



# 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, 2019 To March, 2020

Permit No. ILR40 0285

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

Name: Village of Barrington - Public Works Mailing Address 1: 302 North Raymond Avenue  
Mailing Address 2: \_\_\_\_\_ County: Lake  
City: Barrington State: IL Zip: 60010 Telephone: 847-381-7903  
Contact Person: Mike Casper Email Address: mcasper@barrington-il.gov  
(Person responsible for Annual Report)

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

Village of Barrington Lake County

#### 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             | <input type="checkbox"/> | 4. Construction Site Runoff Control       | <input type="checkbox"/> |
| 2. Public Participation/Involvement          | <input type="checkbox"/> | 5. Post-Construction Runoff Control       | <input type="checkbox"/> |
| 3. Illicit Discharge Detection & Elimination | <input type="checkbox"/> | 6. Pollution Prevention/Good Housekeeping | <input type="checkbox"/> |

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))**

Owner Signature:

Mike Casper

Printed Name:

5-29-20

Date:

Plant Superintendent

Title:

EMAIL COMPLETED FORM TO: [epa.ms4annualinsp@illinois.gov](mailto: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**

**Village of Barrington  
Permit No. ILR40-0285  
Permit Year 17: March 1, 2019 to March 1, 2020**

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## Part A. MS4 Changes to Best Management Practices, Year 17

The Village of Barrington has committed to implementing Best Management Practices (BMPs) in accordance with the Village's Storm Water Management Plan (SWMP) dated March 2013 and revised March 2017. This plan reflects implementation of BMPs in accordance with the schedule below. No changes to the SWMP were made in Year 17.

Year 17	
MS4	
<b>A. Public Education and Outreach</b>	
X	A.1 Distributed Paper Material
	A.2 Speaking Engagement
	A.3 Public Service Announcement
	A.4 Community Event
	A.5 Classroom Education Material
X	A.6 Other Public Education
<b>B. Public Participation/Involvement</b>	
	B.1 Public Panel
	B.2 Educational Volunteer
	B.3 Stakeholder Meeting
X	B.4 Public Hearing
	B.5 Volunteer Monitoring
	B.6 Program Coordination
X	B.7 Other Public Involvement
<b>C. Illicit Discharge Detection and Elimination</b>	
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	
<b>D. Construction Site Runoff Control</b>	
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
<b>E. Post-Construction Runoff Control</b>	
	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
	E.7 Other Post-Const Runoff Controls
<b>F. Pollution Prevention/Good Housekeeping</b>	
X	F.1 Employee Training Program
X	F.2 Inspection and Maintenance Program
X	F.3 Municipal Operations Storm Water Control
	F.4 Municipal Operations Waste Disposal
	F.5 Flood Management/Assess Guidelines
	F.6 Other Municipal Operations Controls

## Part B. MS4 Status of Compliance with Permit Conditions, Year 17

The IEPA issued a new version of its General NPDES Permit No. ILR40 (Permit), effective on March 1, 2016. The Village revised the local Storm Water Management Plan (SWMP) in March 2017 to reflect the requirements of the new Permit. On behalf of all MS4s within Lake County, the Stormwater Management Commission (SMC) performs activities related to each of the six minimum control measures which are described in detail in the SWMP. The Village takes credit for these activities as a Qualifying Local Program. 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 SWMP and previous five-years of Annual Reports for this MS4 Program can be viewed at the following link:  
[https://www.barrington-il.gov/government/departments/development\\_services/stormwater\\_management.php](https://www.barrington-il.gov/government/departments/development_services/stormwater_management.php)

<b>BMP 1: Public Education and Outreach</b>	
<b>Description</b>	<b>Measurable Goals</b>
Distribute educational materials in the Village newsletter, on the Village website, at take-a-way racks in Village offices, at outreach events, and at scheduled meetings with the public.	*Track amount of printed material consumed by the public
Maintain and update the portion of the website dedicated to storm water.	Maintain the web site.
Maintain and update links to websites related to the environment such as the Center for Neighborhood Technology, Environmental Protection Agency, Household Hazardous Waste Collection Schedule, and the Rain Garden Network.	*Maintain the web site
Post the Village’s SWMP, Notice of Intent, current Annual Report, and the previous 5 years of Annual Reports on the Village website.	*Maintain the web site
Maintain Tree City USA designation from the Tree City USA program.	Maintain Tree City USA designation
Continue to promote and facilitate Arbor Day events.	Track number of attendees to events and track number of trees planted
Continue promotion and implementation of the Village’s rain barrel rebate program.	Track number of rain barrel rebates provided
Support and publicize SWANCC and SWALCO efforts.	Maintain publicizing records
Continue the Village’s special collection efforts and community programs.	Track amount of material collected
Continue to offer and promote refuse and recycling programs.	Track amount of material collected

Public Education and Outreach continues to increase awareness in the community for pollution prevention and opportunities to enhance water quality.

\*During review of these BMPs we identified several broken hyperlinks on the Village’s web site including the recent annual reports, SWMP, and environmental site links. These links will be re-mapped and repaired. Provisions for monitoring downloads will be reviewed with the website update.

<b>BMP 2: Public Participation and Involvement</b>	
<b>Description</b>	<b>Measurable Goal</b>
Present each year’s Annual Report to the Village Board during an open meeting and encourage input from the public as to the adequacy of the SWMP.	Maintain meeting minutes reflecting the presentation
Evaluate and incorporate comments received from the Village Board and the public.	Track comments received
Complete the environmental justice screening annually. If any environmental justice areas are identified within the community, ensure that BMP efforts are targeted at these areas.	*Provide screening results in the Annual Report
Encourage the submission of complaints, suggestions, and requests related to storm water by publicizing contact information on education materials and the Village website.	Track feedback received and responses

The Village continues to welcome Public Participation and Involvement in stormwater pollution prevention. Contact information is regularly publicized and members of the public are encouraged to report complaints, suggestions, and requests which are tracked by the Village. The annual presentation was given to Village Board at the January 2020 Committee of the Whole meeting.

\*The USEPA identifies potential environmental justice communities based on the percentage of low income and/or minority populations in the Village compared to the statewide average. Areas that have greater than twice the statewide average may be considered a potential environmental justice 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 environmental justice community. The following web application was used to determine if the Village qualifies as an environmental justice community <https://ejscreen.epa.gov/mapper/index.html>. Three indicators were reviewed as follows:

- Demographic Index: An index based on the average of two demographic indicators; percent low income and percent minority.
- Percent Minority: The percent of individuals in a block group who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino.
- Percent Low-Income: The percent of a block group's population in households where the household income is less than or equal to twice the federal "poverty level."

Using the USEPA environmental justice website noted above, the Village determined that there are currently no areas within the Village that qualify as environmental justice areas. The following table presents data polled in May 2020.

Table 1: EJ Screen Data May 2020

Demographic Indicators	Village Statistic	State Average	2x State Average	> 2x State Average?
Demographic Index	11%	34%	68%	No
Minority Population	13%	38%	76%	No
Low Income Population	9%	30%	60%	No

<b>BMP 3: Illicit Discharge, Detection, and Elimination</b>	
Description	Measurable Goal
Maintain the Village’s storm sewer system map, updating annually.	Maintain the mapping system
Enforce the Village’s Illicit Discharge Ordinance (Chapter 10 “Illegal Discharges and/or Illicit Connections to Municipal Storm Drainage System (MS4) Prohibited)	Document violations and enforcement action taken
Adhere to the requirements of the WDO.	Document permit applications and permits issued
Identify high priority outfalls. Conduct outfall inspections annually during periods of dry weather. Follow up on any observations of dry weather flow.	Document outfalls inspected, results, and additional actions if needed.
Maintain a database of industrial and commercial businesses that have a high potential for contributing to water pollution.	Maintain the database
Inspect 1/3 of facilities annually.	*Document which facilities were inspected, results, and additional actions if needed.
Notify the IEPA of NPDES ILR00 Permit infractions and recommend enforcement actions, where appropriate.	*Document IEPA notifications

The Village continues to update and maintain storm sewer mapping in conjunction with outfall inspections. IDDE ordinance violations are prosecuted in accordance with the Municipal Code to achieve compliance.

\*The Village was unable to inspect industrial and commercial site during Year 17. Commitment to this item will be reviewed for future years and changes to the SWMP, if any, will made in accordance with the notification requirements of the ILR40 permit.

<b>BMP 4: Construction Site Runoff Control</b>	
Description	Measurable Goal
Publicize the Public Works Department phone number on outreach material and on the Village website.	Document reports submitted, inspections performed, and resulting actions
Provide educational material on illicit discharges and illegal dumping on the Village website.	Track number of downloaded documents.
Review site plans and issue permits in accordance with the Village Code.	Document permit applications received, and permits issued.
Ensure construction sites needing coverage under the NPDES Construction Site General Permit ILR10 obtain coverage prior to issuance of a Watershed Development Permit.	Document permit applications received, and permits issued.

The Village continues to enforce the Municipal Code and Watershed Development Ordinance for Construction Site Runoff Control.

<b>BMP 5: Post Construction Storm Water Management in New Development and Redevelopment</b>	
<b>Description</b>	<b>Measurable Goal</b>
Document and track site inspections on development sites. Keep files for 5 years.	Track site inspections and outcomes
Document BMPs approved on development sites.	Maintain maintenance plans for development sites
Ensure maintenance plans are prepared for all storm water management systems as required by the Village Code.	Maintain maintenance plans for development sites
Maintain an inventory of all public and private storm water management facilities.	Maintain the inventory
Inspect 20% of all public and private storm water management facilities on an annual basis. Recommend remedial actions as appropriate.	*Track inspections performed annually and resulting actions
Evaluate the feasibility of retrofits and enhancements to storm water management facilities.	Document designs and installations completed.

The Village continues to maintain approved storm water management plans for permitted developments within the community.

\*The Village was unable to inspect industrial and commercial site during Year 17. Commitment to this item will be reviewed for future years and changes to the SWMP, if any, will be made in accordance with the notification requirements of the ILR40 permit.

<b>BMP 6: Pollution Prevention / Good Housekeeping for Municipal Operations</b>	
<b>Description</b>	<b>Measurable Goal</b>
Clean catch basins and inlets on an as needed basis.	Document the number and location of catch basins and inlets cleaned. Track the linear feet of storm sewer cleaned.
Report catch basins found to have structural deficiencies. Complete necessary repairs.	Document number of structures repaired.
Complete routine maintenance of the triple catch basin.	Document maintenance activities of the triple catch basin.
Conduct monthly pollution prevention inspections at the Public Works Facility.	Document monthly inspection results
Maintain current street sweeping practices.	Document the location and miles of street cleaned. Document the amount of material collected with street sweepers and disposed of.
Manage the use of pesticides and fertilizers in a way that minimizes the volume of storm water runoff and pollutants.	*Document the amount of pesticides and fertilizers used.

Ensure landscape contractors utilized by the Village meet NPDES MS4 training requirements.	*Maintain list of contractors that meet the NPDES MS4 training requirements
Continue to implement the pre-season procedures related to roadway ice control, snow plowing, participation in watershed groups, driver training, and management of salt delivery and storage.	Document the amount of de-icing chemicals and salt used. Maintain list of staff that have completed the pre-season training. Document participation in watershed groups that address chlorides.
Continue to implement the procedures for vehicle and equipment maintenance.	Document materials removed by a private contractors including waste oil, antifreeze, batteries, and tires.
Properly handle, store, and dispose of wastes generated by Village maintenance activities.	Document the removal of wastes from the maintenance facility.
Require approval for special events to prohibit the dumping, depositing, dropping, throwing, discarding, or leaving of litter and all other illicit discharges from entering the storm water management system.	Document events and any illicit discharges.
Implement the Spill Response Plan.	Document the location, type, and action taken for spill events and any related illicit discharges.

Pollution prevention BMPs for Municipal Operations continue to be successfully implemented in accordance with the SWMP.

\*Pesticide application documentation and contractor tracking were not performed in Year 17. Commitment to these items will be reviewed for future years and changes to the SWMP, if any, will be made in accordance with the notification requirements of the ILR40 permit.

## **Part C. MS4 Information and Data Collection Results, Year 17**

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 SWMP identified two impaired waters based on the July 2016 303(d) list. While the final report has not been released the draft July 2018 indicates that these waters remain impaired.

Impaired waters within the Village:

- Flint Creek Main Stem IL\_DTZS\_01
- Lake Louise IL\_VTZJ

The MS4 is located in and participates in the Flint Creek / Spring Creek Watershed Group 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 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>).

The SWMP adopted by the Village identifies three water quality monitoring locations within the community. In Year 17 quarterly water quality monitoring was completed at five locations within the community including:

- Upstream of Lake Louise at Baker Lake
- Upstream of Lake Louise at Makray Memorial Gold Club
- Upstream of Lake Louise at Main Street
- East Branch of Flint Creek entering the Village at Lake Zurich Road
- East Branch of Flint Creek exiting the Village at Hart Road

Increasing the number of testing locations is expected to provide more resolution into the effectiveness of the Village's BMPs and the data collection results, and an analysis, is included in this report as an appendix.

### Part D. MS4 Summary of Year 18 Stormwater Activities

The table below indicates the stormwater management activities that the MS4 plans to undertake during Year 18. Specific measurable goals are identified in the Village’s SWMP.

**Note: “X” indicates BMPs that will be implemented during Year 18**

Year 18	
MS4	
<b>A. Public Education and Outreach</b>	
X	A.1 Distributed Paper Material
	A.2 Speaking Engagement
	A.3 Public Service Announcement
	A.4 Community Event
	A.5 Classroom Education Material
X	A.6 Other Public Education
<b>B. Public Participation/Involvement</b>	
	B.1 Public Panel
	B.2 Educational Volunteer
	B.3 Stakeholder Meeting
X	B.4 Public Hearing
	B.5 Volunteer Monitoring
	B.6 Program Coordination
X	B.7 Other Public Involvement
<b>C. Illicit Discharge Detection and Elimination</b>	
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 18	
MS4	
<b>D. Construction Site Runoff Control</b>	
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
<b>E. Post-Construction Runoff Control</b>	
	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
	E.7 Other Post-Const Runoff Controls
<b>F. Pollution Prevention/Good Housekeeping</b>	
X	F.1 Employee Training Program
X	F.2 Inspection and Maintenance Program
X	F.3 Municipal Operations Storm Water Control
	F.4 Municipal Operations Waste Disposal
	F.5 Flood Management/Assess Guidelines
	F.6 Other Municipal Operations Controls

## **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 17 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 17.
- **Part E3** summarizes the information and data collected by the QLP during Year 17.
- **Part E4** describes the stormwater management activities that the QLP plans to undertake during Year 18.
- **Part E5** lists the construction projects conducted by the QLP during Year 17.

## Part E1. QLP Changes to Best Management Practices, Year 17

**Note: “X” indicates BMPs that were implemented as planned**  
**✓ indicates BMPs that were changed during Year 17**

Year 17	
QLP	
<b>A. Public Education and Outreach</b>	
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>B. Public Participation/Involvement</b>	
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
<b>C. Illicit Discharge Detection and Elimination</b>	
	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	
<b>D. Construction Site Runoff Control</b>	
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
<b>E. Post-Construction Runoff Control</b>	
	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
<b>F. Pollution Prevention/Good Housekeeping</b>	
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 17

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 NPDES 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 17 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 17 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 17 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 17 QLP activities:

SMC sponsored or co-sponsored many workshops and events on stormwater-related topics, including:

- SMC sponsored (2) Designated Erosion Control Inspector (DECI) Workshop held on 4/11/2019 and 2/26/2020.
- SMC co-sponsored a river cleanup for Chicago River Day on 5/11/2019 throughout the watershed.
- SMC co-sponsored Parking Lots & Sidewalks De-Icing Workshop held in Libertyville, IL on 9/30/2019.
- SMC co-sponsored Roadway De-Icing Workshop held in Libertyville, IL on October 1 and 2, 2019.
- SMC co-sponsored a De-Icing Summit held in Libertyville, IL on 4/17/2019.
- SMC co-sponsored an Earth Day Event at a Lake County Public Facility on 4/23/2019 with 52 attendees.

#### **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 17 QLP activities:

Stormwater educational materials were compiled for use at several public education events, including:

- SMC held a General Presentation about SMC Public Stormwater Program at UW Parkside on 2/22/2020.
- SMC sponsored a Cool Learning Experience for Lake County high school students on 7/26/2019.
- SMC published in Wetland Science & Practice on Lake County, IL wetlands- Crane, J.E., G.H. Westman, and M.E. Prusila. 2019. Using Landscape-Level Wetland Assessment to Aid in Local Management of Wetlands for Lake County, Illinois. Wetland Science & Practice, January 2019, pp. 33-43.

#### **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 17 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 watersheds where inventoried, allowing the public to see an Inventory of Ravine, Stream and Detention Basin Information, ([URL hyperlink](#)).
- SMC maintains an ArcGIS geospatial web tool for Lake County Des Plaines River Watershed Water Quality Improvement Project recommendations, allowing the public to see, ([URL hyperlink](#)).

- SMC maintains reference documents for stormwater best practices, BMPs and green infrastructure practices on its website, ([URL hyperlink](#)).
- SMC continues to 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](#)).
- SMC continue to maintain website outreach. In YR17 SMC had the following visitors:
  - Stormwater Management Commission | Lake County, IL- 8,386 visitors
  - Watersheds | Lake County, IL- 1,813 visitors
  - Watershed Development Ordinance | Lake County, IL- 1,542 visitors
  - Stormwater Best Practices | Lake County, IL- 169 visitors
  - National Pollution Discharge Elimination System (NPDES) Phase II | Lake County, IL- 78 visitors

## **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 17 QLP activities:

- Notice of all public meetings continues to be provided on the SMC website and through 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 17.
- Per records, there were (9) SMC meetings, (11) TAC meetings, (2) MAC meetings, and (1) WMB meeting conducted.
- According to records (8) CIRS community inquiries were received and processed by SMC staff.
- SMC held (3) Increased Rainfall Public Information Meetings based on “J. R. Angel, and M. Markus, 2019. Frequency Distributions of Heavy Precipitation in Illinois: Updated Bulletin 70, Illinois State Water Survey”: 7/16/2019 (Highland Park), 7/24/2019 (Barrington), and 8/8/2019 (Round Lake).
- SMC held a Floodproofing and Rainfall Public Information Meeting on 9/17/2019 (Gurnee).

### **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 17 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 17:
  - Des Plaines River Watershed Workgroup (11) meetings (excluding executive board meetings)
  - North Branch Chicago River Watershed Workgroup (7) meetings (excluding executive board meetings)
  - Des Plaines River Planning Committee (1) meeting on 10/23/2019.

- 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 17.
- Prepare annual report on Qualifying Local Program activities at end of Year 17.

### Year 17 QLP activities:

- SMC tracked the number of Municipal Advisory Committee (MAC) meetings: According to records, there were (2) MAC meetings conducted during this reporting period. 4/4/19, and 12/11/19.
- The stormwater management activities that SMC performed as a QLP 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 18 are described in Part E4 of the Annual Report template.
- SMC conducted a survey in November 2019 of Lake County's 67 Municipality and Township MS4 program permit metrics and QLP topics. The survey received (35) responses.

## **C. Illicit Discharge Detection and Elimination**

### **C.2 Regulatory Control Program**

#### Measurable Goal(s):

- Continue to enforce the countywide WDO.

#### Year 17 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 17 QLP activities:

- SMC sponsored or co-sponsored many workshops and events on stormwater-related topics. Such workshops and events are described above.
- SMC continues to 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](#)).

## **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 17 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 DECIIs who have passed the exam (to date): 825.
- DECIIs who have passed the exam between 03/01/2019 – 02/29/2020: 48.
- Total listed DECIIs (to date): 282 (DECI completed certification process).
- DECIIs have a recertification process every (3) years. Current cycle 2020-2023.

## **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 17 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 100 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 17 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 17 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 17, 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 17 QLP activities:

- SMC continues to track the number of complaints received and processed related to soil erosion and sediment control as a component of inspections.

## **D.6 Site Inspection/Enforcement Procedures**

### Measurable Goal(s):

- Track number of site inspections conducted by SMC.

Year 17 QLP activities:

- SMC continues to track the number of site inspections conducted by SMC staff.
- According to records, 1074 site inspections were conducted by SMC staff.

**E. Post-Construction Runoff Control**

**E.2 Regulatory Control Program**

Measurable Goal(s):

- Continue to enforce the countywide WDO.

Year 17 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 17 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 17 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 17 QLP activities:

- SMC continues to enforce the countywide WDO.

**E.6 Post-Construction Inspections**

Measurable Goal(s):

- Continue to enforce the countywide WDO.

Year 17 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 17 QLP activities:

- The annual WMB meeting was held on Dec. 4, 2019.
- At the annual WMB meeting 6 Projects were selected to receive \$162,276 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.
  - 12 WMB project grants awarded.
  - 1 Watershed Management Assistance (WMAG) project grant awarded.
- SMC staff attended the EWRI, ASCE Illinois Section “2019 Illinois MS4 Implementation Seminar” on 3/7/2019.

- SMC staff achieved certification with the National Green Infrastructure Certification Program (NGICP) on 3/20/2019.
- SMC staff attended the DuPage County Green Infrastructure “Green Infrastructure Seminar for MS4 Communities” on 12/4/2019.

## **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.
- Make available the Excal Visual “IDDE - A Grate Concern” training video and testing.

#### Year 17 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. 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, (2) MS4 Programs borrowed the Excal Visual software.
- SMC continues to make available the Excal Visual “IDDE - A Grate Concern” software to Lake County MS4s. According to records, (2) MS4 Programs 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 17 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 17 QLP activities:

- SMC co-sponsored 3 de-icing workshops:
  - Deicing Workshop for Parking Lots and Sidewalks 09/30/2019.
  - Deicing Workshop for Roads (2 days) 10/01/2019 and 10/02/2019.
    - In total 144 attendees participated in these three workshops.
    - Since 2009 the deicing workshops have had a cumulative attendance of roughly 1,514 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 2019, 117 preferred providers have been identified based on certification.
- A Deicing Summit (target audience is winter maintenance decision makers): In total 52 attendees participated in the Summit.
- 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 17

The QLP did not collect any monitoring data on behalf of Lake County’s MS4s during Year 17. 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 2020

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- CI	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.



### **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 YR17 reporting period, DRWW's monitoring program includes: Water/Sediment sampling and analysis at 73 Monitoring Locations for 2019; Bioassessment monitoring at 31 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 22 sites. An annual water chemistry monitoring report was submitted to Illinois EPA on behalf of DRWW members in March 2020, 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 2020. Current DRWW member list is located at (URL: <http://www.drww.org/members>).

The North Branch Watershed Workgroup (NBWW) monitors water quality in the North Branch 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 14 sites for fish, habitat, macroinvertebrate, and sediment chemistry. Data sondes were deployed at 7 sites in the Middle and West Forks 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. Current NBWW member list is located at (URL: [www.nbwwil.org](http://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 18 Stormwater Activities

The table below indicates the stormwater management activities that the QLP plans to undertake during Year 18. Additional information about the BMPs and measurable goals that the QLP will implement during Year 18 is provided in the section following the table.

**Note: “X” indicates BMPs that will be implemented during Year 18**

Year 18		Year 18	
QLP		QLP	
<b>A. Public Education and Outreach</b>		<b>D. Construction Site Runoff Control</b>	
X	A.1 Distributed Paper Material	X	D.1 Regulatory Control Program
X	A.2 Speaking Engagement	X	D.2 Erosion and Sediment Control BMPs
X	A.3 Public Service Announcement	X	D.3 Other Waste Control Program
X	A.4 Community Event	X	D.4 Site Plan Review Procedures
X	A.5 Classroom Education Material	X	D.5 Public Information Handling Procedures
X	A.6 Other Public Education	X	D.6 Site Inspection/Enforcement Procedures
			D.7 Other Construction Site Runoff Controls
<b>B. Public Participation/Involvement</b>		<b>E. Post-Construction Runoff Control</b>	
X	B.1 Public Panel		E.1 Community Control Strategy
	B.2 Educational Volunteer	X	E.2 Regulatory Control Program
X	B.3 Stakeholder Meeting	X	E.3 Long Term O&M Procedures
	B.4 Public Hearing	X	E.4 Pre-Const Review of BMP Designs
	B.5 Volunteer Monitoring	X	E.5 Site Inspections During Construction
X	B.6 Program Coordination	X	E.6 Post-Construction Inspections
	B.7 Other Public Involvement	X	E.7 Other Post-Const Runoff Controls
<b>C. Illicit Discharge Detection and Elimination</b>		<b>F. Pollution Prevention/Good Housekeeping</b>	
	C.1 Storm Sewer Map Preparation	X	F.1 Employee Training Program
X	C.2 Regulatory Control Program		F.2 Inspection and Maintenance Program
	C.3 Detection/Elimination Prioritization Plan		F.3 Municipal Operations Storm Water Control
	C.4 Illicit Discharge Tracing Procedures		F.4 Municipal Operations Waste Disposal
	C.5 Illicit Source Removal Procedures	X	F.5 Flood Management/Assess Guidelines
	C.6 Program Evaluation and Assessment	X	F.6 Other Municipal Operations Controls
	C.7 Visual Dry Weather Screening		
	C.8 Pollutant Field Testing		
	C.9 Public Notification		
X	C.10 Other Illicit Discharge 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 18, 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.
- Contribute green infrastructure support as a certified professional in the National Green Infrastructure Certification Program (NGICP).

**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.

**Part E5. QLP Construction Projects Conducted During Year 17**

No construction projects were completed during Year 17.

## **Part F. MS4 Construction Projects Conducted During Year 17**

Project Name	Project Size (acres)	Construction Start Date	Construction End Date
Lageshulte Street Safe Routes to School Sidewalk Improvements	~2	07/08/2019	08/30/19
Annual Road Patching Program	.54	07/15/2019	09/27/2019

**Appendix**

**2019-2020 Water Quality Report**



**Date:** May 28, 2020  
**To:** Marie Hansen, P.E. & Mike Casper  
**From:** Daniel Powers & Scott Drabicki, P.E.  
**Subject:** 2019-2020 Water Quality Report

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This memo recommends the Village of Barrington continue quarterly water quality monitoring to quantify the net impact of best management practices for improving stormwater runoff within the Village. The analytical data reflects opportunities to improve practices that reduce phosphorus and fecal coliform loading in stormwater runoff.

## BACKGROUND

Every two years the IEPA prepares a list of impaired waters in the state to comply with Section 303(d) of the federal Clean Water Act (303(d) list). The 303(d) list identifies the priority and impairments for each water body with respect to the designated use. The most recent final report is dated 2016 and a draft of the 2018 report has been published for comment and is referenced as the best information available as of the date of this memo.

The Village of Barrington has two impaired waters within the municipal boundary identified as Flint Creek and Lake Louise. A comparison of the 2016 and 2018 303(d) list in Figure 1 indicates that Flint Creek is a higher priority in 2018 than it was in 2016 and the priority of designated uses changed from primary contact recreation to aquatic life.

From the 303(d) list the IEPA is expected to develop Total Maximum Daily Load (TMDL) mandates that will cap the amount of specific pollutants in stormwater runoff. To establish a baseline for stormwater quality impacts within the Village of Barrington the community began testing Baker Lake and the East Branch of Flint Creek upon entering and exiting the Village limits in 2012. Testing increased in 2018 to obtain more detail on the headwaters for Lake Louise starting at Baker Lake, then Makray Memorial Golf Club, Main Street, and testing in Lake Louise commenced in March 2020. Impairment indicator data are provided in Figures 2 and 3 for the East Branch of Flint Creek and the Lake Louise headwaters, respectively. A summary of all analytical data to date is attached as Appendix A.

Figure 1: IEPA 303(d) List for 2016 and Draft 2018 Report

Order	Priority	Hydrologic Unit Code	Water Name	Assessment ID	Water Size*	Designated Use	Cause
<b>2016</b>							
712	Medium	0712000611	Flint Creek	IL_DTZS-01	10.45	Primary Contact Recreation	Fecal Coliform
713	Medium	0712000611	Flint Creek	IL_DTZS-01	10.45	Aquatic Life	Oxygen, Dissolved
714	Medium	0712000611	Flint Creek	IL_DTZS-01	10.45	Aquatic Life	Phosphorus (Total)
2564	Low	0712000611	LOUISE	IL_VTZJ	38.00	Aesthetic Quality	Phosphorus (Total)
2565	Low	0712000611	LOUISE	IL_VTZJ	38.00	Aesthetic Quality	Total Suspended Solids (TSS)
<b>2018</b>							
568	Medium	0712000611	Flint Creek	IL_DTZS-01	10.45	Aquatic Life	Oxygen, Dissolved
569	Medium	0712000611	Flint Creek	IL_DTZS-01	10.45	Aquatic Life	Phosphorus (Total)
570	Medium	0712000611	Flint Creek	IL_DTZS-01	10.45	Primary Contact Recreation	Fecal Coliform
2622	Low	0712000611	LOUISE	IL_VTZJ	38.00	Aesthetic Quality	Phosphorus (Total)
2623	Low	0712000611	LOUISE	IL_VTZJ	38.00	Aesthetic Quality	Total Suspended Solids (TSS)

## DISCUSSION

Flint Creek and Lake Louise are expected to remain on the 303(d) list after the final 2018 report is published by the IEPA. The change in *Order* on the list is nominal and impairments are consistent with the 2016 report. The Village has increased the number of testing locations to improve the resolution of the data and testing parameters have been aligned with the 303(d) impairments.

The key impairments in the 303(d) list include Dissolved Oxygen (DO), Phosphorus, Fecal Coliform, and Total Suspended Solids (TSS). Understanding the causes and impacts of each of these impairments will allow the Village to customize BMPs to improve stormwater quality most effectively within the community.

Oxygen is measured in its dissolved form as DO. DO levels fluctuate with temperature, seasonally, and throughout the course of the day. Lowered DO levels can result in death to aquatic life in the form of fish kills and is identified as an aquatic life impairment in Flint Creek. Rather than measure DO concentrations in water directly the Village measures BOD as an inverse indicator of DO. BOD levels less than 2 mg/L represent good quality water bodies and levels between 2 and 8 mg/L are considered moderately polluted water bodies.

Phosphorus is a limiting nutrient in aquatic ecosystems meaning that available quantity of this nutrient controls the pace at which algae and aquatic plants are produced. Excess phosphorus nutrient can result in excessive algal growth which increases BOD and harms aquatic life. Phosphorus naturally occurs in soils in this region and soil erosion or fertilizer applications can contribute significantly to this parameter. To minimize algal growth total phosphorus should not exceed 0.05 mg/L in any stream at the point where it enters any lake or reservoir, nor .025 mg/L within the lake or reservoir.

Fecal Coliform tests are used as indicate impacts from human or animal feces. The presence of fecal coliform indicates the potential for pathogenic bacteria, viruses, and protozoans that live in animal digestive systems. EPA recommends E. coli as the best indicator because it is a species of fecal coliform bacteria that is specific to fecal material from humans and other warm-blooded animals. The acceptable limit of fecal coliform or E. coli is dependent on the usage of the water body:

	Designated Swimming	Moderate Swimming Area	Light Swimming Area	Infrequent Swimming Area
E. coli (cfu/100ml)	<235	<298	<410	<576

TSS is a measure of particles in water that can be trapped by a filter. Particles can include a wide variety of material, such as silt, decaying plant and animal matter, industrial wastes, and sewage. Higher concentrations of suspended solids can block sunlight and serve as carriers of toxins, which readily cling to the suspended particles. Generally a TSS concentration below 20 mg/L appears clear, while levels over 40 mg/L begin to appear cloudy. It is important to note that TSS levels are difficult to quantify due to their natural variation by season, water flow, and weather events.

Figure 2: East Branch Flint Creek Analytical Data

Impairments	12/3/2018		3/13/2019		6/5/2019		9/18/2019		12/5/2019		3/12/2020	
	Lake Zurich Road	Hart Road										
DO (BOD Measured) (mg/L) Goal: <8	3	3	6	7	6	6	5	4	3	3	4	4
P (mg/L) Goal: <.05	0.15	0.22	0.14	0.39	0.32	0.46	0.22	0.41	0.15	0.24	0.18	0.2
Fecal Coliform Goal: <235	126	264	10	86	101	80	108	124	14	14	4	106

The East Branch Flint Creek data provided in Figure 2 provides discrete data points as this tributary enters and exits the Village’s corporate limits. Comparison of the data points from Lake Zurich Road on the upstream and Hart Road downstream theoretically demonstrate the net impact on water quality by the Village of Barrington.

From the data in Figure 2 we can make the following observations:

- BOD is consistent between the two sample points and below the moderately polluted threshold of 8. BOD values increase during warmer months as expected and this parameter appears to be relatively stable. Stormwater runoff from the Village does not appear to be having an adverse impact to the BOD parameter in the watershed.
- Phosphorus values throughout the sampling period are significantly higher than the impairment level of 0.05 mg/L. Parameter levels increase between the sample points and there are annual increases associated with seasonal warm weather. The results indicate that runoff within the Village limits is contributing phosphorus to the



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tributary. The Village should evaluate soil erosion and sediment control measures to reduce sediment laden runoff and evaluate the prevalence of phosphorous containing fertilizer use in the community.

- Fecal coliform is the last impairment parameter for this tributary and the analytical results from upstream to downstream vary greatly by the date of the sample. Four of the six data point demonstrate a substantial increase from upstream to downstream while the remaining two data points show a decrease or no change. It appears that the Village stormwater runoff is a net contributor to this impairment, however, the levels are below the designated swimming threshold for the East Branch of Flint Creek. DNA testing of the coliform or additional stormwater tracing samples may be useful to narrow the focus of future improvement efforts.

Lake Louise combines with flow from outside the community before entering the East Branch of Flint Creek upstream of Lake Zurich Road. The headwaters of Lake Louise include Baker Lake which drains to Makray Memorial Golf Club before entering Lake Louise. This tributary area, with lake features connected by creeks, is now being tested quarterly at multiple locations. The majority of stormwater runoff is from within the Village’s corporate limits and the results of analytical laboratory testing should reflect the effectiveness of BMP implementation within the community.

Figure 3: Lake Louise Headwaters Analytical Data

Lake Louise	12/3/2018			3/13/2019			6/5/2019			9/18/2019			12/5/2019			3/12/2020			
Impairments	Baker Lake	Makray GC	Main St	Baker Lake	McCray GC	Main St	Baker Lake	McCray GC	Main St	Baker Lake	McCray GC	Main St	Baker Lake	McCray GC	Main St	Baker Lake	McCray GC	Main St	Lake Louise
P (mg/L) Goal:<.05	0.29	0.24	0.22	0.22	0.24	0.3	0.74	1.1	0.71	0.58	0.53	0.49	0.24	0.23	0.23	0.49	0.33	0.26	0.31
TSS (mg/L)	11			21			76			113			21			66	43	25	25

From the data in Figure 3 we can make the following observations:

- Phosphorus values are significantly higher than the impairment level of 0.05 mg/L and levels tend to decrease going downstream through the headwaters. Nutrient levels appear to peak in the summer months. Runoff from within the Village limits may be seasonally contributing to phosphorous increases in the larger water bodies of Baker Lake and the Makray Memorial Golf Club. Vegetative growth in those water bodies may be sequestering the nutrient resulting in the observed decline in concentration downstream.
- The Village began testing for Total Suspended Solids (TSS) downstream of Baker Lake in March 2020 therefore there is limited data available for this report for the headwater contributions within the Village. From the single data set in March 2020 we see a decrease in TSS levels as runoff travels downstream from Baker Lake to Lake Louise. Looking at the historical data for Baker Lake there is an identifiable pattern of TSS increase during warmer periods. Recreational activities are prohibited at this lake and there is no indication of recent earth disturbances that would contribute sediments to runoff. From this information we believe that the seasonal



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increases in TSS are a result of natural biologic activity such as birds and fish stirring up sediments at the bottom of the lake. There is no set standard for TSS levels therefore continual background monitoring will be helpful for TMDL development.

### RECOMMENDATIONS

1. Continue quarterly water quality testing of stormwater within the Village of Barrington at the locations below. Detailed historical information will allow the Village to establish a baseline to guide future BMP development and reasonable TMDL restrictions from the IEPA
  - a. Flint Creek at Lake Zurich Road and Hart Road
  - b. Baker Lake
  - c. Makray Memorial Golf Club
  - d. Main Street creek
  - e. Lake Louise
2. Reduce phosphorus contribution to stormwater runoff within the Village . The analytical data indicates that the Village is a net contributor to phosphorus in the East Branch of Flint Creek. Ensure soil erosion control measures are adequate and consider limiting the use of phosphorus fertilizer within the community.
3. Investigate potential sources of manmade coliform pollution in the East Branch of Flint Creek watershed. While coliform levels are below the swimming threshold it appears that there is a net contribution from stormwater runoff. It is unknown if the coliform present is from humans or animals therefore more information will be helpful to guide BMP development for this parameter.
4. Continue measuring TSS levels in and upstream of Lake Louise to establish a baseline to measure against.

APPENDIX A - TABULATED DATA

Site:	Baker's Lake					
Date	Parameter with Acceptable Limit					
	Ammonia	pH	DO/BOD	Total Phosphorus	Fecal	TSS
	17 mg/L	6.5-9.0	>3 mg/L	<.03 mg/L	< 298 cfu/100ml	<30 mg/L
2012	0.161	8.5	8	0.11	N/A	18
2013	0.04	9.8	8	0.18	N/A	77
2014	0.04	8.9	7	0.05	N/A	47
2016	0.03	10.2	14	0.67	N/A	170
March 2017	0.509	8.1	9	0.01	N/A	37
June 2017	0.022	9.1	11	0.77	N/A	276
Sept. 2017	0.27	7.8	12	0.89	N/A	258
Dec. 2017	0.037	9	8	0.3	N/A	53
March 2018	0.167	8.3	10	0.18	N/A	38
June 2018	0.115	9.1	11	0.55	230	148
Sept. 2018	1.11	9.4	9	0.38	114	152
Dec. 2018	0.0701	8.8	4	0.29	14	11
March 2019	0.0542	8.8	9	0.22	12	21
June 2019	2.82	8.4	11	0.74	61	76
Sept. 2019	0.02	10.4	9	0.58	26	113
Dec. 2019	0.193	8.5	6	0.24	2	21
March 2020	0.242	8.1	14	0.49	58	66

Site:	Lake Zurich Road					
Date	Parameter with Acceptable Limit					
	Ammonia	pH	DO/BOD	Total Phosphorus	Fecal	TSS
	17 mg/L	6.5-9.0	>3 mg/L	<.03 mg/L	< 298 cfu/100ml	<30 mg/L
2012	0.01	8	1	0.47	N/A	5
2013	0.11	7.7	3	0.37	N/A	0
2014	0.12	7.9	5	0.15	N/A	2
2016	0.17	8	7	0.56	N/A	12
March 2017	0.051	7.7	3	0.02	N/A	19
June 2017	0.601	8.8	7	0.49	N/A	68
Sept. 2017	0.64	7.7	11	0.64	N/A	5
Dec. 2017	0.12	7.9	5	0.22	N/A	30
March 2018	0.0825	7.7	5	0.13	N/A	14
June 2018	0.0767	7.9	6	0.28	120	27
Sept. 2018	1.13	7.3	4	0.18	96	16
Dec. 2018	0.121	7.8	3	0.15	126	8
March 2019	0.175	7.9	6	0.14	10	13
June 2019	0.187	7.9	6	0.32	101	30
Sept. 2019	0.07	7.6	5	0.22	108	10
Dec. 2019	0.0988	7.8	3	0.15	14	16
March 2020	0.0275	7.8	4	0.18	4	12

 = Indicates value exceeds acceptable limit

APPENDIX A - TABULATED DATA

Site:	Hart Road					
Date	Parameter with Acceptable Limit					
	Ammonia	pH	DO/BOD	Total Phosphorus	Fecal	TSS
	17 mg/L	6.5-9.0	>3 mg/L	<.03 mg/L	< 298 cfu/100ml	<30 mg/L
2012	0.01	7.7	5	0.38	N/A	9
2013	0.04	8	3	4.16	N/A	1
2014	0.08	7.94	3	1.62	N/A	0
2016	0.07	8	6	1.68	N/A	5
March 2017	0.108	7.8	3	0.06	N/A	61
June 2017	0.176	7.9	5	0.59	N/A	33
Sept. 2017	0.06	8	3	1.67	N/A	3
Dec. 2017	0.163	7.8	4	0.58	N/A	2
March 2018	0.0722	7.8	4	0.17	N/A	4
June 2018	0.124	7.8	4	0.25	110	17
Sept. 2018	1.14	7.7	3	0.23	108	10
Dec. 2018	0.117	8	3	0.22	264	12
March 2019	0.418	8.1	7	0.39	86	24
June 2019	0.118	7.9	6	0.46	80	44
Sept. 2019	0.06	8	4	0.41	124	12
Dec. 2019	0.0659	7.8	3	0.24	14	5
March 2020	0.0299	8.1	4	0.2	106	16

Site:	Main Street	
Date	Parameter with Acceptable Limit	
	Total Phosphorus	TSS
	<.03 mg/L	<30 mg/L
Dec. 2018	0.22	N/A
March 2019	0.3	N/A
June 2019	0.71	N/A
Sept. 2019	0.49	N/A
Dec. 2019	0.23	N/A
March 2020	0.26	25

Site:	Makray Golf Club	
Date	Parameter with Acceptable Limit	
	Total Phosphorus	TSS
	<.03 mg/L	<30 mg/L
Dec. 2018	0.24	N/A
March 2019	0.24	N/A
June 2019	1.1	N/A
Sept. 2019	0.53	N/A
Dec. 2019	0.23	N/A
March 2020	0.33	43

= Indicates value exceeds acceptable limit

APPENDIX A - TABULATED DATA

Site:	Lake Louise (1370 Lake Shore Drive)	
	Parameter with Acceptable Limit	
Date	Total Phosphorus	TSS
	<.03 mg/L	<30 mg/L
Dec. 2018	N/A	N/A
March 2019	N/A	N/A
June 2019	N/A	N/A
Sept. 2019	N/A	N/A
Dec. 2019	N/A	N/A
March 2020	0.31	25

 = Indicates value exceeds acceptable limit