June 19, 2018

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
Municipal Annual Inspection Report
1021 North Grand Avenue East
P. O. Box 19276
Springfield, IL 62794-9276

Subject: Municipal Annual Storm Water Inspection Report
NPDES Permit No. ILR400494 for Discharges from MS4s

Dear Sirs/Madams:

This submittal is our Annual Report as required by the Illinois State Toll Highway Authority (Illinois Tollway) ILR40 NPDES Permit. The report covers the period from March 2017 through March 2018 and describes program compliance and progress, information collected, summary of storm water activities planned, and a list of construction projects paid for by the Illinois Tollway.

As part of the program, the Illinois Tollway has continued instituting the new requirements mandated by the March 1, 2016 (effective date) General NPDES Permit No. ILR40. Additionally, the Illinois Tollway has continued its outfall inspection program and its re-mapping of the existing system-wide outfall maps. The outfall inspections conducted during this reporting period included each of the designated system-wide sensitive outfalls as well as outfalls to Waters of the U.S. on the 29.8 miles of the Veterans Memorial Tollway (I 355), approximately 23.9 miles of the Northwest Tollway (I-90) from M.P. 52.2 to 76.1, 9.8 miles of the Elgin-O'Hare Tollway (I-390) from M.P. 6.0 to 15.8, and 2.5 miles of the Northwest Tollway (I-90) from M.P. 76.1 to 78.6.

We trust that you will find this submittal compliant with the Annual Reporting program. Should you have any questions or require additional information, please contact me at (630) 241 6800 extension 3872.

Sincerely,

Bryan Wagner
Environmental Policy and Program Manager

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, 2017 To March, 2018

Permit No. ILR40 0494

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

Name: Illinois State Toll Highway Authority Mailing Address 1: 2700 Ogden Avenue

Mailing Address 2: County: DuPage

City: Downers Grove State: IL Zip: 60515 Telephone:

Contact Person: Bryan Wagner Email Address: bwagner@getipass.com
(Person responsible for Annual Report)

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

Counties of Boone, DeKalb, Kane, Lake, Lee, McHenry
Ogle, Whiteside, Will, Winnebago

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: 1/7/18

Bryan Wagner
Printed Name:

Environmental Policy & Program Mgr.
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.

Annual Facility Inspection Report
NPDES Discharges from Municipal Separate Storm Systems (MS4)

Illinois Tollway
NPDES Permit No. ILR400494
Reporting Period: March 2017 to March 2018

Table of Contents

I. Introduction

The Illinois State Toll Highway Authority (Illinois Tollway) has complied with the General National Pollutant Discharge Elimination System (NPDES) ILR40 Permit conditions under the Discharge from Small Municipal Separate Storm Sewer System, Permit Number ILR400494. An annual review of the stormwater management program was completed as required by the ILR40 Permit. This report accounts for stormwater management activities completed towards the fulfillment of the requirements of the Permit during the March 2017 to March 2018 reporting period.

Revisions to the Illinois Tollway's *Erosion and Sediment Control, Landscape Design Criteria Manual* and the Illinois Tollway's Special Provisions for its Stormwater Pollution Prevention Plans (SWPPP) were made in March 2018. These updates included enhancements to the erosion and sediment control design process with an increased emphasis on provisions for the prevention of non-sediment related stormwater impacts. Guidance for Temporary Stream Crossing and Temporary Stream Diversion Best Management Practices (BMPs) was also added to the manual.

The Illinois Tollway is successfully implementing the provision of its *Waste Management Manual* which was updated in 2016. New practices and procedures include: vehicle wash water is not allowed to infiltrate into the ground, salt storage occurrs only in permanent structures, salt loading/unloading is performed to minimize the potential contact with stormwater, salt loading areas are located away from storm drains to the furthest extent possible, and spilled salt is returned to the salt dome in a timely manner.

The Illinois Tollway uses green infrastructure techniques wherever possible. As part of the Illinois Tollway's commitment to sustainability across all its processes, the Illinois Tollway has a formal Sustainability Policy, and employs a program, known as the Infrastructure Voluntary Evaluation Sustainability Tool (INVEST), to rate the sustainability of its actions. These two programs are discussed below:

- The Illinois Tollway's Sustainability Policy was adopted in 2015. This policy is an environmental commitment that extends throughout the entire Illinois Tollway organization and operations. The Illinois Tollway's policy focuses on construction and operations in a way that supports environmental quality, social awareness, and economic responsibility. In support of the sustainability initiative, the Illinois Tollway's current 15-year, $14 billion *Move Illinois* capital improvement program committed to natural environment and resource protection, waste reduction and recycling, renewable energy and energy conservation, and investments in technology and practices to support sustainability.

  The Illinois Tollway continues its efforts to support sustainable design and construction practices. Examples of such practices for construction projects include the use of recycled materials, reflective roofs, warm-mix asphalt, detention basin infiltration systems, and wetland and grassland restoration. For Illinois Tollway operations, practices recommended from an Energy Audit and Fuel Reduction Task Force continue to be

implemented along with an internal recycling program. The Illinois Tollway is continuing to work on establishing a Sustainability Committee and formalizing a Sustainability Plan.

- The Illinois Tollway utilizes the Infrastructure Voluntary Evaluation Sustainability Tool (INVEST), originally developed by the Federal Highway Administration which has been modified and expanded by the Illinois Tollway for its use. This program assesses and promotes the use of sustainable practices as part of Illinois Tollway planning, project design and construction, and operations and maintenance by scoring individual components and awarding achievement levels. The scores and achievement levels inform the Illinois Tollway where it is doing well and where improvements can be made. The Illinois Tollway requires the use of INVEST for any *Move Illinois* design/construction project that exceeds $10 million in construction costs. INVEST includes a stormwater component that promotes sustainable stormwater management for both quantity and quality. In 2017, four completed construction projects were evaluated using INVEST. Each of these projects satisfied the stormwater criteria by treating over 90% of annual runoff volume, managing flow for 100% of runoff volume, and using effective BMPs to treat pollutants.

The Illinois Tollway initially developed a map of its drainage system and outfalls under the 2003-2008 permit period. Inspections undertaken during the 2009-2014 five-year permit reporting period confirmed the information in base stormwater management maps and the identified locations of all outfalls to Waters of the U.S. The drainage system and outfall maps were updated in 2017 for a short section of the Jane Addams Memorial (I-90), between mileposts 76.1 and 78.6, following completion of its re-construction, and a portion of the Elgin-O'Hare Tollway that was completed from mileposts 6.0 to 15.8.

The Illinois Tollway's drainage system and outfall inspection program for the protection of stormwater quality and identification of illicit discharges has three key components:

- **NPDES Inspections of Stormwater Outfalls.** The Illinois Tollway's 286-mile system has been subdivided into five sections for purposes of inspecting stormwater outfalls. Each year, one of the sections has every outfall to Waters of the U.S. within its boundaries inspected. Seven percent of the outfalls, systemwide, drain to sensitive areas and these outfalls are inspected annually. The Illinois Tollway's asset management system was used to determine which outfalls are adjacent to high-value resources; streams with impairments, TMDLs, or watershed plans; sensitive adjacent ecosystems; and/or adjacent threatened or endangered species. Once these outfalls were identified, each outfall was examined to confirm the presence of a high-value/sensitive adjacent resources, and updates to the asset management system were made to accurately reflect the outfall location and eliminate duplicate outfalls occurred into the same resource. Using this refinement technique, a total of 7% of the systemwide outfalls were determined to be sensitive.

  Outfall inspections look for any evidence of illicit discharges, as well as reviewing existing conditions of the outfall and the stormwater quality as it enters and exits the

Illinois Tollway right-of-way. These inspections generally take place from May through July of each year.

During 2017, inspections of stormwater outfalls were completed for the Jane Addams Memorial (I-90) between mileposts 76.4 and 78.6, the Jane Addams Memorial (I-90) between mileposts 52.2 and 76.1, the North-South Tollway (I-355) between mileposts 0.0 and 29.8, and the Elgin-O'Hare (IL-390) between mileposts 6.0 and 15.8 as well as each of the sensitive outfalls identified throughout the Illinois Tollway system.

- **Annual Inspection Program.** The Illinois Tollway has an Annual Inspection Program where the entire 286-mile system is inspected for roadway, drainage, structures, and safety appurtenances. These inspections also examine ditches and embankments for signs of erosion, drainage structures for structural integrity and performance, and conditions associated with stormwater management ponds. During these inspections, identified illicit discharges or other issues that could impact stormwater flow or quality are also documented and addressed. The Annual Inspection Program has a built-in protocol for reporting any non-conformances noted and generating work orders for correction. These inspections are conducted on an on-going basis throughout most of the year.

- **Maintenance Staff Inspections.** The Illinois Tollway's 286-mile system is divided into 11 maintenance sections. Each section has its own Maintenance Facility, with each facility responsible for mowing, snow removal, maintenance of the roadways and adjacent right-of-way, and daily patrols of the system daily for trouble shooting. The Maintenance Facility staff is trained in the identification of illicit discharges and they report any, when noted, to the Illinois Tollway's Environmental Unit. These inspections are conducted on regular basis by Illinois Tollway Maintenance staff.

It should be noted that the Illinois Tollway is in the process of constructing a new roadway, the Elgin O'Hare Tollway (IL-390). This new roadway will include approximately 25 miles of mainline improvements, including 14 miles of improvements on existing roadways and 11 miles of new alignment. Once this roadway is open, the Illinois Tollway's system will be comprised of 311 miles of roadway and an additional Maintenance Facility will be added, for a total of 12 Maintenance Facilities.

The Illinois Tollway has an electronic record-keeping system which facilitates documentation of compliance with the ILR40 Permit; these records include Erosion Control Plan reviews, Pre-Construction Meeting Minutes, Notice of Intent (NOI) forms, Weekly and Post-Precipitation Inspection Reports (A-38 forms), any Incidence of Non-Compliance (ION) that may have been issued, Notice of Termination (NOT) forms, and Post Construction Punch Lists. These documents demonstrate and ensure that stormwater management is a consideration from project design through the end of construction.

The Illinois Tollway's asset management system includes all Illinois Tollway outfalls, all Waters of the U.S., impaired waters, watershed plans areas, sensitive adjacent land uses (wetlands, high quality aquatic resources, Illinois Natural Areas Inventory sites, and threatened or endangered

species), watershed boundaries, and other pertinent information that allows for appropriate decision making regarding stormwater management. This database continues to be developed and will eventually include all Illinois Tollway stormwater management components (detention ponds, bioswales, culverts, drainage components, etc.) which will better enable the Illinois Tollway to proactively manage and appropriately react to stormwater management concerns.

As recommended by the IEPA in 2010, a stormwater pollution prevention plan (SWPPP) for the Illinois Tollway's Maintenance Facilities, Salt Domes, and the Central Warehouse and Sign Shop was prepared in 2012 in accordance with the requirements of the IEPA National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Industrial Activities, Permit No. ILR00. The SWPPP established a Pollution Prevention Team; an inventory of potential pollutants with an assessment of risk of exposure to stormwater; a set of preventive maintenance and mitigative measures for controlling pollution via stormwater; elimination of any non-stormwater discharges to the stormwater system; an employee training program; and an inspection and record-keeping process. In compliance with the SWPPP, the Illinois Tollway's Maintenance Facilities are formally inspected annually by an Illinois Tollway environmental consultant, accompanied by the Facility Manager for each facility. The annual comprehensive site inspection and evaluation is performed during dry weather to evaluate the effectiveness and adequacy of the requirements contained within the SWPPP. Inspections verify that the site drainage conditions and potential pollution sources identified in the SWPPP remain accurate and that the BMPs prescribed in the SWPPP are being implemented, properly operated, and adequately maintained. In addition, routine inspections are conducted by facility personnel on a daily basis during their regular work duties.

II. Special Conditions

A. Total Maximum Daily Loads

The ILR40 permit requires the Illinois Tollway to identify receiving waters with segments listed as impaired, the pollutants for which the segments are impaired, and identify any segments that have had TMDLs or waste load allocations (WLA) developed for components that may be impacted by Illinois Tollway construction or operations. Additionally, watershed plans that include requirements for stormwater discharges must be established. Using the asset management system developed for ILR40 permit management, receiving waterways that are impaired, have TMDLs/WLAs developed, and/or have watershed plans with stormwater management requirements, are identified. A summary of these receiving waters and their regulatory implications to the Illinois Tollway can be found in Appendix A.

B. State Chloride Standards

The DuPage River Salt Creek Workgroup is a watershed group concerned with the East and West Branches of the DuPage River and Salt Creek. This group is working to improve water quality for several parameters, including chlorides of which the Illinois Tollway is a contributor. The Illinois Tollway is an active participant in this watershed group, is part of its chloride sub-committee, and regularly attends their meetings. Additionally, the Illinois Tollway is an active member of the Metropolitan Water Reclamation District's Chicago Areas Waterways workgroup whose charge is to reduce chloride loadings to the waterways within the Chicago area.

The application of deicing salt is the most significant water quality concern for the Illinois Tollway, and many avenues have been explored to reduce the use of chlorides while maintaining acceptable road safety and operations. In an effort to reduce chloride loading across the Tollway system, the Tollway is approaching this from two directions: improve deicing efficiency and reduce the Tollway's salt use, and work with local agencies/communities to help them reduce their salt use.

With respect to improving Tollway deicing efficiency, the Illinois Tollway coordinated with Wilfred Nixon, PhD of the University of Iowa, who conducts road salt studies. Dr. Nixon toured the Illinois Tollway facilities in March 2013, including maintenance facilities, fleet management, and operations to determine current road salt usage and make recommendations for ways to reduce the amount of salt being used. Dr. Nixon identified four potential changes in maintenance that could reduce the amount of road salt that the Illinois Tollway uses: pre-wetting solids on the truck using salt brine or calcium chloride brine, adjusting application rates to better reflect the pavement temperature and weather type, and using direct liquid application prior to a storm.

Based on recommendations made by Dr. Nixon, the Illinois Tollway adjusted its application rates for the subsequent winter seasons when appropriate. The average application rate on the Illinois Tollway roadway system is 300 pounds per lane mile, but rates of 100 pounds per lane mile are used where it can be, such as locations where speeds are lower.

The Illinois Tollway has purchased pre-wetting equipment, two mobile brine making systems, and liquid storage tanks for all Maintenance Facilities which allow for an increased ability to pre-wet rock salt prior to its distribution on to the roadway network. Pre-wetting reduces the bounce (and therefore scatter) of rock salt, reducing the need for rock salt by 25%; it also initiates the dissolving of rock salt. Additionally, the Illinois Tollway is increasing its use of liquid calcium and magnesium chloride brine solutions to provide greater ability to effectively manage the roadway system under adverse conditions for which standard management practices are not effective, such as but not limited, to sub 15° Fahrenheit air and pavement temperatures. This also reduces the amount of sodium chloride needed.

Training was conducted for Illinois Tollway Maintenance Facility staff on October 20, 2016 in the use of Beet Heet® and liquid chloride to promote the use of these products and reduce the need for chloride. All Maintenance Facilities had representative employees present.

The Illinois Tollway has instituted another method for reducing the usage of chloride. The Illinois Tollway has a *Snow and Ice Manual* detailing multiple systems that are incorporated into the Winter Maintenance Program. A key component in the snow and ice control program is the accurate and timely identification of approaching storms because accurate weather predictions allows for the use of minimal salt while maintaining safe roadways. The Illinois Tollway has contracted with a professional meteorological service, Weather Command, a private forecasting company that provides the Illinois Tollway with location specific predictions and conditions. Storm events do not affect the entire tollway system in the same manner; a storm can produce different precipitation amounts and temperatures at different locations, and accurate information related to specific locations allows for more focused deicing. Additional weather data is accumulated to maximize understanding of the variable conditions each storm presents. There are pavement sensors strategically positioned throughout the 286 miles of roadway to help the Illinois Tollway assess current pavement conditions in real-time. The pavement sensors provide surface and sub-surface temperatures, icing conditions, and whether a chemical application has occurred. This information determines the level of mobilization at each location to effectively control roadway conditions from the onset of the storm.

Additionally, the Illinois Tollway has installed 18 weather sensors within its system, primarily on bridge approaches and bridges. These weather sensors also support the ability to determine roadway conditions at specific locations, thereby allowing for reduced chloride use at locations that are less impacted by a storm event.

In comparing the total salt used systemwide in the 2016-2017 season (12 events) against the 2017-2018 season (21 events) the average tons of chlorides dispersed per storm event dropped by 8% and the use of Beet Heet® increased by 37%. This trend is indicative of the Illinois Tollway's ongoing efforts to improve deicing efficiency and reduce chloride use systemwide.

	Total Deicing Materials Used	
Season	**BEET HEET** Gal	**Chlorides** Tons
2016-2017	17,449	37,442
2017-2018	41,897	60,457

		Material Used Per Event	
Season	# of Salt Events	**BEET HEET** Gal	**SALT** Tons
2016-2017	12	1,454	3,120
2017-2018	21	1,995	2,879
	Change	37%	-8%

With respect to working with local agencies to reduce chloride use, the Illinois Tollway entered into a Memorandum of Understanding (MOU) with the DuPage River Salt Creek Workgroup to implement a chloride offset program. Per the MOU, the Illinois Tollway is preparing intergovernmental agreements (IGAs) with communities adjacent to the roadway who have expressed an interest in the program. The adjacent communities who participate in the chloride offset program will receive funds from the Illinois Tollway to assist in the purchase and implementation of new equipment and processes to achieve chloride use reduction goals as stated in their IGA. Similar permits are being sought for the I-294 and I-90 east corridors as part of similar water quality permit requirements as the Elgin O'Hare (IL-390) Tollway.

III. Stormwater Management Programs

The Illinois Tollway has achieved the March 2017 to March 2018 reporting year goals for developing, implementing, and enforcing a stormwater management program to reduce the discharge of pollutants to the maximum extent practicable. The Illinois Tollway's progress for each of its minimum control measures is described below.

A. Public Education and Outreach on Stormwater Impacts

The Illinois Tollway does not have a public education or outreach program as described in General NPDES Permit No. ILR40, Part IV.B.1 as the Illinois Tollway is a transportation agency and not a municipality. Regular interactions with the public do not occur as the Illinois Tollway does not have a resident population. However, the Illinois Tollway does provide information to the public and other industry professionals to educate them about stormwater issues in the highway construction industry. These opportunities are limited compared to municipalities or communities and are discussed below.

2017-2018 Compliance with Permit Conditions:

a. Illinois Tollway Website (BMP No. A.6)

The Illinois Tollway has a website accessible by the public. The website maintains an Environment Tab (https://www.illinoistollway.com/projects/environment) and provides information on the Illinois Tollway's bioswales, the Annual NPDES Reports, information on various Illinois Tollway green initiatives, and information on the Illinois Tollway's wetland restoration projects, and copies of NPDES documentation (NOI and SWPPP) related to active construction projects.

The website contains links to the Illinois Tollway's *Erosion and Sediment Control Landscape Design Criteria Manual* and *Environmental Studies Manual*, each of which are available for use and reference by the public.

The Illinois Tollway website provides a valuable, accessible resource for Illinois Tollway personnel, design and construction consultants, and the general public to learn about stormwater issues in the highway construction industry. The website is also used to communicate efforts that the Illinois Tollway is undertaking to protect stormwater.

b. Water Quality Demonstration Projects (BMP B.4)

The Illinois Tollway developed a bioswale pilot program to minimize the volume of stormwater runoff and pollutants from public highways. The bioswale pilot program installed 20 bioswale sites, for a total of 34,000 linear feet (six miles) on Forest Preserve District of Cook County property. The bioswales are composed of two types, wet bioswales that detain runoff on the surface, and dry bioswales that are designed to infiltrate runoff. Pre-construction water quality testing was conducted by the Illinois State Geological Survey (ISGS) from February 2008

through August 2010 to obtain baseline water quality data. Intense post-construction monitoring occurred from August 2010 through December 2015 and additional routine monitoring will continue for the foreseeable future. The ISGS monitored both quantity and quality of roadside runoff at four locations. Data obtained via this study was shared with other transportation agencies, as well as with public agencies, as opportunities presented themselves.

The Illinois Tollway's bioswale study provided valuable information on the effectiveness of bioswales to reduce stormwater quantity and contaminants, which will be used by the Illinois Tollway to inform and improve future bioswale design. For reference, turbidity measurements were utilized to represent total dissolved solids (TDS) and specific conductivity measurements were utilized to represent total suspended solids (TSS). Some of the key findings of this study included the following.

- Turbidity reductions improved from 35% to 76%, with wet bioswales performing slightly better from Year 2 to Year 5. The pre-construction turbidity data had much higher peaks and maximum readings than the post-construction data.
- Specific conductivity was reduced at both types of bioswales. Percent reductions ranged from 23% to 97%.
- Models were developed to calculate TSS from turbidity and TDS from specific conductivity. There was no correlation between turbidity and TSS. The correlation between TDS and specific conductivity was significant; however, the calculated TDS was higher than the laboratory analysis measurements by 5% to 31% and corrective factors were developed to translate TDS to specific conductivity. It was determined that specific conductivity is strongly related to the amount of TSS and chloride in stormwater.
- Post construction output volumes at one wet bioswale indicated a 30% reduction in stormwater volume. Two dry and one wet bioswale output volume increased, indicating the likelihood of groundwater inputs.
- Bioswale operations did not alter groundwater input or dynamics, or cause any significant groundwater mounding due to enhanced infiltration.
- Groundwater quality is impacted by roadway operations; elevated concentrations of roadway-related analytes were found within and adjacent to bioswales but decreased away from bioswales. There were Class 2 Groundwater Standard exceedances in TDS, chlorides, sulfate, selenium, thallium, and iron below the bioswales. Exceedances occurred only occasionally as distance from bioswales increased.
- Combined performance of all four bioswales indicated a 71% reduction in roadway metals of interest (chromium, copper, lead, nickel, and zinc). TSS was reduced by 63%, TDS by 42%, and chloride by 44%.
- Dry bioswales have a somewhat greater reduction in TSS than wet bioswales in the early part of the study; dry bioswale reductions were 70% while wet bioswale reductions were 59%. These differences balanced by the end of the study.
- Wet bioswales showed greater reductions than dry bioswales in all other major categories, including TDS (30% to 50%), chloride (33% to 52%), total roadway metals (59% to 81%), and nitrate (25% reduction versus 132% increase, likely due to

groundwater infiltration). Eventual performance in metals reduction was similar in all of the bioswales by the end of the study.
- Factors that reduced bioswale performance included hydrogeologic settings where groundwater discharged into underdrains or bioswales, fine-grained sediments that prevented infiltration, low storage capacity, high loading or runoff input rates, poorly vegetated bioswales and side slopes, steep slopes, runoff channeled into bioswales through input structures, and lack of check dams.

The reports of the findings of the bioswale pilot study can be obtained by contacting the Illinois Tollway Environmental Unit at (630) 241-6800 ext. 3872.

Although the bioswale demonstration project discussed above is complete, the ISGS will continue to monitor the performance of the bioswales. Future reports will be available to the public by contacting the Illinois Tollway Environmental Unit.

c. Presentations and Seminars

The Illinois Tollway provided and/or participated in several presentations and seminars during the annual reporting period on various storm water quality topics as follows:

- March 2017: A presentation was made to the Illinois Tollway Board and members of the press and general public regarding an initiative to plant more trees including the benefits of the canopy to reduce soil erosion, the roots to aid in the water cycle, and to reduce air pollution.
- May 2017: The Illinois Tollway worked with the University of Illinois-Chicago to coordinate and present at the Rights-of-Way as Habitat Working Group to discuss the benefits of native plants and Integrated Roadside Vegetation Management (IRVM) Program to pollinators and for improved stormwater quality.
- November 2017: Presentation to the Illinois Road & Transportation Builders Association regarding the Illinois Tollway *Environmental Studies Manual* and NPDES compliance.
- January 2018: The Tollway partnered with NICOR and ComEd to host an erosion control hands-on workshop to contractors.

B. Public Involvement/Participation

The Illinois Tollway does not have a public education or outreach program as described in General NPDES Permit No. ILR40, Part IV.B.1 as the Illinois Tollway is a transportation agency and not a municipality. Regular interactions with the public do not occur as the Illinois Tollway does not have a resident population (and does not have environmental justice populations).

The Illinois Tollway periodically holds public hearings, generally for National Environmental Policy Act (NEPA) studies, large-scale Illinois Tollway projects, toll increase proposals, and bond proposals. When a Public Hearing is held related to engineering studies or construction, a water quality improvement / erosion and sediment control component is incorporated into the

presentation. The water quality component of the public hearing is required for NEPA studies and large-scale Illinois Tollway projects, but not for toll increase proposals or bond proposals.

2017-2018 Compliance with Permit Conditions:

a. Public Hearing (BMP No. B.4)

Public meetings were conducted between March 2017 and March 2018 associated with the following programs:

- Central Tri-State (I-294): A 22-mile reconstruction program from Balmoral Avenue to 95th Street;
- Tri-County Planning Study: A traffic congestion study for an approximate 1000 square mile area in Lake County, northern Cook County, portions of DuPage County, and eastern McHenry County, as well as Kenosha County in Wisconsin;
- Sugar Grove Parkway Interchange at I-88: Expansion of the Rt. 47 Interchange at I-88 to accommodate a full access interchange; and
- IL Rt. 23/I-90 Project: Construction of a full access interchange at Illinois Route 23 and I-90.

A summary of the public outreach during the reporting period for the above planned construction programs is provided in Appendix C.

b. Program Involvement (BMP No. B.6)

1. Program involvement takes place from concept to design and through the construction and post-construction processes. There are numerous checks and balances throughout the planning, design, and construction processes pertaining to NPDES compliance. The Illinois Tollway follows numerous guides and manuals, notably the Illinois Tollway's *Environmental Studies Manual*, the *Erosion and Sediment Control, Landscape Design Criteria Manual*, *Drainage Design Manual*, and *Construction Section Engineer's Manual*, as well as the *Illinois Urban Manual*, and Specifications for Road and Bridge Construction. All of these contain coordination and check points that involve the review of plans and the implementation of stormwater protection elements.

2. Upon request, the Illinois Tollway provides NPDES documents and records to local and federal regulatory agencies. Documentation of all such requests are maintained in the Illinois Tollway's Web-Based Program Management System (e-Builder).

3. The Illinois Tollway maintains regular communication and coordination with regulatory agencies with regard to active and anticipated environmental permits. These are generally limited to U.S. Army Corps of Engineers permits under Section 404 and the IEPA permits under Section 401 of the Clean Water Act. The Tollway initiates coordination early in the planning stage, as soon as the potential for impacts are identified.

Documentation of all permitting correspondence and coordination meetings are also maintained in e-Builder.

4. The Illinois Tollway is a member of the DuPage River Salt Creek Workgroup and participates in its meetings and activities. The Workgroup has a robust public education and outreach program on stormwater impacts. Appendix B itemizes activities that took place during the March 2017 to March 2018 reporting period.

5. The Illinois Tollway has implemented a sustainability program called INVEST. This program encourages the use of sustainable practices in overall Illinois Tollway planning, project design and construction, and operations and maintenance. INVEST includes a stormwater component that promotes sustainable stormwater management for both quantity and quality. The Illinois Tollway has made multiple presentations related to this program to the public and various national organizations.

C. Illicit Discharge Detection and Elimination

The Illinois Tollway conducts two different types of inspections which include illicit discharge detection as follows:

- The Illinois Tollway conducts an annual inspection program for roadway, drainage system, structures, and safety appurtenances contained within the entire roadway system. As part of this program, the entire Illinois Tollway system has its pavement, right-of-way, drainage, lighting/ITS, bridges, culverts, and safety appurtenances inspection each year. Inspections are conducted by trained inspectors and include an examination of ditches and embankments for signs of erosion, drainage structures for structural integrity, and conditions associated with stormwater management ponds. During these inspections, any illicit discharges or other issues that could impact stormwater flow or quality are identified. When potential concerns are noted they are documented, assessed, discussed among staff, and possible solutions are presented for response by the Illinois Tollway's Maintenance Foreman, with a level of priority assigned. Additional details on this inspection program were provided in the 2014-2019 MS4 Permit application.

- The Illinois Tollway's 286-mile system has been subdivided into five sections for the purpose of inspecting stormwater outfalls. Each year, one of the sections has every outfall to Waters of the U.S. within its boundaries inspected. In addition, the identified sensitive outfalls within the Illinois Tollway system are inspected based on stream impairments, TMDLs, watershed plans, sensitive adjacent ecosystems, and adjacent threatened or endangered species. The sensitive outfalls, systemwide, are inspected annually.

The inspections described above look for any evidence of illicit discharges, as well as note existing conditions of the outfall and stormwater quality as it enters and exits the Illinois Tollway right-of-way. The inspections look for unexpected colors, odors, turbidity, trash/debris, sheens, biological oddities, etc. Any suspected illicit discharge noted during these inspections is reported immediately to the Illinois Tollway Environmental Unit.

In addition to the above, the Illinois Tollway has 11 Maintenance Facilities located throughout the Illinois Tollway system. [Upon completion of the Elgin O'Hare (IL-390), an additional Maintenance Facility will be added for manage this new roadway]. Staff from the Maintenance Facilities are responsible for mowing, snow removal, maintenance of the roadways and adjacent right-of-way, and patrolling the system daily for trouble shooting. The Maintenance Facility staff have been trained in the identification of illicit discharges. If any suspected illicit discharge is noted during their work, the maintenance staff immediately advises the Illinois Tollway's Environmental Unit.

The Illinois Tollway has developed a protocol and trained appropriate staff for handling illicit discharges that occur on/from Illinois Tollway property. The individual who notes a suspected illicit discharge completes an Illicit Discharge Form and advises the Illinois Tollway's Environmental Unit regarding the issue. The Environmental Unit conducts further investigation to determine the nature of the discharge, if the suspected discharge has left Illinois Tollway right-of-way, or has been discharged to Waters of the U.S. The investigation attempts to identify the source, makes recommendations for remedial action, and develops any long-term response that may be necessary. If it is determined that an illicit discharge has occurred, the IEPA is notified within 24 hours and a follow-up 5-Day Report is issued. Remedial action is taken to eliminate the illicit discharge and ensure that it is not repeated. Illicit discharges are also reported to the IEPA in the Annual Facility Inspection Report.

If it is determined that an illicit discharge has occurred, or an area needs further inspections in order to ensure that an illicit discharge does not occur, the incident/location is logged into a database that tracks "Special Issues". Each incident/location is given a log number, details of the incident are logged into the database, and an Illinois Tollway staff member is assigned responsibility for the incident. Recommended actions such as follow up inspections and any other appropriate responses are included in the database. In this manner, the Illinois Tollway can ensure that illicit discharges are responded to and that appropriate corrective action is taken.

As a result of the illicit discharge process, an Illicit Discharge Form is completed in advance of IEPA notification. The Illinois Tollway complies with the Permit Standard Conditions (Attachment H) to respond within 24 hours of identifying a potential illicit discharge and follows up with a 5-Day Report. The 24-hour notice and 5-Day Report are only provided after a suspected illicit discharge is investigated and the Illinois Tollway has determined that an actual illicit discharge has occurred.

If it is determined that the illicit discharge was caused by an entity that is not part of the Illinois Tollway, corrective action is implemented by the offending party. A fine may be incurred for failure to institute corrective action. In some instances, the Illinois Tollway may have to implement corrective action at the offending party's expense.

2017-2018 Compliance with Permit Conditions:

a. Update Storm Sewer System Mapping (BMP No. C.1)

A comprehensive map of the entire Illinois Tollway stormwater management system was completed during the five-year period of the original March 2003 General Permit No. ILR400494. Stream crossings, outfalls, ditches/swales, and flow direction were identified on those maps. Remapping of the systemwide stormwater maps began in 2010 with the Illinois Tollway having completed most of re-mapping completed by 2015. Mapping of stormwater system on the Elgin-O'Hare Tollway from mileposts 6.0 to 15.8 was completed in 2017 following construction of this section.

The Illinois Tollway's systemwide map of stormwater management has one-fifth of its system re-evaluated on a yearly basis to determine if stormwater management information is still current. This occurs as part of the Illinois Tollway's Annual NPDES Outfall Inspection Program. In addition, the Illinois Tollway examines those projects that have occurred since the previous review to determine which segments of the roadway have had significant construction; areas with significant construction are re-mapped. Using both of these methods, the system-wide stormwater management maps are maintained and regularly updated.

b. Illicit Discharge Inspections and Visual Dry-Weather Screening (BMP No. C.3)

The Illinois Tollway conducts annual inspections on the roadway system. Tollway pavement, right-of-way, drainage, structures, lighting/ITS, and safety appurtenances are inspected annually. One of the components of the Annual Inspection is an examination of the system for ponding water or other signs of drainage inefficiencies. Visual dry weather screening for detecting areas that are wet during dry weather months was completed for 286 miles of the Illinois Tollway during the annual inspection. The annual inspections completed during the March 2017 to March 2018 reporting period did not identify any locations along the 286 miles of Illinois Tollway roadways that were experiencing ponding.

For 2017-2018 reporting period, the Annual Outfall Inspection Program identified 16 sites that had excessive vegetative debris partially blocking the culverts under the roadway. Work orders were issued to have these locations restored. In addition, one area was noted as having excessive turbidity. Further investigation revealed that the turbid water was entering Illinois Tollway property from an adjacent construction site upstream of the Tollway. The property managers were notified. One location (Jane Addams Memorial, eastbound at M.P. 71.45) was identified as requiring repair to a concrete revetment mat that had become displaced since installation. The mat had lifted and was blocking fish passage due to the fact that it was higher than the adjacent stream bed. A work order was developed to repair this area.

The annual outfall inspections completed during the March 2017 to March 2018 reporting period noted one illicit discharge. Follow up investigations determined that the source was determined to be the results of activities on adjacent properties and that the Illinois Tollway was not responsible for the noted water quality issues. Although not the result of Illinois Tollway

activities, the Tollway took immediate actions once notified of the condition to control the discharge, sampling to assess the nature of the discharge, and conducted follow-up inspections and sampling to confirm that the issue had been resolved. A summary of the illicit discharges noted during the March 2017 to March 2018 reporting period can be found in Appendix D.

D. Construction Site Stormwater Runoff Control

The Illinois Tollway's *Drainage Design Manual* and the *Erosion and Sediment Control, Landscape Design Criteria Manual* are integral to construction site stormwater runoff control process. These manuals stipulate state-of-the-art procedures for erosion and sediment control and drainage design. They incorporate elements of the *Illinois Urban Manual* and provide checklists to be used during plan preparation. There are numerous checks and balances throughout the planning, design, and construction processes implemented using guidance from these manuals.

The review of Erosion and Sediment Control Plans are conducted during various design stages of a construction project. The final plans must be reviewed and approved by an Illinois licensed Professional Engineer. These plans are also reviewed during development by Illinois Tollway staff and the Tollway's General Engineering Consultant as well as qualified Independent Soil and Erosion Sediment Control (SESC) Inspectors prior to construction.

The Illinois Tollway has a policy that requires erosion and sediment control be discussed with the Contractors on several occasions. The Pre-Bid Meeting includes a discussion on the requirements as well as two Pre-Construction Meetings, one which is solely dedicated to the review of the NPDES permit Pre-Construction Meetings are required according to both the *Construction Section Engineer's Manual* and the *Erosion and Sediment Control, Landscape Design Criteria Manual*. This meeting is attended by the Design Engineer, Construction Manager, the Illinois Tollway Environmental Coordinator, the Contractor's Erosion and Sediment Control Manager, and the Contractor's Erosion/Landscape Subcontractor. The Erosion and Sediment Control Manager is identified at this meeting. Staging, construction techniques, sediment and erosion control methods and installation, water management, inspections, maintenance, and project documentation are among items that may be reviewed and discussed. Public agency representatives whose facilities are interfaced, as well as any parties which have entered into agreements associated with the project, are invited.

All Illinois Tollway construction projects that disturb one acre of land or more are required to develop a project specific SWPPP. This plan is contained within the Illinois Tollway's Special Provision (S.P.) 111. The requirements of S.P. 111 include the need for concrete truck washout locations, volume and velocity controls, identification of areas needing extra protection (steep slopes, highly erodible soils, wetlands, etc.), any 303(d) listed receiving waters and special protections, hierarchy of stormwater management strategies, sequencing of soil disturbing activities, and other NPDES permit requirements.

In addition to the requirements for a project specific SWPPP, which includes NPDES Permits No. ILR10 and ILR40 requirements, the Illinois Tollway's *Drainage Design Manual* and the *Erosion and Sediment Control, Landscape Design Criteria Manual* require the project design to

address concrete fines from construction projects utilizing recycled concrete, and requirements for the Contractor's Erosion and Sediment Control Manager to have taken an approved sediment and erosion control training course.

The Illinois Tollway's *Erosion and Sediment Control, Landscape Design Criteria Manual* has been updated to include requirements that natural buffers be maintained around surface waters, that stormwater be directed to vegetated areas, that soil compaction be minimized, and that topsoil be preserved unless infeasible. Minimization of soil compaction is difficult due to the size and weight of road building equipment and the Illinois Tollway does not anticipate this being a feasible control during road construction. The preservation of topsoil is a requirement of Standard Specification 211 although topsoil immediately adjacent to the roadway is not preserved due to chloride impacts associated with deicing.

All construction work is subject to regular erosion and sediment control inspections. For large construction projects, it is the Illinois Tollway's policy to hire Independent SESC Inspectors to aid the Illinois Tollway Environmental Unit. It is the responsibility of these inspectors to inspect construction sites for compliance with erosion and sediment control plans, BMPs, and the project specific SWPPP. In addition to the Independent Erosion and Sediment Control Inspectors, the Illinois Tollway Construction Manager (CM) is ultimately responsible to ensure that the project's SWPPP is adhered to during construction. This is accomplished through the CM's designated Erosion and Sediment Control Manager. The CM's designated Erosion and Sediment Control Manager confirms that the SWPPP is being adhered to and erosion and sediment control inspections are conducted as required by the General NPDES Permit No. ILR10.

Documentation of erosion and sediment control inspections on a weekly basis, as well as following 0.5" precipitation events, is required. These inspections are documented on an Illinois Tollway-specific form (A-38 form). If the inspections identify any erosion and sediment control insufficiencies, the Contractor is instructed to make immediate repairs. If repairs are not satisfactorily made, a non-conformance report is issued to the Contractor. Non-conformances that do not result in the release of contaminants to Waters of the U.S. may not be reported to the IEPA but may instead be used for internal tracking of the Contractor's performance.

If any inspection identifies the release of pollutants from the project to Waters of the U.S., either due to an exceptional rainfall event that exceeds erosion and sediment control design capacity, or due to improperly installed/maintained erosion and sediment control, the Contractor is required to initiate immediate corrective action. In addition, an ION is issued and the IEPA is notified of the incident.

Non-compliance with a project's SWPPP can include penalties as described in Illinois Tollway Supplemental Specification Section 280.02(b) – Penalties – which can range from $200 to $10,000 per 24-hour period, depending on the severity of the infraction. Additionally, the Illinois Tollway Supplemental Specification Section 280.02 includes fines of $25,000 per 24-hour period, should the Contractor not respond to requests by regulatory agencies.

The Illinois Tollway requires the filing of all NPDES documentation be located in an electronic filing system. The NOIs, weekly and post-precipitation inspection forms (A-38 forms), NOTs, and any IONs are required to be filed by project in this electronic system (e-Builder). This system also makes all project-specific stormwater documents available to all assigned project staff.

Once construction of a project is complete, a final inspection occurs to determine that all punch list items have been satisfactorily addressed, including any items related to the SWPPP/Erosion and Sediment Control Plan, and that the project has been completed to the satisfaction of the Illinois Tollway.

The Illinois Tollway has procedures for receiving and considering information submitted by the public. Comments that are received via the Illinois Tollway's website are handled by the Communications Department. The Communications Department determines which Illinois Tollway department should respond, and the comments are forwarded. If a telephone call or mail is received, it is generally directed to the Executive Director or Chief Engineer. Any communications that are related to stormwater or green infrastructure are forwarded to the Environmental Unit for their consideration and response.

Section 104.06 of the Tollway's Supplemental Specifications describes the removal and disposal of waste materials from construction sites, including the restoration of the work area. The right-of-way, stream channels and banks within the right-of-way or affected by the work at drainage structures, borrow pits, other structures, and all areas occupied by the Contractor in connection with the work are required to be cleaned of all rubbish, excess materials, false work, temporary paving, temporary structures, and equipment. If at any time an unknown hazardous waste product is discovered, the Contractor must control access to the site, take immediate steps to prevent migration of waste off-site, and have the material removed by a licensed contractor.

2017-2018 Compliance with Permit Conditions:

a. Regulatory Control Program (BMP No. D.1)

1. All projects under construction during the March 2017 to March 2018 reporting period with one acre or more disturbed area have the required NPDES documentation based on an audit of the Illinois Tollway's e-Builder filing system.

2. A Notice of Termination (NOT) is filed post-construction upon 70% stabilization of the disturbed land. See Appendix E – Summary of NPDES Permit Compliance Milestones for a list of construction projects which were completed during the March 2017 to March 2018 reporting period and a NOT was filed with the IEPA.

3. Per the Illinois General NPDES Permit No. ILR40 requirements, electronic copies of NOIs and SWPPPs related to Illinois Tollway construction projects are included on the Illinois Tollway's website. A copy of this Annual NPDES Report will be also placed on the Illinois Tollway website.

b. *Erosion and Sediment Control BMPs (BMP No. D.2)*

1. The Illinois Tollway has updated its *Erosion and Sediment Control, Landscape Design Criteria Manual* and Erosion and Sediment Control Standard Drawings. The updated manual and standard drawings were issued in March 2018.

2. For each construction project with greater than 1 acre of land disturbing activities, inspections of erosion and sediment control BMPs by the Construction Manager and Contractor are required on a weekly basis as well as after a 0.5" rainfall event. An audit was conducted on the Illinois Tollway's e-Builder filing system during the March 2017 to March 2018 reporting period. Regular inspections were demonstrated by the filed A-38 Forms. When an erosion and sediment control failure is noted, the Contractor is advised to take corrective action. Similarly, maintenance needs of BMPs are identified on the A-38 forms. A review of the filed A-38 forms confirmed the implementation of required BMP maintenance activities.

3. The Illinois Tollway continues to utilize a team of qualified Independent SESC Inspectors to inspect the various construction projects for erosion and sediment control and NPDES requirements. The Independent SESC Inspectors perform field inspections to ensure that:

    - Proper erosion and sediment controls are in place;
    - Any necessary repairs to erosion and sediment control BMPs are made in a timely manner;
    - Inspections occur weekly and following precipitation events;
    - Stabilization occurs if construction activities have ceased for seven days;
    - The BMPs used by a particular contract are effective; and
    - Documentation related to required inspections are maintained and the SWPPP is up to date.

    The Independent SESC Inspection Program is in addition to the regular inspections that are required by the Illinois Tollway CM's and Contractors and are completed for projects throughout the Illinois Tollway system. A kick-off meeting/training session with the Independent SESC Inspection team was conducted on April 18, 2017 for the purpose of confirming Illinois Tollway expectations of this team, identifying lessons learned from last year's construction season, and advising the team of the latest updates to the Illinois Tollway manuals. See Appendix E – Summary of NPDES Permit Compliance Milestones for a record of ISI contract assignments for the March 2017 to March 2018 reporting period.

c. Other Waste Control Program (BMP No. D.3)

1. Waste removal and restoration of the work area upon completion of the work is ensured through the completion of final inspection and development of Punch Lists. See Appendix C – Summary of NPDES Permit Compliance Milestones for projects during

the March 2017 to March 2018 reporting period that were finalized and have punch lists documenting that restoration has occurred.

d. Site Plan Review Procedures (BMP No. D.4)

1. A review of Erosion and Sediment Control Plans on e-Builder for projects active during the March 2017 to March 2018 reporting period indicates each plan was approved by an Illinois licensed Professional Engineer. Documentation of plan reviews completed by Illinois Tollway staff and the Tollway's General Engineering Consultant are filed in e-Builder.

2. A review of e-Builder determined that Pre-Construction and Erosion Control Pre-Construction Meetings discussing NPDES requirements were conducted for projects resulting in one acre or more of disturbance. See Appendix D – Summary of NPDES Permit Compliance Milestones for a record of meetings that occurred during the March 2017 to March 2018 reporting period.

e. Site Inspection/Enforcement Procedures (BMP No. D.6)

1. Inspection of construction sites, and proper documentation of erosion and sediment control items, are required on a weekly basis, as well as after a 0.5" rainfall event. The Illinois Tollway A-38 Form is required to be filled out at each inspection and filed within the Illinois Tollway's electronic project files (e-Builder). Review of inspection records confirm the completion of weekly and precipitation inspections. When any erosion and sediment control failures are noted, the Contractor is advised to take corrective action. Follow-up inspections are performed to confirm that corrective actions were taken. When erosion and sediment control failures are not corrected, Illinois Tollway inspectors issue a non-conformance report which may include an assessment of fines against the Contractor. See Appendix E – Summary of NPDES Permit Compliance Milestones for a record of compliance with inspection requirements for the March 2017 to March 2018 reporting period.

2. There were six IONs issued on construction projects during the March 2017 to March 2018 reporting period. Corrective actions were taken on all erosion/sediment control failures and IONs submitted to the IEPA. See Appendix E – Summary of NPDES Permit Compliance Milestones for projects that received IONs.

3. A final inspection following all construction projects is required to confirm that all prior "punch list" items have been satisfactorily addressed and that the project is acceptable to the Illinois Tollway. The inspection confirms that temporary erosion and sediment control BMPs have been removed, the project area is not experiencing any erosion, and all construction waste has been removed. See Appendix E – Summary of NPDES Permit Compliance Milestones for a record of contracts which were completed during the March 2017 to March 2018 reporting period and have had completed punch lists.

E. Post-Construction Stormwater Management in New Development and Redevelopment

The Illinois Tollway implements structural and non-structural BMPs for post-construction projects to reduce the discharge of pollutants and the volume and velocity of stormwater flow to the maximum extent practicable.

The Illinois Tollway's primary method for post-construction control is through the required use of the *Drainage Design Criteria Manual* and the *Erosion and Sediment Control, Landscape Design Crite*ria *Manual,* and the Annual Inspection Program. The manuals require a drainage design that improves water quality and reduces the volume and velocity of stormwater flow.

The Illinois Tollway's *Drainage Design Criteria Manual* and the *Erosion and Sediment Control, Landscape Design Criteria Manual* have been amended to inform design engineers to design stormwater plans that ensure natural features are preserved, including natural storage and infiltration characteristics; preserve existing natural streams; convey stormwater in open vegetated channels; and construct structures that provide both quantity and quality control (in order of preference).

As part of the Annual Inspection Program, all drainage structures and stormwater management components are inspected, recommendations for needed repairs or maintenance are made, priorities are set for each non-conforming item, and work orders are generated for repairs. This process is facilitated through the use of an asset management software program that requests documentation of existing conditions through the use of drop down menus, stores photographs taken, and provides standard repair methods through drop down menus, and provides for individual notes. Upon completion of the inspections, the software generates a report which is forwarded to the appropriate entities for the development of work orders for the Maintenance Facilities or for generating contract documents.

The Illinois Tollway's roadway design criteria require that the 50-year storm event not exceed stormwater elevations less than three feet below the edge of pavement, and that the edge of pavement will not be overtopped for a 500-year storm event. These criteria are more stringent than those followed by other Illinois transportation agencies. These criteria also provide an additional factor of safety with respect to potential increases in precipitation due to climate change.

Other stormwater components that accommodate climate change are the Illinois Tollway's design for detention basins and storm sewers. Illinois Tollway detention basins are designed to have a minimum of two feet of freeboard to the top of berm, making the basins amendable to allowing additional detention storage with a minor adjustment to the overflow and outlet control structures. Storm sewers are designed to accommodate a 50-year storm event, as compared to the regional standard that is to either a 5 or 10-year storm event. Thus, additional conveyance provided beyond the regional standard is already accommodated, providing a design factor of safety with respect to potential climate change impacts.

The rainfall data used by the Illinois Tollway is contained within Bulletin 70, which was published in 1989. Since then, the National Ocean and Atmospheric Administration has published Atlas 14, which in general has reduced the 100-year rainfall rate in this region as compared to Bulletin 70. The Illinois Tollway continues to utilize Bulletin 70 for precipitation data, as it is more conservative resulting in more stormwater storage that can accommodate climate change, as compared to using Atlas 14.

The Illinois Tollway has developed and implemented a program to minimize the volume of stormwater runoff and pollutants from its roadways. This program is composed of multiple components, including the bioswale program, the chloride reduction program, and annual training.

As discussed in Section II.B of this report, State Chloride Standards, the Illinois Tollway collects weather data via a contracted professional meteorological service, pavement sensors, and weather sensors on bridges to determine the level of deicing needed, which may vary across the system, in order to effectively control roadway conditions while minimizing the use of chlorides. The Tollway has a regularly scheduled system-wide roadway surface sweeping program for pollution control, as well as aesthetics

2017-2018 Compliance with Permit Conditions:

a. Regulatory Control Program (BMP No. E.2)

1. The March 2017 to March 2018 Annual Outfall Inspection Program identified 16 locations that had excessive vegetative debris partially blocking the culverts under the roadway. Work orders were issued to have these locations cleaned. One location (Jane Addams Memorial, eastbound at M.P. 71.45) was identified as requiring repair to a concrete revetment mat that had become displaced since installation. The mat had become lifted and was blocking fish passage due to the fact that it was higher than the adjacent stream bed. A work order was developed to repair this area.

b. Long Term O & M Procedures (BMP No. E.3)

1. The Illinois Tollway continues to implement its sweeping and catch basin cleaning program. Solids removed from the roadway are staged at the respective maintenance facility and properly disposed off-site by an outside contractor. The roadway sweepings are disposed on a regular basis depending on the quantity of accumulated material.

2. The Illinois Tollway adjusted its application rate of rock salt to an average application rate of 300 pounds per lane mile, but rates of 100-500 pounds per lane mile are also used depending on the severity of the storm event and associated road and bridge conditions.

3. The Illinois Tollway has purchased pre-wetting equipment, two mobile brine making systems, and liquid storage tanks for all Maintenance Facilities which allow for an increased ability to pre-wet rock salt prior to its distribution on to the roadway network.

Pre-wetting reduces the bounce (and therefore scatter) of rock salt, reducing the amount of rock salt needed to effectively treat the road surface by 20%; it also initiates the dissolving of rock salt.

4. The Illinois Tollway is increasing its use of liquid calcium and magnesium chloride brine solutions to provide greater ability to manage the roadway system under adverse conditions for which standard management practices are not effective, such as but not limited, to sub 15° Fahrenheit air and pavement temperatures. This effectively reduces salt usage.

5. The Illinois Tollway has contracted with a professional meteorological service, Weather Command, a private forecasting company that provides the Illinois Tollway with location specific predictions and conditions. Accurate weather information allows for more focused deicing. Pavement sensors strategically positioned through-out the 286 miles of roadway allow the Illinois Tollway to monitor pavement conditions in real time to more efficiently target and apply deicing substances.

6. The Illinois Tollway developed a bioswale study to determine the effectiveness of bioswales to minimize the volume of stormwater runoff and pollutants from public highways. The bioswale program is discussed in detail under BMP No. B.1. Based on this seven-year study, it is known that bioswales reduce turbidity (a measure of TDS) by 35% to 76%; specific conductivity (a measure of TTS and chlorides) by 23 to 97%; up to 30% of the stormwater by volume; and up to 71% reduction in roadway metals of interest. Based on this study, the Illinois Tollway has developed standard drawings for bioswales and is preferentially installing them where possible.

7. Annual training for Illinois Tollway employees, in particular those employees that work at the Maintenance Facilities and are responsible for maintaining the roadways, began in 2016. The training program includes topics related to stormwater pollution reduction, operations of storage yards, deicing material handling and use, proper disposal of street cleaning debris, proper storage of erodible material, green infrastructure (primarily the maintenance and repairs of bioswales and wetland detention ponds), aquatic habitat, management of pesticides and fertilizers, erosion and sediment control, ditch maintenance, etc. Representative from each maintenance section attended the public roads deicing workshop held at DuPage County DOT on October 12, 2017 and the parking lots and sidewalks deicing workshop was held at DuPage County DOT on October 5, 2017.

8. The Illinois Tollway's policy for material and runoff control at fueling stations, washout areas, and storage facilities requires that all Maintenance Facilities have absorbent materials on-site and available during all shifts for any spills that may occur. The fuel stations have Oil Dry® and Help Trucks have sand, No Flash® (for gasoline spills), BioSolve® (for diesel spills), and absorbing pillows.

c. Pre-Construction Review of BMP Designs (BMP No. E.4)

1. A review of e-Builder determined that Pre-Construction and Erosion Control Pre-Construction Meetings discussing NPDES requirements were conducted for projects that would result in one acre or more of disturbance. See Appendix C – Summary of NPDES Permit Compliance Milestones for a record of meetings that occurred during the March 2017 to March 2018 reporting period.

2. The rehabilitation of the central portion of the Tri-State Tollway (I-294) is currently under design. The early design efforts are utilizing the Illinois Tollway's INVEST program to generate design items that enhance sustainability. Among other initiatives, the Central Tri-State Program is incorporating stormwater storage that can accommodate some increases stormwater volume that may occur as a result of climate change. The Central Tri-State Program is designing stormwater storage in anticipation of increased precipitation for 100-year storm events and is including more stormwater storage than current requirements.

3. Permanent stormwater BMPs have been incorporated into the recently completed widening of the Jane Addams Memorial (I-90) and construction of the Elgin O'Hare (IL-390). Because the reconstruction/construction of these facilities will result in an increase in the amount of impervious surface in the watershed, the Illinois Tollway is constructing extensive stormwater management features to improve water quality prior to discharging it to downstream waterways by maximizing stormwater filtering and infiltration. The intent, to the extent possible, is to pass all stormwater through at least one BMP prior to discharging from the right-of-way. In most cases, stormwater will pass through several BMPs, aligned as a treatment train, to capture pollutants and promote infiltration of runoff.

d. Site Inspections During Construction (BMP No. E.5)

1. During the March 2017 to March 2018 reporting period, erosion and sediment control inspections were conducted at all construction projects that disturbed one acre or more of land. Documentation has been filed in the Tollway's electronic files. See Appendix C – Summary of NPDES Permit Compliance Milestones for A-38s for construction projects.

2. Post Construction Inspections (BMP No. E.6)

1. See Appendix C– Summary of NPDES Permit Compliance Milestones for a list of construction projects which were completed during the 2015-2016 reporting period and have had completed punch lists and NOTs filed with the IEPA.

2. Reconstruction was completed in 2015 along the western section of the Jane Addams Memorial (I-90), from U.S. 39 to IL Rte. 31 near the Fox River. A total of 48 bioswales and one wetland detention basin within the section of roadway were monitored and maintained during the 2017 monitoring and maintenance season. A monitoring report

was prepared and submitted to the U.S. Army Corps of Engineers in February 2018 to track the success of native planting development over the establishment period, summarize maintenance activities performed, and document any erosion and sedimentation, water level or drainage concerns. Weed maintenance included selective herbicide application via backpack sprayer and hand wicking, vegetation seed head removal, and garbage removal. Additionally, supplemental seed was installed along the bioswale and wetland detention basin bottoms and side slopes. The overall quality of the vegetation within the bioswales and wetland detention basins was determined to be good. A copy of the report can be obtained by contacting the Illinois Tollway Environmental Unit at (630) 241-6800 ext. 3872.

3. Reconstruction was completed in 2016 along the western section of the Jane Addams Memorial (I-90), from U.S. 39 to IL Rte. 31 near the Fox River. A total of 121 bioswales within the section of roadway were monitored and maintained during the 2017 monitoring and maintenance season. A monitoring report was prepared and submitted in February 2018 to track the success of native planting development over the establishment period, summarize maintenance activities performed, and document any erosion and sedimentation, water level or drainage concerns. The 2017 weed control program focused on reducing the presence of invasive species. Invasive weeds were treated via selective herbiciding and vegetation seed head removal within the monitoring areas. Selective herbicide methods consisted of backpack spraying and hand wicking. Minor erosion or sedimentation issues were identified during the 2017 monitoring and maintenance season. A copy of the report can be obtained by contacting the Illinois Tollway Environmental Unit at (630) 241-6800 ext. 3872.

4. A total of 24 bioswales, 32 wetland detention basins and 1 infiltration area were monitored and maintained during the 2017 monitoring and maintenance season within the completed portion of the Elgin O'Hare (I-390) from the east side of Gary Avenue in Schaumburg to the west side of IL-83 (Kingery Highway) in Wood Dale. The 2017 weed control program focused on reducing the presence of invasive species. Invasive weeds were treated via selective herbiciding and vegetation seed head removal within the monitoring areas. Selective herbicide methods consisted of backpack spraying and hand wicking. Minor erosion or sedimentation issues were identified during the 2017 monitoring and maintenance season. A copy of the report can be obtained by contacting the Illinois Tollway Environmental Unit at (630) 241-6800 ext. 3872.

F. Pollution Prevention/Good Housekeeping for Municipal Operations

The ILR40 Permit requires annual training for operations and maintenance staff and contractors as discussed in General NPDES Permit No. ILR40, Part IV.5. Maintenance Facility staff is trained annually, as well as contractors, in conjunction with the annual updates of the Illinois Tollway's *Erosion and Sediment Control, Landscape Design Criteria Manual* and Erosion and Sediment Control Standard Drawings. Additionally, Maintenance Facility staff are provided with annual training on various pollution prevention and good housekeeping topics.

The Illinois Tollway Maintenance Facilities minimize the discharge of pollutants to stormwater in a variety of ways. Vehicle washing currently occurs within the maintenance buildings, with wash water discharged to sanitary sewers. New Illinois Tollway Maintenance Facilities are being designed with stand-alone vehicle washing buildings. Erodible material stockpiles, such as street sweepings or asphalt grindings, are managed outdoors, but in a manner that minimizes the material entering the storm sewers. These stockpiles are inspected annually as part of the SWPPP inspections to confirm that material is not being released to outside of the right-of-way or to Waters of the U.S. Deicing material is stored in a permanent structure, and other chemicals, herbicides, and pesticides are stored inside the Maintenance Facilities. All flammable or reactive chemicals are stored in a metal fire safe locker. The annual SWPPP inspections undertaken at each Maintenance Facility confirm that these chemicals are stored appropriately.

The Illinois Tollway has developed a SWPPP for its Maintenance Facilities, Salt Domes, and Central Warehouse/Sign Shop. The SWPPP was developed in accordance with the requirements of the IEPA National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Industrial Activities, Permit No. ILR00. Per the SWPPP, inspections occur annually at Illinois Tollway facilities, reports are generated, and recommendations for corrections made. Results of the inspections that occurred during the March 2017 to March 2018 reporting period can be found in Appendix F.

2017-2018 Compliance with Permit Conditions:

a. Employee Training Program (BMP No. F.1)

1. Illinois Tollway employees charged with pesticide spraying are licensed for proper rate and location applications. The Illinois Tollway maintains NPDES Permit No. ILG870228 for the application of pesticides. At this time, recordkeeping and annual reporting related to the pesticide permit are not required. The Illinois Tollway's use of pesticides is below the threshold that requires these steps.

2. The Illinois Tollway re-issued its *Erosion and Sediment Control, Landscape Design Criteria Manual* and *Drainage Design Manual* in March 2018. In support of these releases, the Illinois Tollway conducted a training session on March 16, 2017 for Illinois Tollway employees, Design Engineers, and Construction Managers who work on Illinois Tollway projects. This training session also highlighted the latest BMP technologies supported by the Illinois Tollway.

3. Training of the Illinois Tollway Maintenance staff took place on June 20, 2017 and June 28, 2017. This training was focused on waste management at the facilities, including appropriate storage, disposal, and spill response. The necessity for having oil dry or other spill response kits in the immediate vicinity of stored liquids and oils was stressed, as well as the requirement for disposal through contracted vendors and not by adding to solid refuse or debris piles.

b. Inspection and Maintenance Program

1. The Tollway has two annual inspection programs, an Annual Inspection of Tollway appurtenances and facilities and an Annual NPDES Outfall Inspection Program. Daily inspections are conducted by Tollway Maintenance staff as well. Refer to the Introduction for a complete description.

c. Municipal Operations Storm Water Control

1. The inspections of the Illinois Tollway Maintenance Facilities include inspections of runoff outlets, erosion and sediment control, and material storage practices to ensure that material does not mingle with stormwater and runoff into storm sewers or surface waters. The annual inspections of the Illinois Tollway's Maintenance Facilities, Salt Domes, and the Central Warehouse/Sign Shop occurred in May 2017. The annual inspections of the Illinois Tollway's Maintenance Facilities, Salt Domes, and the Central Warehouse/Sign Shop occurred in May 2017. Reports were generated, and recommendations for corrections pertaining to stormwater control were provided to the Maintenance Facilities. Copies of this report can be found in Appendix F.

2. All construction projects that began during the March 2017 to March 2018 reporting period have been reviewed for conformance with the stormwater control regulations required by the Illinois Tollway's *Drainage Design Manual*.

3. The Illinois Tollway has implemented a program to reduce the use of chlorides system-wide, based on recommendations made by Dr. Wilfred Nixon at Asset Insight Technologies LLC and new technologies that are available. Refer to Section II.B for a complete description.

4. The Tollway has undertaken a study to determine the effectiveness of treating storm water from Tollway runoff through the use of bioswales. Refer to Section III.A for a complete discussion of this study. Results indicate that bioswales can be very effective at treating stormwater impacts due to operations and Tollway standards for bioswales were developed. These bioswale standards are being used for the construction of the Elgin O'Hare Tollway (IL-390).

5. The Tollway is continuing construction of the Elgin O'Hare Tollway (IL-390), which will provide transportation improvements in the vicinity of O'Hare International Airport. In order to reduce chloride loads to the Des Plaines River drainage basin, IGAs have been developed to assist the surrounding communities reduce the amount of de-icing salt that is used. Refer to Section II.B for a complete description.

6. The Illinois Tollway is a member of the DuPage River Salt Creek Workgroup (DRSCW) and participates in its meetings and activities. The DRSCW has a robust chloride reduction program in which the Illinois Tollway participates. Refer to Appendix C which itemizes activities that took place during the March 2017 to March 2018 reporting year.

d. Municipal Operations Waste Control

1. The inspections of the Illinois Tollway Maintenance Facilities include inspections of runoff outlets, erosion and sediment control, and material storage practices to ensure that material does not mingle with stormwater and runoff into storm sewers or surface waters. The annual inspections of the Illinois Tollway's Maintenance Facilities, Salt Domes, and the Central Warehouse/Sign Shop occurred in May 2017. Reports were generated, and recommendations for corrections pertaining to waste control were provided to the Maintenance Facilities. Copies of this report can be found in Appendix F.

2. Special waste/petroleum products are removed from Maintenance Facilities by private contractors authorized and licensed to handle and dispose of wastes including, but not limited to, used motor oil, paints, cleaning solvents, and lubricants. Waste management policies remain in place with waste materials are removed from Maintenance Facilities on a regular basis.

IV. Monitoring, Recordkeeping, and Reporting

A. Monitoring

The Illinois Tollway has developed a monitoring program that assesses the effectiveness of its BMPs while not creating an unnecessary burden on its manpower and cost. Because the Illinois Tollway's system covers 286 miles, an annual inspection of every outfall is unrealistic. Thus, the Illinois Tollway has divided its system into fifths, with one-fifth of the system inspected every year. Utilizing this method, the entire Illinois Tollway system is inspected every five years.

The Illinois Tollway has identified 7% of its outfalls are determined to be sensitive; these outfalls are inspected annually. The sensitive outfalls were identified through a process where all the Tollway's outfalls were mapped in an asset management system along with parameters that would indicate the sensitivity of an outfall. These sensitivity parameters included impaired waters, waters with TMDLs, waters with approved watershed plans, waters adjacent to Illinois Natural Areas Inventory or Illinois Nature Preserve sites, waters adjacent to county forest preserve units, waters adjacent to National Wetland Inventory wetlands, and waters identified as Biologically Significant or given a rating of A or B for diversity or integrity. Using the asset management system, each sensitivity parameter was given a score of 1 and sensitivity parameters were added together to identify outfalls with the highest scores. For simplicity's sake, each sensitivity parameter was given equal importance in determining the sensitive outfalls, although some adjustments of the sensitivity parameter score were made based on distance from the Illinois Tollway right-of-way.

In addition to the two outfall inspection programs discussed above, the Illinois Tollway has also conducted an evaluation of the effectiveness of its BMPs. By supplementing its monitoring program with effectiveness evaluations, the Illinois Tollway is confident that its monitoring program is an accurate evaluation of the effectiveness of its BMPs.

1. Evaluation of the Effectiveness of BMPs Based on Research

The BMPs utilized by the Illinois Tollway for stormwater management have been determined to be effective based on monitoring and scientific studies, including the Illinois Tollway's bioswale study (discussed in the section discussing General NPDES Permit No. ILR40, Part IV.B.1). Additionally, the design criteria contained in the Illinois Tollway's *Erosion and Sediment Control, Landscape Design Criteria Manual*, the Illinois Tollway's *Drainage Design Manual,* and the *Illinois Urban Manual,* which are required for Illinois Tollway projects, are based on rigorous testing requirements and have been inspected and determined to be effective under actual field and operational conditions.

The Illinois Tollway utilizes three primary BMPs to maintain water quality - naturalized detention ponds, vegetated roadside ditches, and bioswales. These BMPs provide water quality improvements by slowing runoff to facilitate the settlement of sediments, promote infiltration, filter pollutants, and allow for vegetative uptake of pollutants. The Illinois Tollway's stormwater basins and bioswales have been inventoried and incorporated into the Tollway's asset management system. Additional bioswales are being incorporated into construction of the Elgin O'Hare Tollway (IL-390) and these locations will be included in the inventory upon completion of their construction.

Stormwater pollutants most often associated with highways include TSS, TDS, chlorides, and heavy metals (particularly chromium, copper, lead, nickel, and zinc). The Illinois Tollway has researched the ability of its BMPs to reduce impacts from roadways related to these parameters in its stormwater runoff. The table below summarizes this research.

Evaluation of BMPs Estimated Effectiveness (Based on Published Research)			
BMP	**Pollutant**	**Effectiveness**	**Resource**
Vegetated Channels/ Ditches	TSS	Removal effectives of vegetated medians and filter strips for suspended solids is 65-70%	Barrett, Michael E., Patrick Walsh, Joseph Walsh, Randall Charbeneau (1998). *Performance of Vegetative Controls for Treating Highway Runoff* (Online) Available at: http://ascelibrary.org/doi/pdf/10.1061/(ASCE)0733-9372(1998)124:11(1121)
	Heavy metals and TSS	Retained in soil within ditches, proportional to amount of TSS is removed. Average TSS removed is 72%. Heavy metals removals: copper up to 60%, lead up to	Kearfott, Pamela J., Michael Barrett, Joseph Malina, Jr. (2005) *Stormwater Quality Documentation of Roadside Shoulders Borrow Ditches* (Online) Available at:

Evaluation of BMPs Estimated Effectiveness (Based on Published Research)			
BMP	**Pollutant**	**Effectiveness**	**Resource**
		90%, zinc up to 50%	http://www.texaslid.org/pdfs/Barrett2005_Ditches.pdf
	TSS, metals, hydrocarbons (oil & grease)	Removal efficiency of TSS up to 80%; metals, hydrocarbons, oil & grease adsorb to TSS and are removed with TSS	State of Oregon Department of Environmental Quality (2001). *Best Management Practices for Stormwater Discharges Associated with Industrial Activities*
Vegetated Detention Basins		Treats first flush	Pennsylvania Environmental Council (2005). *Improving Stormwater Detention Basins for Better Stormwater Management* (Online) Available at: https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/Improving%20Stormwater%20Detention%20Basins%20for%20Better%20Stormwater%20Management.pdf
	Heavy metals	Vegetated detention basins remove heavy metals	Hares, R.J., N.I. Ward (1999). *Comparison of the heavy metal content of motorway stormwater following discharge into wet biofiltration and dry detention ponds along the London Orbital (M25) motorway*. Science of the Total Environment, Volume 235, Issue 1-3
	Solids	Detention basins effective at the removal of solids	Ferrara, Raymond, A.M. Asce, and Patrick Witkowski (1983), *Stormwater Quality Characteristics in Detention Basins.* Journal of Environmental Engineering, Volume 109, Issue 2

Evaluation of BMPs Estimated Effectiveness (Based on Published Research)			
BMP	**Pollutant**	**Effectiveness**	**Resource**
	TSS	Detention ponds effective at removing pollutants associated with particles but not dissolved	Pettersson, Thomas (1998). *Water quality improvement in a small stormwater detention pond*. Water Science and Technology, Volume 38, Issue 10
	Copper, lead, TSS	Copper and lead removed at 43-85% efficiency	Revitt, D.M., R.B.E. Shutes, R.H. Jones, M. Forshaw, B. Winter (2004). *The performances of vegetative treatment systems for highway runoff during dry and wet conditions*. Science of the Total Environment, Volumes 334-335
Bioswales	TSS, metals, hydrocarbons (oil & grease)	Removal efficiencies: TSS: 83–92% Lead: 67% Copper: 46% Zinc and aluminum: 63% Oil/grease: 75%	State of Oregon Department of Environmental Quality (2001). *Best Management Practices for Stormwater Discharges Associated with Industrial Activities*
	TSS	26-77% efficiency at removing TSS	Groves, William, Phillip Hammer, Karinne Knutsen, Sheila Ryan, Robert Schlipf (1999). Analysis of Bioswale Efficiency for Treating Surface Runoff. (Online) Available at: http://www.bren.ucsb.edu/research/finaldocs/1999/bioswale.pdf
	Turbidity	Turbidity reduced from 35-76%	Ackerman, Jessica, Colleen Long, Jame Miner, Keith Carr, Kathleen Bryant, Eric Plankell. (2016) *Reductions in Turbidity and Specific Conductivity in Runoff Treated by Bioswales Along I-294 in Northern Cook County, Illinois*, Illinois State Geological Survey, Prairie Research Institute, University of Illinois, Champaign, Illinois

Evaluation of BMPs Estimated Effectiveness (Based on Published Research)			
BMP	**Pollutant**	**Effectiveness**	**Resource**
	Specific Conductivity (indicative of chlorides)	Specific conductivity reduced 23-97%	Ackerman, et al (2016)
	Specific Conductivity	Specific conductivity strongly correlated to TSS and chlorides	Ackerman, et al (2016)
	Roadway metals of interest (chromium, copper, lead, nickel, and zinc)	Metals of interest reductions of 71%	Plankell, Eric, James Miner (2016) *Total Recoverable Metals in Bioswale Soils Along I-294 in Northern Cook County, Illinois*, Illinois State Geological Survey, Prairie Research Institute, University of Illinois, Champaign, Illinois
	Total Metals	Total roadway metals reduced 59-81%	Plankell, et al (2016)
	TSS	TSS reduced by 63-70%	Miner, James, Kathleen Bryant, Keith Carr, Jessica Ackerman, Eric Plankell, Colleen Long (2016) *Using Bioswales to Improve the Quality of Roadway Runoff from I-294 in Northern Cook County, Illinois,* Illinois State Geological Survey, Prairie Research Institute, University of Illinois, Champaign, Illinois
	TDS	TDS reduced by 30-50%	Miner, et al (2016)
	Chloride	Chloride reduced by 33–52%	Miner, et al (2016)

Evaluation of BMPs Estimated Effectiveness (Based on Published Research)			
BMP	**Pollutant**	**Effectiveness**	**Resource**
	Nitrate	Nitrate reduced by 25%	Miner, et al (2016)

2. Monitoring the Effectiveness of BMPs

As discussed in the Introduction, the Illinois Tollway's inspection program for the protection of stormwater quality and identification of illicit discharges has three key components. These components consist of annual outfall inspections conducted on one-fifth of the Tollway system and all sensitive outfalls, its Annual Inspection Program, and regular inspections by the Illinois Tollway Maintenance Staff. Because the Illinois Tollway is considered a small MS4, the outfall inspections consist of visual observations of stormwater for color, odor, foam, oil sheens, or other obvious indicators of pollution. The results of the Illinois Tollway monitoring program are discussed in Section III of this report.

B. Recordkeeping

The Illinois Tollway keeps records of all NPDES documentation, including the MS4 NOI, ILR10 NOIs, SWPPPs, A-38s, IONs, illicit discharges, NOTs, and annual reports for a minimum of five years. The SWPPP and NOI document are located on the Illinois Tollways website. Other NPDES documents are also available to the public upon request.

C. Reporting

This document constitutes the March 2017 to March 2018 NPDES Annual Report. A copy of this report will be maintained on the Illinois Tollway's website for a period of five years.

D. Stormwater Inspection Activities Planned for 2018

The annual inspection program will be conducted for the entire 286-mile Illinois Tollway system in 2018. These inspections will encompass detection/elimination of illicit discharges including dry-weather screening, and identification of water quality issues, erosion and sediment control issues, illegal dumping, and drainage system maintenance issues.

The Illinois Tollway will conduct inspection of the stormwater outfalls for detection of non-stormwater discharges and illicit discharges to Waters of the U.S. The inspections will include the annual inspection of the most sensitive outfalls in the system (see Part V – Monitoring, Recordkeeping, and Report, Section A: Monitoring) and one-fifth of the system to ensure that

each outfall is inspected at least once during the NPDES MS4 permit cycle. Outfall inspections for 2018 will consist of:

- The most sensitive of the Illinois Tollway's outfalls (7% of the system)
- One-fifth of the Illinois Tollway system:

East-West (I-88)	MP 113.4 – 140.5
Tri-State (I-294)	MP. 0.0 to 36.5

Annual inspections will occur for all of the Maintenance Facilities, Salt Domes, and Central Warehouse and Sign Shop for compliance with the SWPPP developed in March 2012.

Construction activities planned for the 2018 are summarized in Appendix G. All construction projects that disturb one acre of land or more will be subject to erosion and sediment control inspections in accordance with the ILR10 permit.

Due to upcoming revisions to the ILR10 NPDES permit, the Illinois Tollway will be updating standards and specifications to comply with the new requirements.

E. Results of Information Collected and Analyzed

The Annual Outfall Inspection Program identified 16 locations that had excessive vegetative debris partially blocking the culverts under the roadway. Work orders were issued to have these locations cleaned. One location (Jane Addams Memorial, eastbound at M.P. 71.45) was identified as requiring repair to a concrete revetment mat that had become displaced since installation. The mat had become lifted and was blocking fish passage due to the fact that it was higher than the adjacent stream bed. A work order was developed to repair this area. None of the identified issues represented an illicit discharge.

The Annual Inspection Program identified one illicit discharge. Investigations determined that the illicit discharge was not the result of Illinois Tollway operations or activities but were the result of activities on adjacent properties.

Erosion and Sediment Control standards, specifications and special provisions were included in all applicable construction contracts.

Storm Water Pollution Prevention Plans were included in all applicable contracts.

Erosion Control Preconstruction Meetings were conducted for all contracts covered by an NPDES permit.

Notice of Intent (NOI) forms, Weekly and Post-Precipitation Inspection Reports (A-38 forms), Incidence of Non-Compliance (ION) documents, Notice of Termination (NOT) forms, and Post

Construction Punch List documents are filed on the Illinois Tollways e-Builder filing system for all contracts covered by an NPDES permit.

F. Changes to Best Management Practices or Measurable Goals

There have been no changes to Best Management Practices or Measurable Goals during the March 2017 to March 2018 reporting period.

G. Reliance on Another Governmental Entity to Satisfy Permit Obligations

The Illinois Tollway does not rely on any other government agency to satisfy any of the Illinois Tollway's permit obligations under General Permit No. ILR40.