.1	Ensure applicable Village staff trained to implement SMPP			3.7.C
F.1	Encourage employees to attend all relevant training sessions offered by the QLP and other entities on topics related to the goals/objectives of the SWPPP			3.7.C
Optional BMP				
A.6, B5	Support QLP and private efforts related to Storm Drain Stenciling			3.2.D
A.6	Track efforts regarding septic system maintenance			3.2.F

On-going SMPP Tasks

BMP	Task	Date Compl'd	SMPP Section
All	Support QLP efforts		3.4.A.1
A.1, A.6	Maintain take-a-way racks and provide other appropriate outreach efforts. Provide safe vehicle maintenance, car washing, healthy lawn care, green infrastructure, pool dewatering, information.		3.2.A, 3.2.G-K
A.1	Include SMPP related article in newsletter		3.2.A
A.4	Support and publicize SWALCO collections.		3.2.E
B.3	Participate in QLP or other sponsored watershed planning events (stakeholder groups)		3.3.A
A.6	Maintain link to SMC, link to SWALCO, IEPA, safe vehicle maintenance & car washing information, healthy lawn care, green infrastructure, pool dewatering.		3.2.B, 3.2.G-K
B.6, C.6	Participates in MAC meetings and events hosted by the QLP		3.3.C
B.7	Publicize contact information to encourage submission of complaints, suggestions, requests		3.3.B.2
C.2	Enforce WDO		3.4.A.1
C.2	Enforce IDDE Ordinance		3.4.A.2
C.2	Enforce Subdivision & Public Utility Ordinance		3.4.A.3
D.1-D.6, E.2-E.5	Adminsiter & enforce *(or assist SMC in)* WDO provisions (plan review, permitting, inspections and enforcement)		3.5.B-I, 3.6.A-E
D.5, E.3	Keep log, track number, respond to se/sc and post construction storm water concerns		3.5.G, 3.6.B
E.4	infrastructure if practicable		3.6.C
E.6, E.7	encourage property owners to implement watesrhed plan recommendations (streambank, shoreline, detention basin etc)		3.6.E
E.7, F.4	Street sweeping		3.7.A.1
E.7, F.2	Inspect swales and overland flow paths for erosion and sediment accumulation, report		3.7.A.2
E.7, F.4	Collect yard waste/leafs		3.7.A.3
F.4	Remove litter/debris from Village property, roadway right-of-ways, facilities, park & rec areas		3.7.A.3
F.4	Collection and disposal of "road kill" and carcasses		3.7.A.7
F.3	Follow Snow Removal and Ice Control BMP in SMPP		3.7.A.4
F.4	Vehicle Maintenance collection and disposal (waste oil, antifreeze, batteries, tires)		3.7.A.6
F.4	Follow Waste Control BMP in SMPP		3.7.A.8
F.3	Identify and maintain green infrastructure		3.7.A.10
F.4	Prevent/Minimize illicit discharges from Special Events		3.7.A.11
OPTIONAL			
B.7, D.5	Maintain Indirect Illicit Discharge Tracking forms and respond (hotline calls)		3.3.D
B.7	Support adopt-a-highway efforts		3.3.E
C.2	Enforce Phosphorus Ordinance		3.4.A.4
E.7, F.4	Maintain pet waste stations		3.7.A.5

APPENDIX B
DEWATERING FACT SHEET

GUIDELINES FOR DRAINING SWIMMING POOLS

Your swimming pool is filled with chlorinated water.

Chlorinated water discharged directly to surface waters (wetlands, lakes, streams, and rivers), roadways or storm sewers has an adverse impact on local water quality and wildlife.

High concentrations of chlorine, as are present in swimming pools, are toxic to wildlife and fish. Appropriate preparations should be made prior to draining down a pool during pool winterizing. It is recommended that one of the following measures be used:

- **De-chlorinate the water in the pool prior to draining. This can be done through mechanical or chemical means. These types of products are readily available at local stores.**
  Or,
- **Drain the pool over a period of several days across your lawn using the following additional guidelines:**

  1) Allow pool water to sit at least 2 days while receiving a reasonable amount of sunlight, and without further addition of chlorine or bromine. It is recommended that the chlorine level be tested after 2 days to ensure that safe levels are met (below 0.1 mg/l).

  2) Pool discharge should be directed across your lawn, not down your driveway or into nearby storm sewer inlets. Our storm sewer system leads directly to wetlands, streams, lakes or rivers.

These recommendations are based on guidance from the Illinois Environmental Protection Agency. Visit www.epa.state.il.us/water for additional information.

You may also contact the Village Public Works Department at 847-234-260 or Lake County SMC at (847) 377-7715.

Please do your part to help improve water quality and promote cleaner wetlands, streams, lakes and rivers.

Thank you.

APPENDIX C
DESCRIPTION OF POLLUTANT INDICATORS

Pollutant Indicators

PHYSICAL POLLUTANT INDICATORS

Adapted from New Hampshire Estuaries Project and the IDDE Guidance Manual by the Center for Watershed Protection.

Odor

Water is a neutral medium and does not produce odor; however, most organic and some inorganic chemicals contribute odor to water. Odor in water may originate from municipal and industrial waste discharges, from natural sources such as decomposition of vegetative matter, or from associated microbial activity.

Table 1: Odor or Potential Illicit Discharges (adapted from CWP**)**

Odor	**Possible Cause**
Sewage	Wastewater treatment facilities, domestic waste connected into storm drain, failing septic system
Sulfide (rotten eggs)	Decaying organic waste from industries such as meat packers, dairies and canneries
Rancid/sour	Many chemicals, including pesticides and fertilizers, emit powerful odors that may produce irritation or stinging sensations.
Petroleum/gas	Industry associated with vehicle maintenance or petroleum product storage; gas stations
Laundry	Laundromat, dry cleaning, household laundry

Color

Color is a numeric computation of the color observed in a water quality sample, as measured in cobalt-platinum units. Both industrial liquid wastes and sewage tend to have elevated color values. Unfortunately, some “clean” flow types can also have high color values. A color value higher than 500 units may indicate an industrial discharge.

Table 2: Color of Potential Illicit Discharges (adapted from CWP)

Water Color	**Possible Cause**	**Images**
Brown Water – water ranging in color from light-tea to chocolate milk; it may have a rotten egg odor.	Human causes may be eroded, disturbed soils from constr. sites, animal enclosures, destabilized stream banks and lake shore erosion due to boat traffic.	
Yellow –	Human causes may include textile facilities, chemical plants or pollen.	

Gray Water – water appears milky and may have a rotten egg smell and/or soap odor. There may also be an appearance of cottony slime.	Human causes may be illicit connections of domestic wastewater; untreated septic system discharge; illegal boat discharge; and parking lot runoff.	
Green Water – ranging from blue green to bright green color and may impart odor. Conditions typically occur from May to October.	Human causes may be over-fertilizing lawns, boat discharges, septic systems, agriculture operations, or discharging poorly treated wastewater.	
Orange/Red -	Human causes may include meat packing facilities or dyes.	
Green Flecks – resembling floating blue-green paint chips or grass clippings. These *Blooms* and are potentially toxic.	Human cause is excessive nutrients. Fertilizers used on lawns can contaminate surface and ground water.	

Table 2 (continued)

Water Color	Possible Cause	Images
Green Hair-Like Strands - bright or dark green, resembling cotton candy and often in floating mats.	Human causes are excessive nutrients from fertilizers or failed on-shore septic systems.	
Multi-Color Water – various or uniform color, other than brown, green or gray. For rainbow sheen see floatables.	Human causes include oil or hazardous waste spill, paint and paint equipment rinsed into storm drains or into failing septic systems.	

Turbidity

Turbidity is a measure of the clarity of water. Turbidity may be caused by many factors, including suspended matter such as clay, silt, or finely divided organic and inorganic matter. Turbidity is a measure of the optical properties that cause light to be scattered and not transmitted through a sample. The presence of turbidity is to be assessed by comparing the sample to clean glass sample container with colorless distilled water.

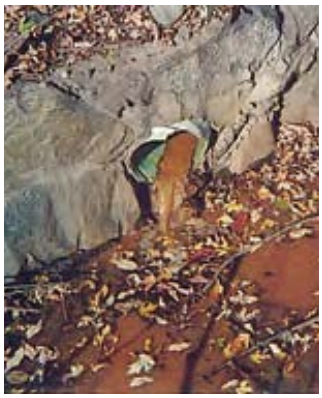
Turbidity and color are related terms but are not the same. Remember, turbidity is a measure of how easily light can penetrate through the sample bottle, whereas color is defined by the tint or intensity of the color observed.

Figure 9 Turbidity Severity Examples

(adapted from CWP)

Turbidity
Severity 1

Turbidity
Severity 2



Turbidity
Severity 3

Floatables

The presence of sewage, floating scum, foam, oil sheen, or other materials can be obvious indicators of an illicit discharge. However, trash originating from areas adjacent to the outfall is this section.

- If you think the floatable is sewage, you should automatically assign it a severity score of three since no other source looks quite like it.
- Suds are rated based on their foaminess and staying power. A severity score of three is designated for thick foam that travels many feet before breaking up. Natural foam breaks apart easily, can be brown, black or yellowish and may smell fishy or musty.
- Surface oil sheens are ranked based on their thickness and coverage. In some cases, surface sheens may not be from oil discharges, but instead created by in-stream processes. A petroleum sheens doesn't break apart and quickly flows back together.

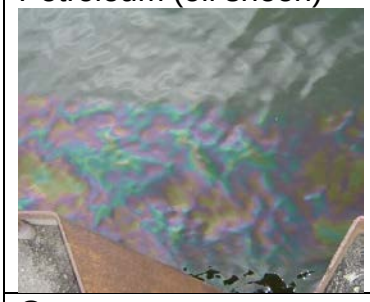
Figure 10 Natural Sheen versus Synthetic

(adapted from CWP)

Sheen from natural bacteria forms a swirl-like film that cracks if disturbed

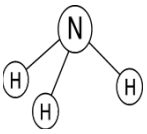
Synthetic oil forms a swirling pattern

Table 3: Floatables in Potential Illicit Discharges (adapted from CWP)

Floatables	
Sewage	Human causes include connection of domestic wastewater, leaking sanitary sewers or failing septic systems.
Suds and Foam –	Common human causes of unnatural foam include leaking sewer lines, boat discharges, improper sewer connections to storm sewers and detergents from car washing activities.
Petroleum (oil sheen) 	Human causes may include leaking underground storage tank or illegal dumping.
Grease	Common human causes include overflow from sanitary systems (due to clogging from grease) and illegal dumping.

CHEMICAL POLLUTANT INDICATORS

Ammonia



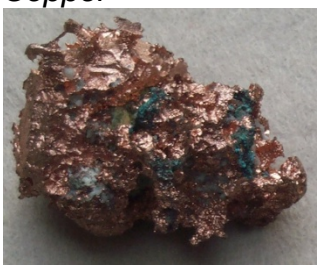
Ammonia is a good indicator of sewage, since its concentration is much higher there than in groundwater or tap water. High ammonia concentrations (>50 mg/l) may also indicate liquid wastes from some industrial sites. Ammonia is relatively simple and safe to analyze. Some challenges include the potential generation of wastes from non-human sources, such as pets or wildlife.

Potential ID NH3-N: > 0.1 mg/L

Chlorine

Chlorine is used throughout the country to disinfect tap water, except where private wells provide the water supply. Chlorine concentrations in tap water tend to be significantly higher than most other discharge types. Unfortunately, chlorine is extremely volatile, and even moderate levels of organic materials can cause chlorine levels to drop below detection levels. Because chlorine is non-conservative, it is not a reliable indicator, although if very high chlorine levels are measured, it is a strong indication of a water line break, swimming pool discharge, or industrial discharge from a chlorine bleaching process.

Copper



Concentrations of copper in dry-weather flows can be a result of corrosion of water pipes or automotive sources (for example, radiators, brake lines, and electrical equipment). The occurrence of copper in dry-weather flows could also be caused by

inappropriate discharges from facilities that either use or manufacture copper-based products. A copper value of >0.025-mg/L indicates an industrial discharge is present.

Industrial sources of copper include the following:

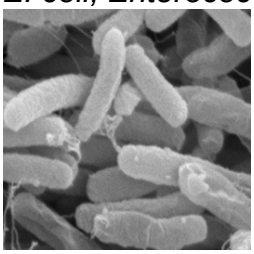
- Copper manufacturing (smelting),
- Copper metal processing/scrap remelting,
- Metal plating,
- Chemicals manufacturing,
- Analytical laboratories,
- Power plants,
- Electronics,
- Wood preserving, and
- Copper wire production.

In each of these industries, wastes containing copper would normally be discharged to a treatment facility. Sludge from the waste treatment facility, whether on-site (including lagooning) or publicly operated treatment facilities, would contain copper. If the sludge (or the treatment process) is not managed properly, copper could enter the storm sewer system.

Detergents

Most illicit discharges have elevated concentration of detergents. Sewage and wash water discharges contain detergents used to clean clothes or dishes, whereas liquid wastes contain detergents from industrial or commercial cleansers. The nearly universal presence of detergents in illicit discharges, combined with their absence in natural waters or tap water, makes them an excellent indicator. Research has revealed three indicator parameters that measure the level of detergent or its components--surfactants, fluorescence, and surface tension. Surfactants have been the most widely applied and transferable of the three indicators. Fluorescence and surface tension show promise, but only limited field testing has been performed on these more experimental parameters; therefore these are not tested. Refer to Boron and Surfactants descriptions.

E. coli, Enterococci and Total Coliform



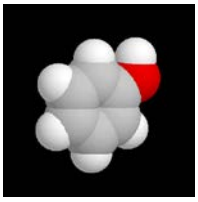
Each of these bacteria is found at very high concentrations in sewage compared to other flow types, and is a good indicator of sewage or seepage discharges, unless pet or wildlife sources exist in the subwatershed. Overall, bacteria are good supplemental indicators and can be used to find “problem” streams or outfalls that exceed public health standards.

Potential ID Range: Fecal Coliform > 2,000 mg/L indicates waste water contamination.
Potential ID Range: E. coli bacteria > 1,000/100 ml indicates waste water contamination.

Fluoride

Fluoride, at a concentration of two parts per million, is added to drinking water supplies in most communities to improve dental health. Consequently, fluoride is an excellent conservative indicator of tap water discharges or leaks from water supply pipes that end up in the storm drain. Fluoride is obviously not a good indicator in communities that do not fluorinate drinking water, or where individual wells provide drinking water. Fluoride levels greater than 0.6-mg/L indicate a potable water source is connected to the stormwater system.

Phenol



Phenol is a very commonly occurring chemical and can be found in foods, medicines, and cleaning products, as well as industrial products and by-products. Generally, the appearance of phenols in stormwater would indicate a misconnected industrial sewer to a storm drain or ditch. Exceptions would include runoff from treated wood storage yards (for example, treated lumber and telephone poles) and improper disposal (flash dumping) of cleaning products. A phenol value greater than 0.1-mg/L indicate an illicit discharge is present.

Industrial sources of phenol include the following:

- Chemical manufacturing (organic),
- Textile manufacturing,
- Paint and coatings manufacturing,
- Metal coating,
- Resin manufacturing,
- Tire manufacturing,
- Plastics fabricating,
- Electronics,
- Oil refining and re-refining,
- Naval stores (turpentine and other wood treatment chemicals),
- Pharmaceutical manufacturing,
- Paint stripping (for example, automotive and aircraft),
- Military installations (rework and repair facilities),
- Coke manufacturing,
- Iron production, and
- Ferro-alloy manufacturing.

Other sources of phenol include improper handling and disposal of cleaning compounds by institutions such as hospitals and nursing homes.

pH

Most discharge flow types are neutral, having a pH value around 7, although groundwater concentrations can be somewhat variable. pH is a reasonably good indicator for liquid wastes from industries, which can have very high or low pH (ranging from 3 to 12). The pH of residential wash water tends to be rather basic (pH of 8 or 9). The pH of a discharge is very simple to monitor in the field with low cost test strips or probes. Although pH data is often not conclusive by itself, it can identify problem outfalls that merit follow-up investigations using more effective indicators.

Potential ID Range: <6.5 and > 8.5

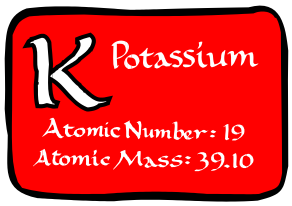
Phosphorus

Phosphorus is recognized as the controlling factor in plan and algae frown. Small increases in phosphorus can fuel substantial increases in aquatic plant and algae grown. In addition to reducing the recreational use of the water body the increased plant

and algae growth lowers dissolved oxygen levels. Low dissolved oxygen levels often results in the death of certain fish, invertebrates and other aquatic animals, reduce recreational use, property values and public health. A key source of phosphorus comes from runoff pollution, as rain or melting snow wash over fertilized areas or manure.

Potential ID Range: >1 mg/L

Potassium



Potassium is found at relatively high concentrations in sewage, and extremely high concentrations in many industrial process waters. Consequently, potassium can act as a good first screen for industrial wastes, and can also be used in combination with ammonia to distinguish wash waters from sanitary wastes. An ammonium to potassium ratio of >1 or <1indicate waste water or wash water discharge respectively. A potassium value of >20-mg/l is a good indicator for industrial discharges.

Surfactants

Surfactants are the active ingredients in most commercial detergents, and are typically measured as Methyl Blue Active Substances (or MBAS). They are a synthetic replacement for soap, which builds up deposits on clothing over time. Since surfactants

are not found in nature, but are always present in detergents, they are excellent indicators of sewage and wash waters. The presence of surfactants in cleansers, emulsifiers and lubricants also makes them an excellent indicator of industrial or commercial liquid wastes. A surfactant value of > 0.25-mg/L within residential areas indicates that either a sewage or wash water is present in the stormwater; a value of >5-mg/L within non-residential areas indicates that there is an industrial discharge (refer to Table 46 from the Illicit Discharge Detection and Elimination manual by the Center for Watershed Protection for use in determining industrial flow types).

APPENDIX D
ILLICIT DISCHARGE INCIDENT TRACKING FORMS

Illicit Discharge Incident Tracking Form

Incident ID:

Responder Information	
Call taken by:	Call date:
Call time:	Precipitation (inches) in past 24-48 hrs:
Reporter Information	
Incident time:	Incident date:
Caller contact information (*optional*):	

Incident Location *(complete one or more below)*

Latitude and longitude:

Stream address or outfall #:

Closest street address:

Nearby landmark:

Primary Location Description	**Secondary Location Description:**		
☐ Stream corridor *(In or adjacent to stream)*	☐ Outfall	☐ In-stream flow	☐ Along banks
☐ Upland area *(Land not adjacent to stream)*	☐ Near storm drain	☐ Near other water source (storm water pond, wetland, etc.):	

Narrative description of location:

Upland Problem Indicator Description

☐ Dumping	☐ Oil/solvents/chemicals	☐ Sewage
☐ Wash water, suds, etc.	☐ Other: _____	

Stream Corridor Problem Indicator Description

Odor	☐ None	☐ Sewage	☐ Rancid/Sour	☐ Petroleum (gas)
	☐ Sulfide (rotten eggs); natural gas	☐ Other: Describe in "Narrative" section		
Appearance	☐ "Normal"	☐ Oil sheen	☐ Cloudy	☐ Suds
	☐ Other: Describe in "Narrative" section			
Floatables	☐ None:	☐ Sewage (toilet paper, etc)	☐ Algae	☐ Dead fish
	☐ Other: Describe in "Narrative" section			

Narrative description of problem indicators:

Suspected Violator (name, personal or vehicle description, license plate #, etc.):

IDDE Summary Form					
Call Date	Call Time:	Incident Date:	Incident Location:	Upland Indicator	Stream Indicator

APPENDIX E
STORM WATER OUTFALL SCREENING EQUIPMENT CHECKLIST

STORM WATER OUTFALL SCREENING EQUIPMENT CHECKLIST		
Field Analysis		pH Testing Strips
		Chlorine Testing Strips
		Copper Test Strip
		Ammonia Test Strip
		Phenols Test Kit (Minimum of 15 Tests)
		Detergents Test Kit (Minimum of 15 Tests)
		Color Chart
		Thermometer
		Wash Bottle with Tap Water
Sampling		Extended Sampler
		250-ml and 500-ml glass sample containers with labels
		Cooler with ice or ice packs
Other		Outfall Screening Data Form (Minimum of 10)
		Outfall Sampling Report (Minimum of 10)
		Clipboard and Pens
		Resident Form Letters (Minimum of 10)
		Training Manual
		Storm Sewer Atlas
		Digital Camera
		Flashlight
		Manhole Cover Hook
		Tape Measure
		Folding Rule
		Brush Clearing Tool
		Plastic Trash Bags
		Paper Towels
Safety (PPE Equipment)		Traffic Cones/Flags/Light Sticks
		Traffic Safety Vest
		First Aid Kit
		Steel-Toe Boots
		Work Gloves
		Safety Glasses/Goggles
		Rubber Boots
		Disposable Gloves (Latex)
		ID Badge
Personal (supplied by employee if desired)		Insect Repellant
		Sunscreen

5.2 Storm Water Outfall Screening Equipment Checklist

Safety is the primary consideration while inspecting upstream sampling locations. In general, the rule "*if in doubt, **don't***" is followed. Latex gloves are worn while collecting and handling samples. A first aid kit is included in each vehicle to treat minor injuries. Obtain medical help for major injuries as soon as possible. Report all injuries, minor and major to appropriate persons.

Access to Private Property

In some cases, it may be necessary for Public Works personnel to enter or cross private property to investigate discovered illicit discharges. A form letter should be prepared that includes a short description of the project, the purpose of the access to the property, and the name of a project contact person with a telephone number. Attempt to contact each home, or business, owner for permission. Public Works personnel shall have identification indicating that they are municipal employees. If the owner is not present, a letter should be left at the premises to facilitate return inspection. If permission to access property is denied, a public official should then contact the owner at a later date. All access by municipal personnel onto private property shall conform to the insert ordinance name if applicable.

Avoid confrontational situations with citizens and attempt to answer questions concisely and without being alarmist. Public Works personnel should be coached on appropriate responses to questions from citizens. If a field crew feels uncomfortable or threatened, they should remove themselves from the situation and report to the incident to their supervisor.

Traffic

All traffic control measures are to be in accordance with the requirements of the *Manual on Uniform Traffic Control Devices* and other internal Policies and Procedures as set forth by the Public Works Department.

In general, the following additional policies are applicable. Public Works personnel generally work on streets only during the hours of 9 a.m. to 3 p.m. except in emergency situations. All field crews are required to wear Personal Protection Equipment (PPE) in accordance with Standard Operating Procedures set forth by the Public Works Department.

Confined Space Entry

Confined space entry for this program would include climbing into or inserting one's head into a pipe, manhole, or catch basin. In general, do not cross the vertical plane defining an outfall pipe or the horizontal plane defining a manhole, unless properly prepared for confined space entry. **IN NO CASE SHALL FIELD CREW MEMBERS WHO ARE UNTRAINED AND/OR UNEQUIPPED FOR CONFINED SPACE ENTRY ATTEMPT TO ENTER CONFINED SPACES.** Confined space entry shall be conducted only by trained personnel with appropriate rescue and monitoring equipment.

5.2 Storm Water Outfall Screening Equipment Checklist

Other Hazards

Table 5: Other Outfall Inspection Hazards

Hazard	Prevention
Access	Avoid steep slopes, dense brush and deep water. Report unsafe locations and move on to next location.
Stuck	Avoid wading where bottom sediments are easily disturbed or depths are unknown.
Strong Gas/Solvent Odor	Do not select manhole for sampling
Bodily Harm From Manhole Covers	Use manhole hook and watch for pinch points
Slip	Proper Foot Gear and Use of Rope If Warranted
Falls	Use extended sample collection device; don't cross horizontal or vertical plane at end of outfall
Heat and Dehydration	Adequate Water Intake; Avoid Excessive Exertion on Hot Days
Sunburn	Sunscreen and Appropriate Clothing
Poisonous Plants/Animals	Identify and Avoid
Vicious Dogs	Avoid; Use Animal Repellent if necessary
Water Bodies	Flotation Devices
Ticks	Check Entire Body at End of Each Day
Mosquitoes	Apply Repellent

APPENDIX F
STORM WATER OUTFALL INSPECTION DATA FORM AND INSTRUCTIONS

Section 1: Background Data

Subwatershed:	Outfall ID:	
Date:	Time (Military):	
Temperature:	Inspector(s):	
Previous 48 Hours Precipitation:	Photo's Taken (Y/N)	If yes, Photo Numbers:
Land Use in Drainage Area (Check all that apply): ☐ Industrial ☐ Residential ☐ Commercial	☐ Open Space ☐ Institutional Other: _____ Known Industries: _____	

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
Storm Sewer (Closed Pipe)	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Clay / draintile ☐ Other: _____	☐ Circular ☐ Elliptical ☐ Box ☐ Other: ____	☐ Single ☐ Double ☐ Triple ☐ Other:_____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
Open drainage (swale/ditch)	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other:	☐ Trapezoid ☐ Parabolic ☐ Other:		Depth: Top Width: Bottom Width:	

Section 3: Physical Indicators

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐Corrosion	
Deposits/Stains	☐	☐ Oily ☐Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe algea/growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	
Do physical indictors suggest an illicit discharge is present (Y/N):			

Flow Present?	☐ Yes ☐ No	**If No, Skip to Section 7 and Close Illicit Discharge Investigation**
Flow Description	☐ Trickle ☐ Moderate ☐ Substantial	

Section 4: Physical Indicators (Flowing Outfalls Only)

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Sulfide ☐ Petroleum/gas ☐ Laundry ☐ Other:	☐ 1–Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color (color chart)	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange/Red ☐ Multi-Color ☐ Other:	☐ 1–Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1–Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage ☐ Suds and Foam ☐ Petroleum (oil sheen) ☐ Grease ☐ Other:	☐ 1–Few/slight; origin not obvious	☐ 2 – Some; indications of origin	☐ 3 - Some; origin clear
Do physical indictors (flowing) suggest an illicit discharge is present (Y/N):					

Section 5: On-Site Sampling / Testing (Flowing Outfalls Only)

PARAMETER	RESULT	ACCEPTABLE RANGE	WITHIN RANGE (Y/N)	EQUIPMENT
Temperature		NA	NA	Thermometer
pH		6 – 9		5-in-1 Test Strip
Ammonia		<3 mg/L April – Oct < 8 mg/L Nov - March		Test Strip
Free Chlorine		NA	NA	5-in-1 Test Strip
Total Chlorine		< 0.05 mg/L		5-in-1 Test Strip
Phenols		< 0.1mg/L		Test Kit
Detergents as Surfactants		> 0.25 mg/L residential > 5 mg/L non-residential		Test Kit
Copper		<0.025 mg/L		Test Strip
Alkalinity		NA	NA	5-in-1 Test Strip
Hardness		NA	NA	5-in-1 Test Strip
Sample Location				

(Note NA values used for future tracing procedures)

Section 6: Data Collection for Lab Testing (see flow chart)

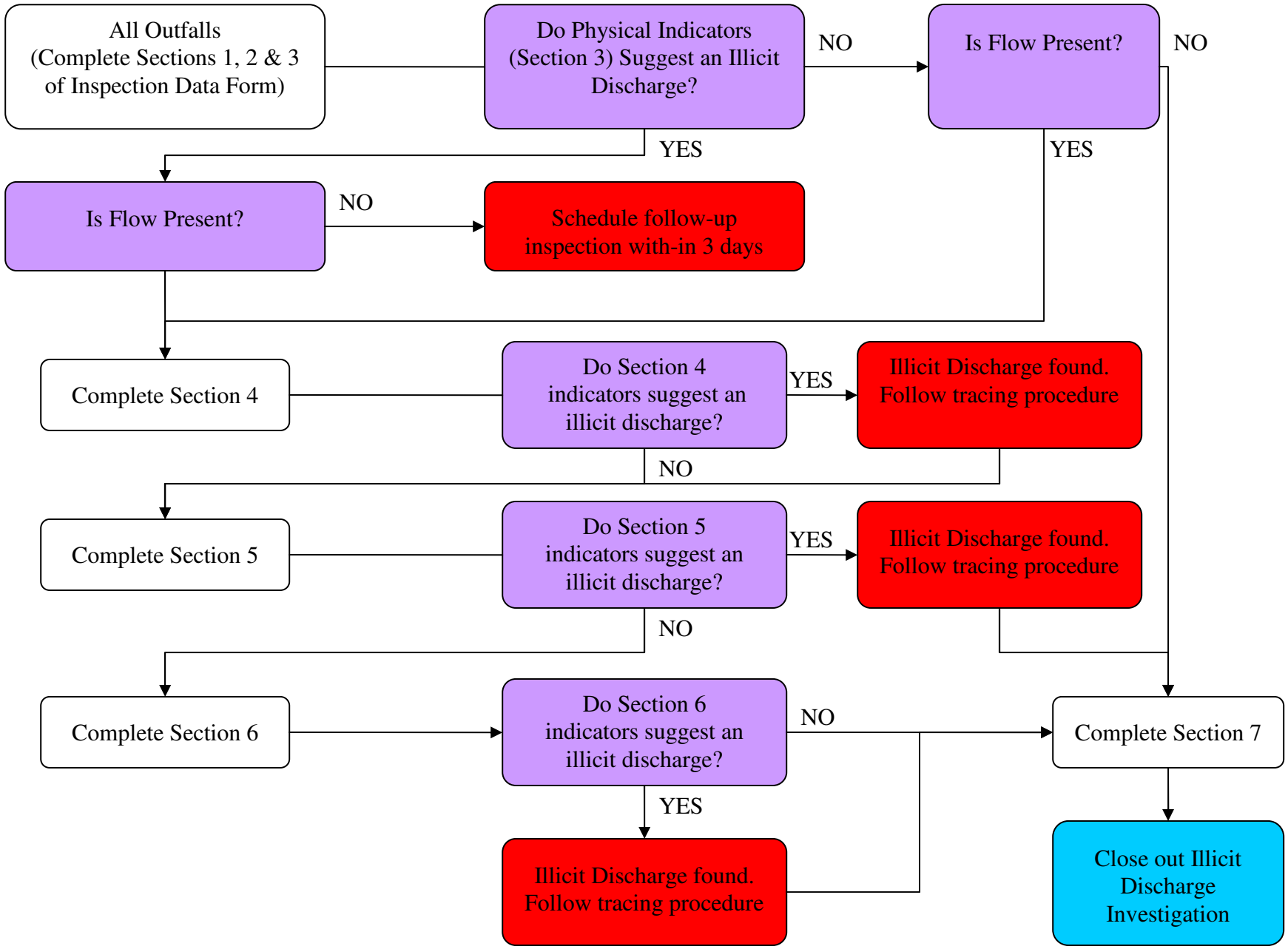
1. Sample for the lab?	☐ Yes	☐ No
2. If yes, collected from:	☐ Flow	☐ Pool

PARAMETER	RESULT (from lab)	ACCEPTABLE RANGE	WITHIN RANGE (Y/N)
Fecal Coliform		400 per 100 mL	
Flouride		0.6 mg/l	
Potassium		Ammonium/Potassium ratio or > 20mg/l	

*note label sample with outfall number

Section 7: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

Figure 4: Outfall Inspection Procedure Flow Chart



Instructions for completing the
Stormwater Outfall Inspection Data Form

Strike out incorrect entries with a single line; correct values or descriptions are written above or near the struck-out entries. Do not use a new data entry form to correct an incorrect entry. At the completion of each outfall inspection, the field crews are responsible for ensuring that a ***Stormwater Outfall Inspection Data Form*** has been completely and correctly filled out and that all data and remarks are legible. **It is important to check that values for all chemical parameters have been entered**.

Section 1: Background Data

Subwatershed: The receiving water from the stormwater outfall inventory to be entered here.

Outfall ID: Enter the outfall identification number from the stormwater outfall inventory.

Date: To avoid confusion, dates are be written in the following manner: DAY MONTH YEAR. For example, 10 MARCH 2007.

Time: Military time (24-hour clock) to be used (for example, 8:30 a.m. would be written as 0830; likewise, 1:30 p.m. would be written as 1330).

Temperature: A concise description of the weather conditions at the time of the screening is to be recorded (for example, Clear, 75○ F).

Inspector: The name(s) of the field personnel.

Previous 48 Hours Precipitation: The total amount of precipitation during the 48 hours preceding the inspection is to be noted (for example, none-72 Hours or 0”=4 days). If the total precipitation is not known, it is appropriate to enter a qualitative assessment if the precipitation was minor. For example, *Drizzle-36 Hours* if appropriate. If the precipitation amount was significant, actual precipitation totals is obtained from a local rain gage, if available.

Photo’s Taken (Yes/No): Photographs are to be taken with a camera that superimposes a date and time on the film. The date and time should correspond to the date and time recorded on the data form.

Photo Numbers: If photographs are taken, the number(s) is recorded.

Land Use: Check all that apply, noting which land use is predominate. If the industrial box is checked, any known industries are listed to facilitate potential tracing efforts.

Section 2: Outfall Description

Type of Outfall: Storm Sewer (Closed Pipe) or Open Drainage (Swale/Ditch):
First check if the outfall is either from a Closed Pipe or Open Drainage. Then complete the following row to describe outfall characteristics.

Section 3: Physical Indicators

Indicators: Complete rows describing outfall characteristics (Outfall Damage, Deposits/Stains, Abnormal Vegetation, Poor pool quality, Pipe algea/growth). This section is filled out regardless of current flow conditions. No flow during the time of the inspection, does not rule out the potential of illicit discharges. Corroding or stained pipes, dead or absence of vegetation, are potential indicators of illicit discharges from direct or indirect (i.e. dumping) sources.

Likelyhood: After inspecting the physical conditions of the outfall, the likelihood of an illicit discharge is assessed.

Flow Present (Yes/No): A *Yes* or *No* is entered here to indicate the presence or absence of dry-weather flow. If the outfall is submerged or inaccessible, "See Notes" is entered and an explanation provided in the "Notes" section.

Flow Description: A description of the quantity of the dry-weather flow is provided. Refer to Figure 6 of the SMPP.

Flow Chart Procedure:

- If *No* is entered in the "Flow Present" block and no non-flowing physical indicators appear present the inspection can be closed, skip to Section 7 of the form.
- If *No* is entered in the "Flow Present" block but indicators appear present, place the outfall on the follow-up inspection log, then the current inspection can be closed, skip to Section 7 of the form.
- If *Yes* is entered in the "Flow Present" block (regardless of the presence of non-flowing physical indicators), complete remainder of Section and proceed to Section 4.

Section 4: Physical Indicators (Flowing Outfalls Only)

Complete rows describing outfall characteristics (Odor, Color, Turbidity, Floatables). This section is filled out for flowing outfalls only.

Odor: The presence of an odor is to be assessed by fanning the hand toward the nose over a wide-mouth container of the sample, keeping the sample about 6 to 8 inches from the face. Be careful not to be distracted by odors in the air. Provide a description of the odor, if present. Refer to Table 2 of the SMPP.

Color: The presence of color in the discharge is to be assessed by filling a clean glass sample container with a portion of the grab sample and comparing the sample with a color chart, if color is present. If a color chart is used, the number corresponding to the color matching the sample is to be entered in this blank. Color is not assessed by looking into the discharge. Refer to Table 3 of the SMPP.

Turbidity "clarity": Turbidity is a measure of the clarity of water. Turbidity may be caused by many factors, including suspended matter such as clay, silt, or finely divided organic and inorganic matter. Turbidity is a measure of the optical properties that cause light to be scattered and not transmitted through a sample. The presence of turbidity is to be assessed by comparing the sample to clean glass sample container with colorless distilled water. Refer to Table 4 of the SMPP.

Floatables: The presence of floating scum, foam, oil sheen, or other materials on the surface of the discharge are to be noted. Describe of any floatables present that are attributable to discharges from the outfall. Do not include trash originating from areas adjacent to the outfall in this observation. Refer to Figure 5 and Table 4 of the SMPP.

Likelyhood: After inspecting the physical conditions of the outfall discharge, the likelihood of an illicit discharge is assessed. If flowing physical indicators are present the tracing procedure are immediately implemented by one of the field crew. The second member of the field crew continues with the inspection by performing the on-site testing in Section 5.

Flow Chart Procedure:

- If flowing physical indicators are present the tracing procedure is immediately implemented by one of the field crew. The second member of the field crew continues with the inspection by performing the on-site testing in Section 5.
- If flowing physical indicators do not suggest an illicit discharge continue with the inspection by performing the on-site testing in Section 5.

Section 5: On-Site Sampling/Testing (Flowing Outfalls Only)

Parameters: Test strip or kit chemical analyses are conducted for the following parameters in accordance with the Flow Chart, refer to Figure 7 of the SMPP.

- pH, test strip,

- Color, color chart,
- Chlorine, test strip,
- Copper, test strip,
- Ammonia, test strip,
- Phenols, test kit, and
- Detergents, test kit.

Testing is done by either a test strip or test kit as applicable (refer to the equipment column). The results are compared with the "acceptable range" and the "within range" column is filled out with a Yes or No. Note that the Temperature, Alkalinity and Hardness are determined although these results do not need to be compared with an "acceptable range". These values are used to assist in determining the source of the illicit discharge during the tracing procedure.

Sampling Location: A description of the actual sampling location is to be recorded (for example, at end of outfall pipe). If the outfall is submerged or is inaccessible for sampling, an upstream sampling location may be required. A description of any upstream sampling locations is recorded here. Grab samples are collected from the middle, both vertically and horizontally, of the dry-weather flow discharge in a critically cleaned glass container. Samples can be collected by manually dipping a sample container into the flow.

Sampling Procedures: Detailed, step-by-step instructions for using the test strips and kits are available through the Public Works Department. Please also refer to Chapter 3.3.B.7.b. for test kit safety information. Use the following procedures for all test kit analyses:

1. Take a grab sample and swirl to ensure that the sample is well mixed.
2. Rinse the sample cup (25ml) twice with distilled water. Next, rinse the sample cup twice with water from the grab sample.
3. Fill the sample cup to the 25 ml mark, or as required by the instructions for the test kits. Hold the sample cup at eye level to ensure that measurements are accurate.
4. Conduct the test kit analyses following the manufacturer's instructions.
5. Dispose of the sample as follows:
   - If no chemical or reagents have been added to the sample, the water can be poured on the ground.
   - If any chemical or reagent is added to the sample, pour the water into a container marked "Liquid Waste" for proper disposal to a sanitary sewer system at the end of the day.
6. Rinse the sample cup three times with tap water and dry with a paper towel.

Flow Chart Procedure:

- If any parameter is outside of the "acceptable range" then an illicit discharge has likely been found. The tracing procedure is immediately implemented by one of the field crew. Testing can be stopped, and the second member of the field crew continues with the inspection by completing Section 7.
- If none of the parameters are outside of the acceptable range, proceed to Section 6.

Section 6: Data Collection for Lab Testing

Determine if the Village's Waste Water Treatment Plant (WWTP) has adequate staff capacity to analyze the samples.

- If the WWTP has adequate staff capacity, collect grab samples and provide them to the WWTP. Note the location of the sample. Label the sample with the outfall ID number. Proceed to Section 7 while in the field and complete the remainder of Section 6 after the lab results are available.
- If the WWTP does not currently have adequate capacity, determine if Sections 3 or 4 of the inspection form suggest an illicit discharge.
  - If Sections 3 or 4 suggest an illicit discharge contact and outside lab to perform the testing. Proceed to Section 7 while in the field and complete the remainder of Section 6 after the lab results are available.
  - If Sections 3 or 4 do not suggest an illicit discharge, note the outfall ID number. Place the outfall on the follow-up inspection log and proceed to Section 7 of the form. Re-inspect and sample the discharge when the WWTP has adequate capacity.

Sample Location: The location of the sample is noted. Additionally, the sample is labeled with the outfall ID number. Use the insert MS4 type sampling procedures and refer to Chapter 3.3.B.7.b. for test kit safety information. . The following additional items are noted.

1. When you collect any samples you must fill out an ***Outfall Sampling Report* (Appendix 5.4).** The report must document time you arrive on location, take the sample and get to the plant to drop off the sample.
2. A 500-ml glass bottle sample is used to collect the sample. If you are collecting a sample that has grease 2-250ml samples taken with a glass container are required.
3. If you use the sampling container that is on a rope, it must be washed with soap and water after every use.

Parameters: Grab samples and lab testing is performed. After lab results are available enter the results here.

- If any parameter is outside of the "acceptable range" then an illicit discharge has likely been found. The tracing procedure should be immediately implemented.

- If none of the parameters are outside of the acceptable then the investigation can be closed.

Section 7 Any Non-Illicit Discharge Concerns

Any problems or unusual features are to be entered here. If the outfall appears to be potentially impacted by inappropriate discharges, this can be recorded here. This section is to be completed even if no flow is observed.

APPENDIX G
PRE-CONSTRUCTION MEETING FORM

Date & Time of PreCon	
Weather Conditions	
24hr Precipitation	

☐Update Report

Lake County Stormwater Management Commission
PreConstruction Meeting Report

SMC Permit #		SMC Category		Enforcement Officer	
USACE Reference #		Community Name		SMC Inspector	
NPDES Permit #		☐ Inter-Jurisdictional	☐ Local Unit of Government	USACE Contact	☐N/A
Project Name				Grant / Project Manager	☐N/A
Address / Location:			☐DECI ☐RE		
			SMC Listed DECI	☐Yes ☐No ☐Inactive	
Permitted Plans:			Field Contact		
			SE/SC Contractor		
			WDP Applicant		
Project Description:					
In Attendance					
Floodplain		IWLC	WOUS	Active / Site Area	/
Stage of Construction	Not Started	Details:		Next Inspection	

1	As-Built Documentation		2	☐ Digital Plans Received	☐ Fees / Deposits Received
3	Invoices / Seed Tags		4	Cofferdam Installation	
5	Concrete Washout		6	Construction / R.O.W. Access	
7	Construction Sequencing		8	DECI Requirements	
9	Detention / Sediment Basin		10	Dewatering / Bypass Pumping	
11	Directional Drilling / Contingency		12	Ditch Checks	
13	Drain Tile Conformity / Interaction		14	Dust Control / Wind Erosion	
15	ECB / TRM Installation		16	Floodplain Disturbance	
17	Grading / Earthwork		18	Hydrocarbon Removal	
19	Identified Flood Problem Area		20	Inlet Protection	
21	NFIP Building Requirements		22	Offsite / Overland Flows	
23	Outlet Control Structure		24	Perforated Riser	
25	PAM Application		26	SE/SC BMP Maintenance	
27	Silt Fence Installation		28	Soil Stockpile Protection	
29	☐ Stabilization Requirements		30	Stormwater Management System	
31	☐ Streambank/Shoreline Protection		32	Turbidity Curtain / Fence	
33	Waste / Trash Containment		34	Wetland Buffers Protected	
35	WOUS / IWLC BMP Protection		36	Wetland Impact ☐ N/A	ac IWLC ac WOUS

Temporary Stabilization ☐ n/a location:	**Temporary Measures** *or equivalent ECB/TRM * Notes:
Permanent Stabilization ☐ n/a location: ☐ n/a location:	**Permanent Measures** *or equivalent ECB/TRM * Notes: ECB/TRM * Notes:

Inspector's Comments:

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Photo #1:

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Photo #2:

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Photo #3:

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Photo #4:

Database Code	NS - Not Started	**Deposits: PreCon $**	**Inspection $**	**Deposit Actions**	No Action
Distribution List			**Follow up Needed** (by SMC)		

☐ **Save as DOCM**

☐ **Save as PDF**

☐ **Reset Form**

If you would like to provide feedback regarding the SMC inspection process please go to: (password – *survey*)
www.lakecountyil.gov/Stormwater/Pages/inspectionprocesssurvey-.aspx

APPENDIX H
SE/SC INSPECTION FORM

Project Status	
Action / Response Needed	
Date & Time of Inspection	
Weather Conditions	
24hr Precipitation	

☐Update Report

Lake County Stormwater Management Commission
Field Observation Report

SMC Permit #		SMC Category		Enforcement Officer	
USACE Reference #		Community Name		SMC Inspector	
NPDES Permit #		☐ Inter-Jurisdictional	☐ Local Unit of Government	USACE Contact	☐N/A
Project Name				Grant / Project Manager	☐N/A
Address / Location:			☐DECI ☐RE		
			SMC Listed DECI	☐Yes ☐No ☐Inactive	
Permitted Plans:			Field Contact		
			SE/SC Contractor		
			WDP Applicant		
Project Description:					
Floodplain	IWLC	WOUS		Active / Site Area	/
In Attendance					
Stage of Construction	Not Started	Details:		Next Inspection	

1	Cofferdam Installation		2	Concrete Washout	
3	Construction / R.O.W. Access		4	Construction Sequencing	
5	DECI Requirements		6	Detention / Sediment Basin	
7	Dewatering / Bypass Pumping		8	Dewatering NTU Reading	= Inflow = Treated
9	Directional Drilling		10	Ditch Checks	
11	Drain Tile Conformity		12	Dust Control / Wind Erosion	
13	ECB / TRM Installation		14	Floodplain Disturbance	
15	Grading / Earthwork		16	Hydrocarbon Removal	
17	Inclement Weather Ready		18	Inlet Protection	
19	NFIP Building Requirements		20	Offsite / Overland Flows	
21	Outlet Control Structure		22	Perforated Riser	
23	Polyacrylamide Application	☐*sst	24	SE/SC BMP Maintenance	
25	Silt Fence		26	Soil Stockpile Protection	
27	Stabilization Measures		28	Stormwater Management System	
29	Streambank / Shoreline		30	Target / Native Species	
31	Turbidity Curtain / Fence		32	Vegetative Cover %	
33	Waste / Trash Containment		34	WOUS / IWLC Protection	

a. Not permitted, incorrect, or noncompliant construction activity or sequencing
b. Noncompliant inaction, incompletion, or delay in completion of required measure
c. Failure to install or use, or properly install, or use, as permitted or as acceptable
d. Damaged or destroyed by construction activity, weather, or other means
e. Insufficient routine maintenance or routine repairs requiring correction
f. Additional SE/SC measures are required based on site conditions
g. Erosion, sediment, or dust observed downslope of controls or **offsite**
h. Erosion, sediment, or dust observed **on site** beyond acceptable standards
i. Construction debris, or illicit material improperly contained or addressed
j. Suspended sediment / illicit discharge observed offsite ***site specific tested**

Items noted as Deficient or NonCompliant: ☒None

Project Status	Compliant	NonCompliance Correction Deadline	No Action Required	☐ Stop Work Order Issued

Inspector's Comments:

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Photo #1:

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Photo #2:

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Photo #3:

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Photo #4:

Database Code	NS - Not Started	**Deposits: PreCon $**	**Inspection $**	**Deposit Actions**	No Action
Distribution List			**Follow up Needed** (by SMC)		

☐ **Save as DOCM**

☐ **Save as PDF**

☐ **Reset Form**

If you would like to provide feedback regarding the SMC inspection process please go to: (password – *survey*)
www.lakecountyil.gov/Stormwater/Pages/inspectionprocesssurvey-.aspx

APPENDIX I
SAMPLE NOTICE OF VIOLATION LETTERS

Date:

1ST NOTICE OF VIOLATION

Applicant Name
Company
Address
City State Zip

Subject: Project Name
Watershed Development Permit No. ???-??-???
1st Notice of Violation

Dear Permittee:

You are hereby notified of the following violation(s) to your Watershed Development Permit:

☐ Failure to notify the City of Lake Forest prior to construction.

☐ Failure to display Permit placard visible from street.

☐ Failure to install/maintain a non-erosive outlet from the structure to the watercourse (Art. IV, Sec. B.1.j.1.b).

Location(s) _____

☐ Failure to install/maintain soil erosion and sediment control features prior to the hydrologically disturbing upstream areas (Art. IV, Sec. B.1.j.1.c).

Location(s) _____

☐ Failure to install/maintain temporary or permanent seeding (Art. IV, Sec. B.1.j.1.d.).

Location(s) _____

☐ Failure to install/maintain sod (Art. IV, Sec. B.1.j.1.d.).

Location(s) _____

☐ Failure to install/maintain erosion control blanket (Art. IV, Sec. B.1.j.1.d.).

Location(s) _____

☐ Failure to install/maintain silt fence, meeting AASHTO Std. Spec 288-00 (Art. IV, Sec. B.1.j.1.f.i).

Location(s) _____

☐ Failure to install/maintain sediment traps (Art. IV, Sec. B.1.j.1.f.ii).

Location(s) _____

☐ Failure to install/maintain sediment basins with perforated filtered riser pipe (Art. IV, Sec. B.1.j.1.f.iii).

Location(s) _____

☐ Failure to install/maintain storm inlet protection (Art. IV, Sec. B.1.j.1.g).

Location(s) _____

☐ Failure to route dewatering services through an effective sediment control measure (Art. IV, Sec. B.1.j.1.h).

Location(s) _____

☐ Failure to install/maintain stabilized construction entrance. Failure to clean right of way/pavement. (Art. IV, Sec. B.1.j.1.j).

Location(s) _____

☐ Failure to install/maintain runoff diversion controls (Art. IV, Sec. B.1j.1.m).

Location(s) _____

☐ Failure to prevent erosion from stockpile, or the placement of stockpile in a flood-prone area, buffer, WOUS or IWLC (Art. Iv, Sec. B.1j.1.n).

Location(s) _____

☐ Failure to maintain dust control (Art. IV, Sec. B.2.b.8.e.).

Location(s) _____

☐ Failure to follow permitted construction sequencing (Art. IV, Sec. B.2.b.8.j).

Location(s) _____

_____

You must take immediate action and cure all deficiencies identified above within five (5) working days, or the City of Lake Forest may issue a Stop Work Order or invoke Article VII –Penalties and Legal Actions of the WDO that provides for up to a $500 fine for each offense each day the violation continues. Once all deficiencies have been cured, please call our office to schedule a re-inspection. If you have any questions please contact the (insert contact) at (xxx)xxx-xxxx.

Sincerely,

XX
Enforcement Officer

C:

Summary of Violation Notification Procedure

1st Notice: Village will furnish a Violation Notification to applicant and/or representative via fax and Certified Mail outlining necessary corrective measures to be completed and re-inspected within 5-working days of said notification. After which time, if violations are still not corrected, a *Red Tag* will be issued for the site (i.e. all work to stop except for activities related to correcting violations).

2nd Notice: Village issues a *Red-Tag* for the site along with a Conditional Stop Work Order (allowing only remediation activities) via fax and Certified Mail granting an additional 5-working day deadline to complete remedial work to cure said WDO violation(s). Fines continue to accrue.

3rd and Final Notice: If corrective measures have not been completed within the period allowed by 2nd Notice, the Village shall meet with the applicant/developer to discuss the Village's additional punative actions and the plan and schedule within which the necessary remedial measures will be completed. Fines continue to accrue and the Conditional Stop Work Order remains in effect.

NOTE: Building and/or Occupancy Permits and surety reduction requests will be withheld until all violations are resolved and levied fines are paid.

APPENDIX J
SAMPLE MAINTENANCE PLAN

STORMWATER MANAGEMENT SYSTEM
MAINTENANCE PLAN FOR NEW FACILITIES

Subject: INSERT DEVELOPMENT NAME HERE

SUCH PROPERTY BEING THE REAL PROPERTY NOW DULY PLATTED AS INSERT DEVELOPMENT NAME HERE, AS SUCH PLAT IS NOW RECORDED AS DOCUMENT NO. INSERT DOCUMENT NUMBER, IN THE OFFICE OF THE RECORDER OF DEEDS OF THE COUNTY OF LAKE, STATE OF ILLINOIS, HEREBY MAKES THE FOLLOWING DECLARATIONS OF MAINTENANCE RESPONSIBILITIES.

Responsibilities

Adequate provisions for maintenance of the stormwater system are an essential aspect of long-term drainage performance. Responsibility for the overall maintenance shall rest with the insert responsible party name here.

Purpose and Objective:

Detention and water quality treatment facilities, storm sewers, swales and native vegetation/buffer areas define a development's stormwater management system. When land is altered to build homes and other developments, the natural system of trees and plants is replaced with impervious surfaces like sidewalks, streets, decks, roofs, driveways, or lawns over highly compacted soils. As a result more rain water / storm water flows off the land at a faster rate and less rain water is absorbed into the soil. This can lead to streambank erosion, downstream flooding and increased concentrations of pollutants. The storm water management system was designed to help slow the rate of runoff from the development and improve the quality of the storm water leaving the site.

Interpretation as to Requirements Under This Maintenance Plan:

The requirement for this Maintenance Plan is generated by the Lake County Watershed Development Ordinance. Therefore, the interpretation of the maintenance requirements set forth in this Maintenance Plan shall be interpreted on the basis of the intent and requirements of said Ordinance.

Inspection Frequency:

Inspection experience will determine the required cleaning frequencies for the components of the stormwater management system. At a minimum, the attached checklist items should be inspected annually. Detention ponds (including the outlet control structure and restrictors) should be inspected on a monthly basis during wet weather conditions from March to November.

Maintenance Considerations:

Whenever possible, maintenance activities should be performed during the inspection. These activities should be supplemented by repair / replacement as required. A Registered Professional Engineer (PE) shall be hired for design resolution of specific items as indicated on the checklist below.

Cost Considerations:

Frequent maintenance program work execution will lead to less frequent and less costly long-term maintenance and repair. The attached checklist items may need to be amended based on experience recorded over the initial period of occupancy of the subdivision.

Record Keeping:

Separate and distinct records shall be maintained by the responsible party for all tasks performed associated with this plan. The records shall include the dates of maintenance visits, who performed the inspection, and a description of the work performed.

_____, the owner's agent, has caused these presents to be signed and acknowledged, this _____ day of _____, 2_____.

By: _____

Post-Construction Stormwater Management System
Inspection Checklist

The following checklist describes the suggested routine inspection items and recommended measures to be taken to ensure that the Stormwater Management System functions as designed. When hiring a PE is the recommended measure, the PE shall inspect, evaluate and recommend corrective actions. The General section outlines items that should be taken into consideration during inspection and maintenance activities. While performing an overall inspection of your system, please check for the following items.

General -

- Litter and debris shall be controlled.
- Accumulated sediment shall be disposed of properly, along with any wastes generated during maintenance operations.
- Riprap areas shall be repaired with the addition of new riprap, as necessary, of adequate size and shape.
- Roads and parking lots shall be swept or vacuumed on a periodic basis.
- Access path to storm water management facilities should be free from obstructions (woodpiles, sheds, vegetation).
- Fences, gates and posts shall be maintained.
- Signs shall be maintained.

Dams and berms

____ Settlement. If settlement observed, hire a PE.
____ Breaks or failures. If failure observed, notify the Village immediately and hire a PE.
____ Erosion. Repair as needed.
____ Signs of leakage, seepage or wet spots. If observed, hire a PE.
____ Unwanted growth or vegetation. Remove as needed.

Shorelines

____ Erosion or rip-rap failures. Repair as needed
____ Undermining. Stabilize and repair as needed.

Outlet and inlet structure

____ Obstructions blocking outlet pipe, restrictor, channel or spillway. Remove obstructions immediately.
____ Separation of joints. Repair as needed.
____ Cracks, breaks, or deterioration of concrete. Repair as needed
____ Scour and erosion at outlet. If observed, repair (consider additional or alternative stabilization methods).
____ Condition of trash racks. Remove any collected debris.
____ Outlet channel conditions downstream. Stabilize soil or remove obstructions as needed.

Storage Volume

____ Facilities shall be inspected to ensure that the constructed volume for detention is maintained. No sediment, topsoil, or other dumping into the facility shall be allowed. If a detention facility includes specific locations designed to accumulate sediment these locations should be dredged every 5-yrs or when 50% of the volume has been lost.

____ Wet ponds lose 0.5 - 1.0% of their volume annually. Dredging is required when accumulated volume loss reaches 15%, or approximately every 15-20 years.

Storm Sewers

____ System is free draining into collection channels or catch basins. If concerned, clean or repair.

____ Catch basins. Remove sediment when more than 50% of basin sump is filled.

____ Siltation in Culvert. Culverts shall be checked for siltation deposit, clean out as necessary.

Bridges

____ Any scouring around wing walls. Stabilize and repair as needed. If concerned, hire a PE.

____ Any undermining of footings. Stabilize and repair as needed. If concerned, hire a PE.

Swales –

____ All ditches or pipes connecting ponds in series should be checked for debris that may block flow.

____ Repair and replace permanent check-dams as necessary.

____ Verify systems (both drainage ditches and sideyard swales) are maintaining originally constructed design slope and cross-sectional area. If fill or sediment contributes to elevation changes in swale, re-grading and re-shaping shall be performed. Licensed surveyors shall be hired to lay-out and check grades. No landscaping, earthen fill, gardens, or other obstructions (including sheds and other structures) shall be allowed in the swales that would impede design drainage flow patterns.

Vegetated Areas –

____ Need for planting, reseeding or sodding of native areas. Supplement alternative native vegetation if a significant portion has not established (50% of the surface area). Reseed with alternative grass species if original grass cover has not successfully established.

____ Need for planting, reseeding or sodding of turf areas. Supplement alternative native vegetation if a significant portion has not established (75% of the surface area). Reseed with alternative grass species if original grass cover has not successfully established.

____ Invasive vegetation (refer to the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, or hire an environmental or landscape specialist). Remove as necessary.

Wetland Buffers –

____ Inspect for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded and mulched. A shallow stone trench should be installed as a level spreader to distribute flows evenly in any area showing concentrated flows.

____ All existing undergrowth, forest floor duff layer, and leaf litter must remain undisturbed except in designated paths or permitted encroachment areas.

____ No tree cutting is allowed except for normal maintenance of dead, diseased and damaged trees or; the culling of invasive, noxious or non-native species that are to be replaced by more desirable and native vegetation.

____ A buffer must maintain a dense, complete and vigorous cover of "non-lawn" vegetation which should not be mowed no more than once a year. Vegetation may include grass and other herbaceous species as well as shrubs and trees.

____ Use or maintenance activities within the buffer shall be conducted so as to prevent damage to vegetation and exposure of soil.

STORMWATER MANAGEMENT SYSTEM
ANNUAL MAINTENANCE PLAN FOR EXISTING FACILITIES

Purpose and Objective:

Detention and water quality treatment facilities, storm sewers, swales and native vegetation/buffer areas define a development's stormwater management system. When land is altered to build homes and other developments, the natural system of trees and plants is replaced with impervious surfaces like sidewalks, streets, decks, roofs, driveways, or lawns over highly compacted soils. As a result more rain water / storm water flows off the land at a faster rate and less rain water is absorbed into the soil. This can lead to streambank erosion, downstream flooding and increased concentrations of pollutants. The existing storm water management system was designed to help slow the rate of runoff from the development and maintain the quality of the storm water leaving the site.

Inspection Frequency:

Inspection experience will determine the required cleaning frequencies for the components of the stormwater management system. At a minimum, the attached checklist items should be inspected annually. Detention ponds (including the outlet control structure and restrictors) should be inspected on a monthly basis during wet weather conditions from March to November.

Maintenance Considerations:

Whenever possible, maintenance activities should be performed during the inspection. These activities should be supplemented by repair / replacement as required. A Registered Professional Engineer (PE) shall be hired for design resolution of specific items as indicated on the checklist below.

Cost Considerations:

Frequent maintenance program work execution will lead to less frequent and less costly long-term maintenance and repair. The attached checklist items may need to be amended based on inspection experience.

Record Keeping:

Separate and distinct records should be maintained by the responsible party for all tasks performed associated with this plan. The records shall include the dates of maintenance visits, who performed the inspection, and a description of the work performed.

Post-Construction Stormwater Management System
Inspection Checklist

The following checklist describes the suggested routine inspection items and recommended measures to be taken to ensure that the Stormwater Management System functions as designed. When hiring a PE is the recommended measure, the PE shall inspect, evaluate and recommend corrective actions. The General section outlines items that should be taken into consideration during inspection and maintenance activities. While performing an overall inspection of your system, please check for the following items.

General -

- Litter and debris shall be controlled.
- Accumulated sediment shall be disposed of properly, along with any wastes generated during maintenance operations.
- Riprap areas shall be repaired with the addition of new riprap, as necessary, of adequate size and shape.
- Roads and parking lots shall be swept or vacuumed on a periodic basis.
- Access path to storm water management facilities should be free from obstructions (woodpiles, sheds, vegetation).
- Fences, gates and posts shall be maintained.
- Signs shall be maintained.

Storage Facilities (Detention, Retention and Water Quality Treatment Facilities)

Dams and berms

____ Settlement. If settlement observed, hire a PE.
____ Breaks or failures. If failure observed, notify the Village immediately and hire a PE.
____ Erosion. Repair as needed.
____ Signs of leakage, seepage or wet spots. If observed, hire a PE.
____ Unwanted growth or vegetation. Remove as needed.

Shorelines

____ Erosion or rip-rap failures. Repair as needed
____ Undermining. Stabilize and repair as needed.

Outlet and inlet structure

____ Obstructions blocking outlet pipe, restrictor, channel or spillway. Remove obstructions immediately.
____ Separation of joints. Repair as needed.
____ Cracks, breaks, or deterioration of concrete. Repair as needed
____ Scour and erosion at outlet. If observed, repair (consider additional or alternative stabilization methods).
____ Condition of trash racks. Remove any collected debris.

____ Outlet channel conditions downstream. Stabilize soil or remove obstructions as needed.

Storage Volume

____ Facilities shall be inspected to ensure that the constructed volume for detention is maintained. No sediment, topsoil, or other dumping into the facility shall be allowed. If a detention facility includes specific locations designed to accumulate sediment these locations should be dredged every 5-yrs or when 50% of the volume has been lost.

____ Wet ponds lose 0.5 - 1.0% of their volume annually. Dredging is required when accumulated volume loss reaches 15%, or approximately every 15-20 years.

Storm Sewers

____ System is free draining into collection channels or catch basins. If concerned, clean or repair.

____ Catch basins. Remove sediment when more than 50% of basin sump is filled.

____ Siltation in Culvert. Culverts shall be checked for siltation deposit, clean out as necessary.

Bridges

____ Any scouring around wing walls. Stabilize and repair as needed. If concerned, hire a PE.

____ Any undermining of footings. Stabilize and repair as needed. If concerned, hire a PE.

Swales –

____ All ditches or pipes connecting ponds in series should be checked for debris that may block flow.

____ Repair and replace permanent check-dams as necessary.

____ Verify systems (both drainage ditches and sideyard swales) are maintaining originally constructed design slope and cross-sectional area. If fill or sediment contributes to elevation changes in swale, re-grading and re-shaping shall be performed. Licensed surveyors shall be hired to lay-out and check grades. No landscaping, earthen fill, gardens, or other obstructions (including sheds and other structures) shall be allowed in the swales that would impede design drainage flow patterns.

Vegetated Areas –

____ Need for planting, reseeding or sodding of native areas. Supplement alternative native vegetation if a significant portion has not established (50% of the surface area). Reseed with alternative grass species if original grass cover has not successfully established.

____ Need for planting, reseeding or sodding of turf areas. Supplement alternative native vegetation if a significant portion has not established (75% of the surface area).

Reseed with alternative grass species if original grass cover has not successfully established.

____ Invasive vegetation (refer to the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, or hire an environmental or landscape specialist, or hire an environmental or landscape specialist). Remove as necessary.

Wetland Buffers –

____ Inspect for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded and mulched. A shallow stone trench should be installed as a level spreader to distribute flows evenly in any area showing concentrated flows.

____ All existing undergrowth, forest floor duff layer, and leaf litter must remain undisturbed except in designated paths or permitted encroachment areas.

____ No tree cutting is allowed except for normal maintenance of dead, diseased and damaged trees or; the culling of invasive, noxious or non-native species that are to be replaced by more desirable and native vegetation.

____ A buffer must maintain a dense, complete and vigorous cover of "non-lawn" vegetation which should not be mowed no more than once a year. Vegetation may include grass and other herbaceous species as well as shrubs and trees.

____ Use or maintenance activities within the buffer shall be conducted so as to prevent damage to vegetation and exposure of soil.

APPENDIX K
SPILL RESPONSE NOTICE

Stormwater Pollution Found in Your Area!

This is not a citation.

This is to inform you that our staff found the following pollutants in the storm sewer system in your area. This storm sewer system leads directly to

_____

- ❑ Motor oil
- ❑ Oil filters
- ❑ Antifreeze/ transmission fluid
- ❑ Paint
- ❑ Solvent/degreaser
- ❑ Cooking grease
- ❑ Detergent
- ❑ Home improvement waste (concrete, mortar)
- ❑ Pet waste
- ❑ Yard waste (leaves, grass, mulch)
- ❑ Excessive dirt and gravel
- ❑ Trash
- ❑ Construction debris
- ❑ Pesticides and fertilizers
- ❑ Other

_____

For more information or to report an illegal discharge of pollutants, please call:

City of Lake Forest

Public Works Department

847-234-2600

WHEN IT RAINS IT DRAINS

www.epa.gov/npdes/stormwater

EPA 833-F-03-002
April 2003

Stormwater runoff is precipitation from rain or snowmelt that flows over the ground. As it flows, it can pick up debris, chemicals, dirt, and other pollutants and deposit them into a storm sewer system or waterbody.

Anything that enters a storm sewer system is discharged *untreated* into the waterbodies we use for swimming, fishing, and providing drinking water.

Remember: Only Rain Down the Drain

To keep the stormwater leaving your home or workplace clean, follow these simple guidelines:

- Use pesticides and fertilizers sparingly.
- Repair auto leaks.
- Dispose of household hazardous waste, used auto fluids (antifreeze, oil, etc.), and batteries at designated collection or recycling locations.
- Clean up after your pet.
- Use a commercial car wash or wash your car on a lawn or other unpaved surface.
- Sweep up yard debris rather than hosing down areas. Compost or recycle yard waste when possible.
- Clean paint brushes in a sink, not outdoors. Properly dispose of excess paints through a household hazardous waste collection program.
- Sweep up and properly dispose of construction debris like concrete and mortar.