# 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, 2023 To March, 2024

Permit No. ILR40 0179

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

Name: City of Crystal Lake Mailing Address 1: 100 W Woodstock St

Mailing Address 2: County: McHenry

City: Crystal Lake State: IL Zip: 60014 Telephone: 815-356-3611

Contact Person: Michael Magnuson Email Address: mmagnuson@crystallake.org
(Person responsible for Annual Report)

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

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

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

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

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

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

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

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

Owner Signature: Date: 5/31/2024

Michael Magnuson
Printed Name:

Director of Public Works
Title:

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

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

IL 532 2585
WPC 691 Rev 6/10

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

## General Storm Water Permit for Small Municipal Separate Storm Sewer Systems (MS4)

Crystal Lake – Permit No. ILR400179

Permit Year 21: March 2023 through March 2024

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# Part A. Changes to Best Management Practices (BMPs), Year 21

Information regarding the status of all of the City's BMPs and the measureable goals of its stormwater management program (SWMP) are provided in the table below.

During this reporting period, the City has not made any changes to the BMPs or measureable goals of its SWMP.

**Note: X indicates BMPs performed that were proposed in your NPDES permit**
**✓ indicates changes to BMPs proposed in your NPDES permit**

| Year 21 MS4 | Best Management Practice (BMP) |
|---|---|
| **A.** | **Public Education and Outreach** |
| | **A.1 Distributed Paper Material** |
| | **A.2 Speaking Engagement** |
| X | **A.3 Public Service Announcement** |
| X | **A.4 Community Event** |
| | **A.5 Classroom Education Material** |
| X | **A.6 Other Public Education** |
| | |
| **B.** | **Public Participation/Involvement** |
| | **B.1 Public Panel** |
| X | **B.2 Educational Volunteer** |
| X | **B.3 Stakeholder Meeting** |
| | **B.4 Public Hearing** |
| | **B.5 Volunteer Monitoring** |
| X | **B.6 Program Coordination** |
| X | **B.7 Other Public Involvement** |
| | |
| **C.** | **Illicit Discharge Detection and Elimination** |
| X | **C.1 Storm Sewer Map Preparation** |
| X | **C.2 Regulatory Control Program** |
| X | **C.3 Detection/Elimination Prioritization Plan** |
| X | **C.4 Illicit Discharge Tracing Procedures** |
| X | **C.5 Illicit Source Removal Procedures** |
| X | **C.6 Program Evaluation and Assessment** |
| X | **C.7 Visual Dry Weather Screening** |
| X | **C.8 Pollutant Field Testing** |
| | **C.9 Public Notification** |
| X | **C.10 Other Illicit Discharge Controls** |

| Year 21 MS4 | Best Management Practice (BMP) |
|---|---|
| **D.** | **Construction Site Runoff Control** |
| X | **D.1 Regulatory Control Program** |
| X | **D.2 Erosion and Sediment Control BMPs** |
| | **D.3 Other Waste Control Program** |
| X | **D.4 Site Plan Review Procedures** |
| X | **D.5 Public Information Handling Procedures** |
| X | **D.6 Site Inspection/Enforcement Procedures** |
| | **D.7 Other Construction Site Runoff Controls** |
| | |
| **E.** | **Post-Construction Runoff Control** |
| | **E.1 Community Control Strategy** |
| X | **E.2 Regulatory Control Program** |
| X | **E.3 Long Term O&M Procedures** |
| X | **E.4 Pre-Const Review of BMP Designs** |
| X | **E.5 Site Inspections During Construction** |
| | **E.6 Post-Construction Inspections** |
| | **E.7 Other Post-Const Runoff Controls** |
| | |
| **F.** | **Pollution Prevention/Good Housekeeping** |
| X | **F.1 Employee Training Program** |
| X | **F.2 Inspection and Maintenance Program** |
| X | **F.3 Municipal Operations Storm Water Control** |
| X | **F.4 Municipal Operations Waste Disposal** |
| X | **F.5 Flood Management/Assess Guidelines** |
| X | **F.6 Other Municipal Operations Controls** |

# Part B. Status of Compliance with Permit Conditions, Year 21

The status of BMPs and measurable goals performed in Year 21 are described below. The City submitted a Notice of Intent during Year 19 that accurately reflects the current program activities and subsequent Annual Reports.

## 1) PUBLIC EDUCATION AND OUTREACH

The City and McHenry County both perform a variety of activities that meet the requirements of the Public Education and Outreach minimum control measure. These activities include BMP's A.3, A.4 and A.6. A brief description and status is provided below.

**BMP No.** A.3 – Public Service Announcement
**Brief Description of BMP:**
The City will continue to include a stormwater and/or ambient water quality related articles in the City's monthly newsletter at least once a year.

**BMP No.** A.4 – Community Event
**Brief Description of BMP:**
The City continues to maintain the existing rain garden as an educational and demonstration tool and to seek out additional partnerships as funding allows. The City will provide educational signage at the City Hall rain garden. The City will continue this outreach activity.

**BMP No.** A.6 – Other Public Involvement
**Brief Description of BMP:**
The City will continues to utilize other available outlets such as the City website, social media, etc. to reach residents regarding stormwater and water quality information. The City will update and modify their approach as need to stay current and keep residents informed.

## 2) PUBLIC PARTICIPATION AND INVOLVEMENT

The City and McHenry County both perform a variety of activities that meet the requirements of the Public Participation and Involvement minimum control measure. These activities include BMP's B.2, B.3, B.6 and B.7. A brief description and status is provided below.

**BMP No.** B.2, – Educational Volunteer

**Brief Description of BMP:**
The City regularly participates in volunteer activities that provide opportunities to interact with residents and educate them on the importance of stormwater and water quality. City staff will continue to perform these activities and work to increase participation from its staff and attendance by residents.

**BMP No.** B.3 – Stakeholder Meeting

**Brief Description of BMP:**
A Watershed Protection presentation was made to the City of Crystal Lake Sustainability Committee and is available on the City's website for viewing.

**BMP No.** B.6 – Program Involvement

**Brief Description of BMP:**
The City has coordinated with other local municipalities and agencies on regional stormwater related issues. The City will continue to partner with the County and other agencies to coordinate efforts such as watershed studies and other regional issues impacting multiple jurisdictions.

**BMP No.** B.7 – Other Public Involvement

**Brief Description of BMP:**
The City has hosted elementary schools and other residents with tours through various City departments. These tours allow the City to educate the participants on various functions of the City, as well as educate them on issues pertaining to stormwater and water quality, such as what is the difference between stormwater and sanitary and why keeping them separate is important.

## 3) ILLICIT DISCHARGE DETECTION AND ELIMINATION

The City and McHenry County both perform a variety of activities that meet the requirements of the Illicit Discharge Detection and Elimination minimum control measure. These activities include BMP's C.1, C.2, C.3, C.4, C.5, C.6, C.7, C.8 and C.10. A brief description and status is provided below.

**BMP No.** C.1 – Storm Sewer Map Preparation

**Brief Description of BMP:**
The City continues to develop an extensive, GIS based storm sewer atlas map and inventory of the storm sewer system outfalls. The City will continue the work to update the system and inventory as needed based on development and other stormwater improvements.

**BMP No.** C.2 – Regulatory Control Program

**Brief Description of BMP:**
The City and County both have ordinances in place to allow for enforcement action if an illicit discharge is observed, reported or discovered. The City will continue to enforce the ordinance to prevent or eliminate non-stormwater discharges from the municipal separate storm sewer system.

**BMP No.** C.3 – Detection/Elimination Prioritization Plan

**Brief Description of BMP:**
The City has policies and procedures to identify, trace, and eliminate illicit discharges, as well as addressing those potential illicit discharges reported by the public. The City will continue these activities to reduce or eliminate illicit discharges to the municipal separate storm sewer system. The City has implemented an Inflow and Infiltration (I/I) Program to identify and eliminate cross connections to the sanitary sewer system. These programs reduce the potential for surcharging of sanitary sewers and the potential discharge of sanitary waste into the MS4.

**BMP No.** C.4 – Illicit Discharge Tracing Procedures

**Brief Description of BMP:**
The City has existing policies and procedures in place to trace and eliminate illicit discharges to the municipal separate storm sewer system. These procedures include the utilization of the GIS outfall mapping system, existing design plans and other available data to locate the source of potential pollutants. The City will continue these tracing activities as needed to reduce or eliminate non-stormwater discharges to the MS4.

**BMP No.** C.5 – Illicit Source Removal Procedures

**Brief Description of BMP:**
The City and County both have regulatory mechanisms in place to allow for enforcement actions to eliminate illicit discharges. The City will continue to utilize these procedures as needed to eliminate non-stormwater discharges to the MS4.

**BMP No.** C.6 – Program Evaluation and Assessment

**Brief Description of BMP:**
The City will continue to conduct the annual program evaluation and assessment for the IDDE program. The evaluation and assessment provides awareness and opportunity for improvement to the policies and procedures based on experience and staff feedback.

**BMP No.** C.7 – Visual Dry Weather Screening

**Brief Description of BMP:**
The City regularly performs dry weather screening of the municipally owned outfalls for potential stormwater concerns as part of its maintenance activities. The City will continue to perform these activities and has developed a form for formalizing this process. The City will continue to perform these activities and utilize the inspection form for future permit years.

**BMP No.** C.8 – Pollutant Field Testing

**Brief Description of BMP:**
The City regularly samples, tests, analyzes and documents the results of influent and effluent flow to various waterbodies throughout the community as part of an ongoing monitoring and assessment program. These procedures provide a baseline condition for these natural resources in the event of a potential illicit discharge. The City will continue these procedures in future permit years as funding allows. Additional information is provided in Part C of this report.

**BMP No.** C.10 – Other Illicit Discharge Controls

**Brief Description of BMP:**
The City will continue its monitoring and assessment program to monitor receiving streams for potential changes due to the discharge of stormwater and ensure compliance with applicable TMDLs and Watershed Management Plans to reduce waste loads.

## 4) CONSTRUCTION SITE RUNOFF CONTROL

The City and McHenry County both have ordinances and activities in place that meet the requirements of the Construction Site Runoff Control minimum control measure. These activities include BMP's D.1, D.2, D.4, D.5, and D.6. A brief description and status is provided below.

**BMP No.** D.1 – Regulatory Control Program

**Brief Description of BMP:**
The City and County have ordinances in place to require the review, inspection and enforcement of construction site runoff controls. The City will continue with these policies and procedures and update them as needed based on the forthcoming MS4 permit.

**BMP No.** D.2 – Erosion and Sediment Control BMPs

**Brief Description of BMP:**
The City and County have ordinances in place to require the review, inspection and enforcement of soil erosion and sediment control best management practices. The City will continue these procedures to reduce or prevent the discharge of soil and other potential pollutants from construction sites and amend as needed based on the forthcoming permit.

**BMP No.** D.4 – Site Plan Review Procedures

**Brief Description of BMP:**
The City has procedures that require the review of site plan for proposed developments for compliance. The City will continue the review procedures for developments to verify compliance with applicable NDPES regulations.

**BMP No.** D.5 – Public Information Handling Procedures

**Brief Description of BMP:**
The City has procedures in place to receive, log and address publicly reported issues. The City will continue these procedures and respond and/or investigate as needed.

**BMP No.** D.6 – Site Inspection/Enforcement Procedures

**Brief Description of BMP:**
The City and County regulatory control programs all for the inspection and enforcement for construction site runoff control. The City and County will continue the inspection and enforcement program to prevent the discharge of pollutants from construction sites.

## 5) POST-CONSTRUCTION RUNOFF CONTROL

The City and County both have ordinances and activities in place that meet the requirements of the Post-Construction Runoff Control minimum control measure. These activities include BMP's E.2, E.3, E.4, and E.5. A brief description and status is provided below.

**BMP No.** E.2 – Regulatory Control Program

**Brief Description of BMP:**
The City and County have ordinances in place that require the review, inspection and enforcement of post-construction runoff control measures. The City will continue to enforce the ordinances and verify compliance of all developments following construction to reduce or prevent the discharge of pollutants to the MS4.

**BMP No.** E.3 – Long Term O&M Procedures

**Brief Description of BMP:**
The City has procedures for assisting and evaluating long term maintenance of stormwater best management practices. The City will continue to assist developers, residents and other target audiences by providing sample maintenance plans and conducting inspections as needed.

**BMP No.** E.4 – Pre-Construction Review of BMP Designs

**Brief Description of BMP:**
The City's existing practices include the pre-construction review of BMP designs. These procedures include pre-application meetings for large scale developments. The City will continue the review procedures and modify as necessary to maintain compliance.

**BMP No.** E.5 – Site Inspections During Construction

**Brief Description of BMP:**
The City performs site inspections during and after construction at new development and redevelopment projects to verify compliance with the runoff control requirements. The City will continue these procedures aimed at preventing the discharge of pollutants to the MS4.

## 6) POLLUTION PREVENTION AND GOOD HOUSEKEEPING

The City and McHenry County perform a number of activities that meet the requirements of the Pollution Control and Good Housekeeping minimum control measure. These activities include BMP's F.1, F.2, F.3, F.4, F.5 and F.6. A brief description and status is provided below.

**BMP No.** F.1 – Employee Training Program

**Brief Description of BMP:**
The City has procedures that provide guidance and training for employees to reduce or eliminate the discharge of pollutants from City owned facilities to the storm sewer system. The City will continue the training program and maintains current certifications for pesticide applicators.

**BMP No.** F.2 - Inspection and Maintenance Program

**Brief Description of BMP:**
The City has an inspection and maintenance program in place to evaluate and maintain the municipal stormwater facilities. These activities include the City's extensive street sweeping program and storm sewer inspection and maintenance programs. During permit Year 21, City staff cleaned approximately 2,473 lineal feet of storm sewer mains and 19 storm structures. The City also rebuilt 190 existing storm inlet structures. The City will continue this program which reduced the amount of debris and other potential pollutants entering the municipal separate storm sewer system.

**BMP No.** F.3 – Municipal Operations Storm Water Control

**Brief Description of BMP:**
The City has procedures and policies to prevent the discharge of pollutants to the MS4 from municipal operations. These policies include dewatering procedures, pumping activities and waste disposal. The City will continue these operations and re-evaluate and/or modify as needed to prevent the discharge of pollutants to the MS4.

**BMP No.** F.4 – Municipal Operations Waste Disposal

**Brief Description of BMP:**
The City has procedures that require the appropriate disposal of all wastes generated during municipal operations. The City will continue these procedures as needed to maintain compliance with the disposal program.

**BMP No.** F.5 – Flood Management/Assess Guidelines

**Brief Description of BMP:**
The City, County, and State have development procedures related to floodplain management and the evaluation of potential development in these areas. The City will continue to enforce these requirements in special flood hazard areas and update as needed to maintain compliance.

**BMP No.** F.6 – Other Municipal Operations Controls

**Brief Description of BMP:**
The City regularly evaluates their municipal activities for additional ways to reduce or eliminate pollutants from entering the stormwater system including salt reduction, additional de-icing techniques and other actions. The City will continue to analyze their existing practices and methods for potential alternatives that may reduce or eliminate potential pollutants.

# Part C. Information and Data Collection Results

**Illicit Discharge Detection and Elimination:**
**(March 2023 thru March 2024)**

## 1) Businesses and Commercial Areas

There were two reports of potential illicit discharge from commercial business that were investigated in Year 21:

Café Olympic – May 3, 2023
Grease residuals were observed within two storm structures along East Woodstock St. The facility Café Olympic, located at 90 N. Williams St., contracted the vendor Sta-Kleen to clean the kitchen's ventilation hood ducts. Sta-Kleen discharged the wastewater with the residual grease from cleaning into the storm drain system. A City Vactor truck and crew responded to the incident and cleaned the two storm structures affected by the residual grease. Sta-Kleen indicated to the City that procedures are in place prevent future incidents.

Jewel-Osco – February 14, 2024
A delivery truck leaking diesel fuel was observed in the Jewel-Osco parking lot at 6140 Northwest Hwy. The diesel fuel contaminated a trench drain located at the delivery dock in the parking lot. Jewel-Osco acquired environmental services to clean the trench drain and contain the water from the clean-up. Nearby storm drains were not affected by the incident.

## 2) Domestic Sources

There were no potential illicit discharges from domestic sources investigated in Year 21.

## 3) Storm Water Receiving Bodies – Monitoring

Crystal Lake – samples are collected at a minimum of a semi-annual basis at the following locations:

- Cove Pond discharge pipe into Crystal Lake off of North Shore Drive
- North Shore storm sewer discharge at the mooring beach
- North Shore storm sewer discharge at the swim beach
- Lake influent into Crystal Creek at Riverside Dr. and Lake Avenue
- Effluent discharge manhole from Lippold Park wetlands (north of Thornwood Lane)
- Storm sewer discharge to lake at Pinewood Dr. (SOD)
- South of Bike Bridge on Country Club Rd.
- Crystal Creek past storm outfall on McHenry Ave to the south of Barlina Rd.
- Crystal Creek past storm outfall south of Dartmoor Dr.

At a minimum, the following parameters are analyzed at the above locations:

- Total Phosphorus
- Dissolved Phosphorus
- Total Nitrogen
- NO2/NO3-N
- Ammonia – NH3
- TKN
- Alkalinity
- pH
- Temperature
- Conductivity

**The following locations at Wastewater Plants #2 are sampled on a monthly basis:**

Crystal Creek (Upstream of WWTP2)
Cooling Pond Outfall to Crystal Creek
Crystal Creek (Downstream of WWTP2)

The parameters analyzed in the receiving stream include the following:

- Dissolved Oxygen
- Ammonia-N
- Total Phosphorous
- Total Suspended Solids
- TKN
- Temperature
- PH

**Water samples are collected once per month from Silver Creek and Sleepy Hollow Creek as part of the Fox River Study. Sampling is managed by the Friends of the Fox.**

1) Silver Creek - Lake Shore Drive and East Park Lane
2) Sleepy Hollow Creek – Colby Point Road

**<u>Other receiving waters without documented monitoring</u>**

- Kishwaukee River
- Hampton Hills Unnamed Wetlands
- Woods Creek – North & South Branches
- Veterans Acres Pond

***Sampling data from the previously listed monitoring locations can be found in Appendix A.***

# Part D. Summary of Year 22 Stormwater Activities

The table shown below summarizes the BMPs committed to for Year 22. Specific BMPs and measurable goals for Year 22 program development activities are presented in the sections following the table. **The City submitted a new Notice of Intent during Year 19 to more accurately reflect the current program activities and subsequent Annual Reports.**

**Note: X indicates BMPs that will be implemented during Year 22**
**✓ indicates BMPs that are proposed be changed from Year 21**

| Year 21 MS4 | Best Management Practice (BMP) |
|---|---|
| **A. Public Education and Outreach** | |
| | **A.1 Distributed Paper Material** |
| | **A.2 Speaking Engagement** |
| **X** | **A.3 Public Service Announcement** |
| **X** | **A.4 Community Event** |
| | **A.5 Classroom Education Material** |
| **X** | **A.6 Other Public Education** |
| | |
| **B. Public Participation/Involvement** | |
| | **B.1 Public Panel** |
| **X** | **B.2 Educational Volunteer** |
| **X** | **B.3 Stakeholder Meeting** |
| | **B.4 Public Hearing** |
| | **B.5 Volunteer Monitoring** |
| **X** | **B.6 Program Coordination** |
| **X** | **B.7 Other Public Involvement** |
| | |
| **C. Illicit Discharge Detection and Elimination** | |
| **X** | **C.1 Storm Sewer Map Preparation** |
| **X** | **C.2 Regulatory Control Program** |
| **X** | **C.3 Detection/Elimination Prioritization Plan** |
| **X** | **C.4 Illicit Discharge Tracing Procedures** |
| **X** | **C.5 Illicit Source Removal Procedures** |
| **X** | **C.6 Program Evaluation and Assessment** |
| **X** | **C.7 Visual Dry Weather Screening** |
| **X** | **C.8 Pollutant Field Testing** |
| | **C.9 Public Notification** |
| **X** | **C.10 Other Illicit Discharge Controls** |

| Year 21 MS4 | Best Management Practice (BMP) |
|---|---|
| **D. Construction Site Runoff Control** | |
| **X** | **D.1 Regulatory Control Program** |
| **X** | **D.2 Erosion and Sediment Control BMPs** |
| | **D.3 Other Waste Control Program** |
| **X** | **D.4 Site Plan Review Procedures** |
| **X** | **D.5 Public Information Handling Procedures** |
| **X** | **D.6 Site Inspection/Enforcement Procedures** |
| | **D.7 Other Construction Site Runoff Controls** |
| **E. Post-Construction Runoff Control** | |
| | **E.1 Community Control Strategy** |
| **X** | **E.2 Regulatory Control Program** |
| **X** | **E.3 Long Term O&M Procedures** |
| **X** | **E.4 Pre-Const Review of BMP Designs** |
| **X** | **E.5 Site Inspections During Construction** |
| | **E.6 Post-Construction Inspections** |
| | **E.7 Other Post-Const Runoff Controls** |
| **F. Pollution Prevention/Good Housekeeping** | |
| **X** | **F.1 Employee Training Program** |
| **X** | **F.2 Inspection and Maintenance Program** |
| **X** | **F.3 Municipal Operations Storm Water Control** |
| **X** | **F.4 Municipal Operations Waste Disposal** |
| **X** | **F.5 Flood Management/Assess Guidelines** |
| **X** | **F.6 Other Municipal Operations Controls** |

## 1. Public Education and Outreach

The City is committing to conduct Public Education and Outreach as part of its permit. Public Education and Outreach requires implementation of a program to distribute educational material to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants to stormwater runoff. The City commits to implementation of BMPs related to A.3, A.4 and A.6 as described below.

**BMP No.** A.3

**Brief Description of BMP:**

The City publishes information about stormwater or water quality in the City newsletter and on the City website.

**Measurable Goal:**

The articles chosen will be selected to increase the resident's knowledge and awareness regarding stormwater and water quality.

**Milestones:** **Year 22:** Publish information articles in the City newsletter at least once a year.

**BMP No.** A.4

**Brief Description of BMP:**

The City has a rain garden at City Hall and bio-swales at the City owned Three Oaks Recreation Area. Signage exists to educate people about these facilities.

**Measurable Goal:**

The City will continue to maintain and enhance the rain garden and bioswales as an education tool for residents and to demonstrate their value for managing stormwater runoff.

**Milestones:** **Year 22:** Maintain existing rain garden and bioswales.

**BMP No.** A.6

**Brief Description of BMP:**

The City will utilize other means such as the City website, social media, etc. as conduits for reaching additional residents.

**Measurable Goal:**

The City will provide specific information to targeted residents on stormwater and water quality issues.

**Milestones:** **Year 22:** The City will update and modify the information provided as needed to stay current and informative. The City has information on its website relating to recycling of waste, waste disposal, stormwater and/or water quality.

## 2. Public Participation/Involvement

The City will perform activities and services related to the Public Participation/Involvement minimum control measure. BMPs will be implemented under BMP numbers B.2, B.3, B.6 and B.7 as described below.

**BMP No.** B.2

**Brief Description of BMP:**

City staff regularly participates in volunteer activities that provide opportunities to interact with residents and educate them on the importance of stormwater and water quality.

**Measurable Goal:**

City staff will continue to perform these activities and work to increase participation from its staff and attendance by residents.

**Milestones:** **Year 22:** The City will participate in at least one volunteering activity each year.

**BMP No.** B.3

**Brief Description of BMP:**

The City will work to conduct stakeholder meetings as needed to connect directly with impacted residents and to distribute information.

**Measurable Goal:**

Stakeholder meetings offer direct input on issues impacting residents and provide an opportunity to gather feedback as well as disseminate stormwater related information.

**Milestones:** **Year 22:** The City will hold one stakeholder or public meeting each year.

**BMP No.** B.6

**Brief Description of BMP:**

The City coordinates with other local municipalities and agencies on regional stormwater related issues. The City attends and participates regularly in the Fox River Study Group meetings. The City participates in the Silver Creek and Sleepy Hollow Creek Watershed planning coalition.

**Measurable Goal:**

The City will continue to partner with the County and other agencies to coordinate efforts such as watershed studies and other issues that impact more than one individual municipality.

**Milestones:** **Year 22:** The City will work to coordinate with other local agencies regarding stormwater related issues.

**BMP No.** B.7

**Brief Description of BMP:**

The City has hosted elementary schools and other residents with tours through various departments of the City.

**Measurable Goal:**

The tours allow the City to educate the participants on the various functions of the City, as well as specifically provide them with knowledge of stormwater vs sanitary, why we treat sanitary, and why keeping stormwater clean and separate from sanitary sewers is important.

**Milestones:** **Year 22:** The City will continue with its educational tour program for elementary students.

**3. Illicit Discharge Detection and Elimination**

The City commits to performing some activities related to the Illicit Discharge Detection and Elimination minimum control. BMPs will be implemented under BMP numbers C.1, C.2, C.3, C.4, C.5, C.6, C.7, C.8, and C.10 as described below.

**BMP No.** C.1

**Brief Description of BMP:**

The City has a GIS based mapping system of the receiving streams and outfalls.

**Measurable Goal:**

The City will work to improve the GIS system and outfall inventory mapping.

**Milestones:** **Year 22:** The City will continue mapping of receiving streams, outfall inventory and any changes made to streams and outfalls.

**BMP No.** C.2

**Brief Description of BMP:**

The City and County have ordinances in place to allow for regulatory action if an illicit discharge is observed, reported or discovered.

**Measurable Goal:**

The City will continue to enforce the existing ordinances that prevent non-stormwater discharges to reduce or eliminate pollutants from entering the municipal separate storm sewer system.

**Milestones:** **Year 22:** The City will continue to enforce the existing ordinances.

**BMP No.** C.3

**Brief Description of BMP:**

The City utilizes various departments to identify and report potential illicit discharges. The City also investigates reports of illicit discharges.

**Measurable Goal:**

The City will continue to identify and investigate potential illicit discharges to reduce or eliminate the impact on local stormwater systems and receiving streams.

**Milestones:** **Year 22:** The City will continue to identify and investigate potential illicit discharges.

**BMP No.** C.4

**Brief Description of BMP:**

The City uses all available information including development plans and the GIS system to trace and eliminate illicit discharges.

**Measurable Goal:**

The City will track, investigate and eliminate illicit discharges as reported, observed or identified.

**Milestones:** **Year 22:** The City will trace and eliminate illicit discharges as needed.

**BMP No.** C.5

**Brief Description of BMP:**

The City and County both have enforcement procedures in place to assist with the removal of an identified illicit discharge.

**Measurable Goal:**

The City will utilize enforcement procedures as needed to eliminate illicit discharges in order to reduce or eliminate pollutants entering the municipal separate storm sewer system.

**Milestones:** **Year 22:** The City will utilize enforcement procedures as needed to eliminate illicit discharges.

**BMP No.** C.6

**Brief Description of BMP:**

The City will evaluate the illicit discharge and detection program for effectiveness and possible improvements.

**Measurable Goal:**

Regular evaluation of the program can provide valuable input and opportunity for improvement.

**Milestones:** **Year 22:** The City will evaluate the program at least once a year.

**BMP No.** C.7

**Brief Description of BMP:**

The City regularly performs dry weather screening as part of its maintenance activities.

**Measurable Goal:**

The City will work to utilize web based inspection forms via a GIS collector app while performing the dry weather screening inspections.

**Milestones:** **Year 22:** The City will continue dry weather inspections using GIS and its data collection app.

**BMP No.** C.8

**Brief Description of BMP:**

The City regularly samples, test and documents the results of influent and effluent flow to various lakes and streams throughout the community. The City will continue or expand the program as needed to meet the ILR40 permit requirements and conditions.

**Measurable Goal:**

The City analyzes the stormwater quality to determine acceptable levels of water quality of its lakes and streams.

**Milestones:** **Year 22:** The City will continue its testing program.

**BMP No.** C.10

**Brief Description of BMP:**

The City has developed a monitoring and assessment program to evaluate the effectiveness of the BMPs on the receiving streams through the use of water quality sampling and testing provided by local watershed groups. To date, no TMDLs have been identified for the receiving streams in the City. The City will monitor the progress of watershed work groups and the establishment of any applicable TMDLs or other Watershed Management Plans. The City will continue the monitoring and assessment program.

**Measurable Goal:**

The goal of this activity is to monitor receiving streams for potential changes due to the discharge of stormwater and ensure compliance with applicable TMDLs and Watershed Management Plans to reduce waste loads.

**Milestones:** **Year 22:** The City will continue the monitoring program.

**4. Construction Site Runoff Control**

The City will perform activities and services related to the Construction Site Runoff Control minimum control measure. BMPs will be implemented under BMP numbers D.1, D.2, D.4, D.5 and D.6 as described below.

**BMP No.** D.1

**Brief Description of BMP:**

The City and County have ordinances in place to allow for review, inspection, and enforcement of construction site runoff controls.

**Measurable Goal:**

The City will continue to review, inspect and enforce the ordinance regulations to prevent or reduce the discharge of sediment or other pollutants from construction sites.

**Milestones:** **Year 22:** The City will enforce the regulatory procedures.

**BMP No.** D.2

**Brief Description of BMP:**

The City and County have ordinances in place to allow for review, inspection, and enforcement of construction site runoff control BMP's.

**Measurable Goal:**

The City will continue to review, inspect and enforce the ordinance regulations to prevent or reduce the discharge of sediment or other pollutants from construction sites as it relates to BMP's.

**Milestones:** **Year 22:** The City will enforce the regulatory procedures.

**BMP No.** D.4

**Brief Description of BMP:**

The City has procedures in place where proposed development plans are reviewed for compliance with NPDES regulations and other City ordinance standards.

**Measurable Goal:**

The City will continue to require all developments to be reviewed for compliance with NPDES regulations and other City ordinance standards.

**Milestones:** **Year 22:** The City will enforce the review procedures.

**BMP No.** D.5

**Brief Description of BMP:**

The City has a system in place for receiving, logging and addressing publicly reported issues.

**Measurable Goal:**

The City will continue to respond to publicly reported issues in a timely manner and investigate as needed to address them.

**Milestones:** **Year 22:** The City will respond accordingly to reported issues.

**BMP No.** D.6

**Brief Description of BMP:**

The City and County regulatory programs allow for inspection and enforcement procedures for construction site runoff control.

**Measurable Goal:**

The City will continue to inspect all new developments for compliance with the City and County ordinances.

**Milestones:** **Year 22:** The City will enforce the ordinance.

**5. Post-Construction Runoff Control**

The City will perform activities and services related to the Post-Construction Site Runoff Control minimum control measure. BMPs will be implemented under BMP number E.2, E.3, E.4, and E.5 as described below.

**BMP No.** E.2

**Brief Description of BMP:**

The City and County have ordinances in place that allow for the review, inspection and enforcement of post-construction runoff control measures.

**Measurable Goal:**

The City will continue to enforce the ordinances for compliance with post construction runoff controls to prevent or reduce the discharge of contaminants from construction sites.

**Milestones:** **Year 22:** The City will enforce the ordinances.

**BMP No.** E.3

**Brief Description of BMP:**

The City has procedures in place for assisting and evaluating the long term maintenance of stormwater best management practices.

**Measurable Goal:**

The City will continue to assist developers, residents and other target audiences by providing sample maintenance plans and conducting inspections.

**Milestones:** **Year 22:** The City will distribution sample maintenance plans and conduct approximately 20% of the inspections.

**BMP No.** E.4

**Brief Description of BMP:**

The City has procedures in place for the pre-construction review of BMP designs. These procedures include pre-application meetings for large scale developments.

**Measurable Goal:**

The City will continue the review procedures and modify or evaluate as needed to maintain compliance.

**Milestones:** **Year 22:** The City will continue the BMP review procedures.

**BMP No.** E.5

**Brief Description of BMP:**

The City has procedures in place to perform site inspections during construction by qualified personnel.

**Measurable Goal:**

The City will continue with the site inspections procedures to verify compliance of BMP's in reducing and/or preventing the discharge of contaminants to local waterways and storm sewers.

**Milestones:** **Year 22:** The City will continue with the site inspection procedures.

**6. Pollution Prevention/Good Housekeeping**

This minimum control measure involves the development and implementation of an operation and maintenance program to reduce the discharge of pollutants from municipal operations. This program must include a training program for municipal employees. The City will perform BMPs under BMP numbers F.1, F.2, F.3, F.4, F.5 and F.6 as described below.

**BMP No.** F.1

**Brief Description of BMP:**

The City regularly provides training to staff regarding a variety of topics aimed at reducing or preventing the discharge of contaminants from municipal operations.

**Measurable Goal:**

The City will continue with its training program aimed at educating City staff on ways to reduce or prevent stormwater pollution from City activities.

**Milestones:** **Year 22:** The City will continue with its training program.

**BMP No.** F.2

**Brief Description of BMP:**

The City has an inspection and maintenance program in place to evaluate and maintain stormwater facilities. In addition to storm sewer inspection and maintenance the City conducts an extensive street sweeping program.

**Measurable Goal:**

The City will continue the inspection and maintenance program of stormwater facilities as well as continue its street sweeping program in order to reduce the amount of debris and pollutants entering the stormwater system.

**Milestones:** **Year 22:** The City will continue the inspection program and evaluate approximately 20% of the stormwater system.

**BMP No.** F.3

**Brief Description of BMP:**

The City has procedures in place to reduce or prevent the discharge of contaminants to the stormwater system from municipal operations.

**Measurable Goal:**

The City will continue to be proactive in evaluating municipal activities that could potentially introduce pollutants to the stormwater system and develop methods to reduce or prevent them.

**Milestones:** **Year 22:** The City will continue with the municipal control measures and evaluate additional methods as needed.

**BMP No.** F.4

**Brief Description of BMP:**

The City has procedures that require appropriate disposal of all wastes generated during municipal operations.

**Measurable Goal:**

The City will continue with the disposal program and requirements to reduce or eliminate the release of pollutants from municipal operations.

**Milestones:** **Year 22:** The City will continue with the municipal operations disposal program.

**BMP No.** F.5

**Brief Description of BMP:**

The City, County and State have strict development regulations related to floodplain management and the evaluation of potential development in these areas.

**Measurable Goal:**

The City will continue to enforce the requirements for potential development in special flood hazard areas.

**Milestones:** **Year 22:** The City will continue to enforce the flood management requirements.

**BMP No.** F.6

**Brief Description of BMP:**

The City regularly evaluates their municipal activities for additional ways to reduce or eliminate pollutants from entering the stormwater system including salt reduction, additional de-icing alternatives and other actions.

**Measurable Goal:**

The City will continue to evaluate and develop methods or changes to existing practices that can reduce or eliminate pollutants from entering the stormwater system from municipal activities.

**Milestones:** **Year 22:** The City will continue the evaluation and monitoring program.

**Specific Pollution Prevention /Good Housekeeping activities during permit Year 21:**

**1)** The City has a Storm Water Management Ordinance (No. 6535). The Storm Water Ordinance documents an illicit discharge and connection section.

**2)** All public works divisions have prepared and implemented Spill Prevention Control and Countermeasure Plans (SPCC). As a requirement of the SPCC Plan, inspections are conducted and documented at each of the facility divisions.

**3)** All employees in Public Works are trained in spill and clean-up procedures. This includes stormwater control and flood management practices.

**4)** Chemicals and waste products in each division are stored following the SPCC guidelines.

**5)** Crystal Lake businesses with the potential for accidental or illicit discharges are required at a minimum to fill out a Wastewater Discharge Questionnaire, and in some cases a Slug Control Plan or Accidental Spill Plan. The Plans document the potential for spills and the prevention of pollutants into both sanitary and storm water sources.

**6)** All employees are trained in observing the potential for illicit discharges from industrial, commercial, and residential sources.

# Part E. Notice of Qualifying Local Program

The City of Crystal Lake established an efficient and effective stormwater management program that is well beyond the minimum requirements of the federally mandated NPDES Phase II program during the previous 10-year permit period. The City will continue to monitor the existing program and modify it as necessary to continue to maintain compliance with the NPDES requirements. The City also partners with McHenry County and Friends of the Fox for various activities related to their NPDES program.

**1. Public Education and Outreach:**
The City of Crystal Lake developed a comprehensive program during the previous 10 year NOI permit period that provides Public Education and Outreach resources to its residents through the City website. The City will continue this program and the associated activities.

This program relates to BMP numbers A.3, A.4 and A.6.

**2. Public Participation/Involvement:**
The City and McHenry County developed a comprehensive program to address the Public Participation/Involvement requirement developed during the initial 10 years of the NPDES Phase II permit. The details are outlined in the previous sections of this annual report.

These programs relate to BMP numbers B.2, B.3, B.6 and B.7.

**3. Illicit Discharge Detection and Elimination:**
The City developed a comprehensive program during the previous 10 year NOI permit period that addresses the Illicit Discharge Detection and Elimination requirements of the NPDES Phase II program. The applicable program details are outlined in the previous sections of this report.

These programs relate to BMP numbers C.1, C.2, C.3, C.4, C.5, C.6, C.7 and C.8.

**4. Construction Site Runoff Control:**
The City developed a comprehensive program during the previous 10 year NOI permit period that addresses the Construction Site Runoff Control requirements of the NPDES Phase II program. The applicable program details are outlined in the previous sections of this report.

These programs relate to BMP numbers D.1, D.2, D.4, D.5 and D.6.

**5. Post-Construction Runoff Control:**
The City developed a comprehensive program during the previous 10 year NOI permit period that addresses the Post-Construction Runoff Control requirements of the NPDES Phase II program. The applicable program details are outlined in the previous sections of this report.

These programs relate to BMP numbers E.2, E.3, E.4, and E.5.

**6. Pollution Prevention/Good Housekeeping:**

The City developed a comprehensive program during the previous 10 year NOI permit period that addresses the Pollution Prevention/Good Housekeeping requirements of the NPDES Phase II program. The goal of this BMP is to identify current practices that contribute to stormwater pollution and implement programs and procedures for municipal activities that curtail the discharge of pollutants to storm sewer systems. The applicable program details are outlined in the previous sections of this report.

These programs relate to BMP number F.1, F.2, F.3, F.4, F.5 and F.6.

The Annual Facility Inspection Report for McHenry County can be found on their website at the following web address:

National Pollutant Discharge Elimination System | McHenry County, IL (mchenrycountyil.gov)

https://www.mchenrycountyil.gov/county-government/departments-j-z/planning-development/water-resources/npdes

Further information on Friend of the Fox and its activities can be found on their website at the following web address:

Friends of the Fox

http://www.friendsofthefox.org/

# Part F. Construction Projects Conducted During Year 21

| Project Name | Project Size (acres) | Construction Start Date | Construction End Date |
|---|---|---|---|
| Dole Avenue Reconstruction | 7.5 | July 2023 | October 2024 |
| Congress Roundabouts | 0.46 | June 2023 | October 2023 |
| Central Park and Lutter Traffic Signal | 0.1 | May 2023 | October 2023 |
| Enclave 95 Crystal Lake Avenue Project | 4.61 | 10/22/2023 | Ongoing |
| Redwood Housing Project | 47.9 | 3/22/2023 | Ongoing |

# Appendix A

## Sampling Data for Part C

**Analytical Results**

| | |
|---|---|
| Sample Location: | Crystal Lake Watershed |
| Name: | Crystal Lake Surface Water Monitoring |
| Matrix: | SW |
| Sample Date: | 7/13/2023 |
| Sampler: | Emily Sitkie / Michael Wisinski |

| Sample Name | Total Phosphorus | Dissolved Phosphorous | Total Nitrogen | NO2NO3-N | Ammonia- NH3 | TKN | Alkalinity | Field pH | Field Temp | Conductivity/ temp. | Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Measurement Unit | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | service units | °C | us/cm | mg/l |
| Date Analyzed | 7/14/2023 | 7/14/2023 | 7/21/2023 | 7/21/2023 | 7/14/2023 | 7/21/2023 | 7/18/2023 | 7/13/2023 | 7/13/2023 | 7/21/2023 | 7/21/2023 |
| Analyst | BJA | BJA | BJA | BJA | BJA | BJA | BJA | ES/ MW | ES/ MW | BJA | BJA |
| 1 - Lippold Influent | 0.197 | 0.03 | 2.2 | 1.910 | 0.0760 | 0.29 | 369.4 | 7.8 | 15.5 | 1324 19.6 | 238.9 |
| 2 - Lake | 0.137 | 0.045 | 1.24 | 0.439 | 0.3030 | 0.81 | 204.2 | 8 | 21.1 | 719 19.8 | 104.5 |
| 3 - Mooring Beach | 0.153 | 0.01 | 0.95 | 0.480 | 0.0893 | 0.47 | 362.0 | 8 | 17.8 | 889 19.8 | 106.5 |
| 4 - Swim Beach | 0.032 | 0.01 | 0.853 | 0.291 | 0.0844 | 0.56 | 349.4 | 7.78 | 17.1 | 893 19.9 | 103.0 |
| 5 - Lippold Effluent | 0.082 | 0.034 | 1.29 | 0.195 | 0.0789 | 1.09 | 319.4 | 8.3 | 20.3 | 1105 20.1 | 159.0 |
| 6 - SOD | 0.091 | 0.038 | 1.69 | 0.201 | 0.0819 | 1.48 | 318.0 | 8.13 | 20.2 | 1111 19.3 | 171.4 |
| 7 - Bike Bridge on Country Club | 0.164 | 0.096 | 2.00 | 0.593 | 0.1470 | 1.41 | 154.0 | 8.08 | 17.9 | 613 19.5 | 128.0 |
| 8 - South of Barlina (S. of Storm Sewer) | 0.045 | 0.030 | 1.440 | 0.425 | 0.1290 | 1.01 | 282.2 | 8.6 | 17.3 | 1001 19.5 | 197.4 |
| 9 - Crystal Creek @ WW South of Dartmoor | 0.052 | 0.036 | 0.775 | 0.480 | 0.1220 | 1.25 | 250.8 | 8.25 | 18.5 | 893 19.6 | 197.9 |
| Sample Name | Total Phosphorus | Dissolved Phosphorous | Total Nitrogen | NO2NO3-N | Ammonia -NH3 | TKN | Alkalinity | Field pH | Field Temp | Conductivity | Chloride |

**Notes:**
**10 - Crystal Creek location - dry**
**No Sample**

**0.92" Rainfall**

**Analytical Results**

| | |
|---|---|
| Sample Location: | Crystal Lake Watershed |
| Name: | Crystal Lake Surface Water Monitoring |
| Matrix: | SW |
| Sample Date: | 8/15/2023 |
| Sampler: | Emily Sitkie / Michael Wisinski |

| Sample Name | Total Phosphorus | Dissolved Phosphorous | Total Nitrogen | NO2NO3-N | Ammonia- NH3 | TKN | Alkalinity | Field pH | Field Temp | Conductivity/ temp. | Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Measurement Unit | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | service units | °C | us/cm | mg/l |
| Date Analyzed | 8/15/2023 | 8/15/2023 | 8/16/2023 | 8/16/2023 | 8/15/2023 | 8/16/2023 | 8/15/2023 | 8/15/2023 | 8/15/2023 | 8/16/2023 | 8/18/2023 |
| Analyst | BJA | BJA | BJA | BJA | BJA | BJA | BJA | ES/ MW | ES/ MW | BJA | BJA |
| 1 - Lippold Influent | 0.330 | 0.025 | 3.79 | 1.260 | 0.1030 | 2.53 | 323.2 | 7.7 | 17.87 | 1138 23.2 | 161.9 |
| 2 - Lake | 0.058 | <0.01 | 1.84 | 0.298 | 0.0385 | 1.54 | 204.8 | 8.8 | 20 | 558 23.1 | 30.0 |
| 3 - Mooring Beach | <0.01 | <0.01 | 1.6 | 0.303 | 0.0460 | 1.30 | 357.8 | 8.1 | 19.9 | 894 23.5 | 49.0 |
| 4 - Swim Beach | <0.01 | <0.01 | 5.59 | 0.407 | 0.0552 | 5.18 | 348.0 | 7.9 | 19.7 | 900 23.5 | 67.5 |
| 5 - Lippold Effluent | 0.082 | 0.034 | 2.63 | 0.331 | 0.2740 | 2.30 | 312.6 | 7.97 | 20.5 | 999 23.6 | 164.9 |
| 6 - SOD | 0.071 | 0.025 | 2.12 | 0.303 | 0.3100 | 1.82 | 312.4 | 8 | 20.3 | 1001 23.7 | 121.0 |
| 7 - Bike Bridge on Country Club | 0.082 | <0.01 | 2.70 | 0.520 | 0.1340 | 2.18 | 201.0 | 7.98 | 19.8 | 748 23.9 | 113.0 |
| 8 - South of Barlina (S. of Storm Sewer) | 0.021 | <0.01 | 2.10 | 0.456 | 0.0947 | 1.64 | 268.8 | 8.0 | 20.7 | 918 23.9 | 154.0 |
| 9 - Crystal Creek @ WW South of Dartmoor | 0.030 | <0.01 | 2.00 | 0.410 | 0.0525 | 1.55 | 239.4 | 8.02 | 20.1 | 818 24.1 | 104.5 |
| Sample Name | Total Phosphorus | Dissolved Phosphorous | Total Nitrogen | NO2NO3-N | Ammonia -NH3 | TKN | Alkalinity | Field pH | Field Temp | Conductivity | Chloride |

**Notes:**
**10 - Crystal Creek location - dry**
**No Sample**

**0.29" Rainfall**

| Analytical Results | |
|---|---|
| Sample Location: | Crystal Creek at WWTP2 |
| Name: | Crystal Creek Grab Samples |
| Matrix: | SW |

| Sample Location: Crystal Creek Upstream of WWTP2 | Sample Date | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | 3/21/23 | 4/18/23 | 5/16/23 | 6/20/23 | 7/18/23 | 8/15/23 | 9/19/23 | 10/17/23 | 11/21/23 | 12/19/23 | 1/16/24 | 2/20/24 | 3/19/24 |
| Ammonia (mg/l) | 0.03 | 0.02 | 0.13 | 0.08 | 0.05 | 0.03 | 0.02 | 0.06 | 0.05 | 0.05 | 0.06 | 0.03 | 0.03 |
| DO (mg/l) | 11.44 | 12.35 | 9.13 | 7.05 | 7.70 | 7.37 | 8.35 | 9.54 | 10.22 | 12.60 | 12.92 | 11.92 | 11.10 |
| pH | 8.06 | 8.17 | 8.10 | 8.03 | 8.08 | 7.87 | 8.11 | 8.20 | 7.59 | 8.27 | 7.80 | 8.13 | 7.84 |
| Phosphorous (as P Total) (mg/l) | 0.04 | 0.02 | 0.06 | 0.60 | 0.05 | 0.04 | 0.04 | 0.04 | 0.20 | 0.01 | 0.02 | 0.03 | 0.05 |
| Temperature (ºC) | 6.70 | 10.70 | 14.70 | 18.20 | 18.10 | 19.20 | 16.10 | 12.60 | 9.80 | 4.20 | 2.80 | 6.40 | 6.70 |
| Total Kjeldhal Nitrogen (mg/l) | 1.00 | 1.10 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.60 | 1.00 | 1.00 |
| TSS (mg/l) | 7.00 | 2.20 | 1.20 | 4.00 | 1.20 | 6.20 | 37.00 | 2.20 | 6.60 | 0.60 | 1.80 | 2.20 | 1.20 |

| Sample Location: Outfall to Crystal Creek from WWTP2 | Sample Date | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | 3/21/23 | 4/18/23 | 5/16/23 | 6/20/23 | 7/18/23 | 8/15/23 | 9/19/23 | 10/17/23 | 11/21/23 | 12/19/23 | 1/16/24 | 2/20/24 | 3/19/24 |
| Ammonia (mg/l) | 0.03 | 0.03 | 0.13 | 2.83 | 0.13 | 0.13 | 0.02 | 0.07 | 0.07 | 0.07 | 0.03 | 0.17 | 0.04 |
| DO (mg/l) | 10.13 | 11.88 | 9.62 | 9.40 | 8.50 | 7.65 | 8.56 | 8.53 | 9.11 | 9.87 | 10.73 | 9.92 | 10.09 |
| pH | 7.64 | 7.61 | 7.61 | 7.68 | 7.71 | 7.68 | 7.74 | 8.19 | 7.77 | 7.78 | 7.56 | 7.68 | 7.47 |
| Phosphorous (as P Total) (mg/l) | 0.10 | 0.14 | 0.35 | 0.52 | 0.28 | 0.16 | 0.20 | 0.09 | 0.12 | 0.10 | 0.13 | 0.09 | 0.11 |
| Temperature (ºC) | 9.60 | 14.60 | 17.00 | 20.20 | 20.40 | 19.80 | 18.90 | 12.40 | 13.10 | 8.80 | 4.90 | 10.00 | 9.50 |
| Total Kjeldhal Nitrogen (mg/l) | 1.00 | 1.10 | 1.00 | 3.70 | 1.00 | 1.00 | 1.10 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| TSS (mg/l) | 3.40 | 4.00 | 26.20 | 29.60 | 23.40 | 7.60 | 11.00 | 2.80 | 3.20 | 4.60 | 3.60 | 2.00 | 7.00 |

| Sample Location: Crystal Creek Downstream of WWTP2 | Sample Date | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | 3/21/23 | 4/18/23 | 5/16/23 | 6/20/23 | 7/18/23 | 8/15/23 | 9/19/23 | 10/17/23 | 11/21/23 | 12/19/23 | 1/16/24 | 2/20/24 | 3/19/24 |
| Ammonia (mg/l) | 0.03 | 0.02 | 0.15 | 2.30 | 0.13 | 0.10 | 0.02 | 0.06 | 0.06 | 0.07 | 0.03 | 0.10 | 0.03 |
| DO (mg/l) | 11.00 | 13.04 | 9.79 | 8.02 | 8.19 | 7.77 | 8.41 | 9.03 | 9.95 | 11.11 | 12.23 | 11.37 | 10.50 |
| pH | 7.92 | 7.92 | 7.80 | 7.75 | 7.81 | 7.78 | 7.91 | 7.95 | 7.74 | 7.96 | 7.68 | 7.91 | 7.72 |
| Phosphorous (as P Total) (mg/l) | 0.06 | 0.07 | 0.26 | 0.42 | 0.22 | 0.10 | 0.14 | 0.08 | 0.16 | 0.07 | 0.15 | 0.07 | 0.10 |
| Temperature (ºC) | 7.20 | 11.50 | 16.60 | 19.80 | 19.60 | 19.10 | 18.30 | 14.20 | 10.20 | 7.10 | 3.60 | 9.10 | 7.20 |
| Total Kjeldhal Nitrogen (mg/l) | 1.00 | 1.00 | 1.00 | 3.80 | 1.00 | 1.00 | 1.10 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| TSS (mg/l) | 3.20 | 3.40 | 18.40 | 23.60 | 23.40 | 5.80 | 69.00 | 2.60 | 6.40 | 2.60 | 16.00 | 2.60 | 11.60 |