June 12, 2017

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

Re: 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 2016 through March 2017 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 begun instituting the new requirements mandated by the March 1, 2016 (effective date) General NPDES Permit No. ILR40. Additionally, the Illinois Tollway has completed its outfall inspections and has continued it's re-mapping of the Tollway's existing system-wide outfall maps. The outfall inspections conducted during this reporting period included 50 miles of the Jane Addams Memorial Tollway (I-90) from milepost 2.2 to milepost 52.2, in the northwest Chicago suburbs.

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

National Pollutant Discharge Elimination System

Municipal Annual Inspection Report
For General Permit No. ILR40
No. ILR400494

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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, 2016 To March, 2017

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 Ave

Mailing Address 2: County:

City: Downers Grove State: IL Zip: 60515 Telephone: 630-241-6800

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 Boon, Cook, 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))

Bryan Wagner
Owner Signature:

6/12/17
Date:

Bryan Wagner
Printed Name:

Environmental Policy & Program Mng
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

IEPA MS4 Permit Annual Report – March 2016 through March 2017

Introduction

The Illinois State Toll Highway Authority (Illinois Tollway) has complied to the maximum extent possible 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. The Illinois Tollway is working towards the fulfillment of the requirements of said permit; this report accounts for storm water management activities which occurred during the 2016-2017 reporting period.

An annual review of the storm water management program was completed as required by the ILR40 Permit. Revisions to the Illinois Tollway's *Erosion and Sediment Control, Landscape Design Criteria* and the Illinois Tollway's Special Provisions for their Contractor's Storm Water Pollution Prevention Plans (SWPPP) were made in March 2017 to reflect the new Illinois Environmental Protection Agency (IEPA) requirements. These updates included the new ILR40 Permit requirements for designs to incorporate consideration of total maximum daily load (TMDL) allocations and watershed management plans for constituents associated with storm water runoff from roadway construction and operations. Also included were directions to not design storm water infiltration as best management practices (BMPs) in the areas listed in the new permit, to include natural buffers around surface waters, to minimize soil compaction, and to preserve topsoil.

The Illinois Tollway's internal *Waste Management Manual* was updated in 2016. New ILR40 Permit requirements were incorporated into this Manual, including directions that vehicle wash water cannot be allowed to infiltrate into the ground, the requirement that salt storage have a permanent structure, that loading/unloading of salt must occur in a way that minimizes the potential for runoff via storm water, that salt loading areas must be as far from storm drains as possible, and directions that any spilled salt must be returned to the salt dome as soon as possible.

The Illinois Tollway uses green infrastructure techniques wherever possible. The Illinois Tollway has committed to sustainability in general throughout its processes and has adopted a formal sustainability policy, as well as a program that rates the sustainability of its actions, INVEST. These two programs are discussed below.

The Illinois Tollway's Sustainability Policy was adopted in 2015. This policy is an environmental commitment that extends to all Illinois Tollway departments and disciplines. The Illinois Tollway's new Policy focuses on construction and operations in a way that supports environmental quality, social awareness, and economic responsibility. The Illinois Tollway is currently establishing a Sustainability Committee which will have a representative from each of the Illinois Tollway's departments; the Illinois Tollway is in the process of developing a Sustainability Plan.

The Illinois Tollway has implemented a sustainability scoring program called INVEST (Infrastructure Voluntary Evaluation Sustainability Tool), originally developed by the Federal Highway Administration and modified by the Illinois Tollway for its use. This program promotes the use of sustainable practices in overall Illinois Tollway planning, project design and construction, and operations and maintenance by scoring individual components and awarding achievement levels. These scores and achievement levels inform the Illinois Tollway where they are doing well and where improvements can be made. INVEST includes a storm water component that promotes sustainable storm water management for both quantity and quality. The Illinois Tollway is implementing the use of INVEST in-house for planning, operations, and maintenance. In addition, the Illinois Tollway is requiring its use in any *Move Illinois* design/construction project that exceeds $10 million in construction costs.

An inspection of the storm water drainage system for most of the 286-mile Illinois Tollway system was completed during the five-year reporting period covered under the ILR400494 Permit issued March 2008. The Illinois Tollway was not able to perform inspections of one small portion of the Jane Addams Memorial (I-90) between mileposts 76.4 and 78.6. This portion was not inspected due to construction that was occurring, which made inspections unsafe. This last portion will be re-mapped in 2017, when construction will be complete.

The Illinois Tollway developed a map of it drainage system and outfalls under the 2003-2008 permit period. Inspections undertaken during the five-year reporting period covered by the 2009-2014 permit confirmed the base storm water management maps, identified the locations of all outfalls to Waters of the U.S., identified illicit discharges, and conducted visual dry weather screening for the entire Illinois Tollway system.

The Illinois Tollway's inspection program for the protection of storm water quality and identification of illicit discharges has three key components. These components are:

NPDES Inspections of storm water outfalls. The Illinois Tollway's 286-mile system has been subdivided into five sections for the purpose of inspecting storm water outfalls. Each year, one of the sections has every outfall to Waters of the U.S. within its boundaries inspected. In addition, 7% of the most sensitive outfalls within the Illinois Tollway system are inspected annually. The sensitive outfalls were identified using the Tollway's GIS-based database to determine 10% of the outfalls adjacent to high-value resources; streams with impairments , TMDLs, or watershed plans; sensitive adjacent ecosystems; and/or adjacent threatened or endangered species. Once these 10% were identified, each outfall was examined to confirm the presence of a high-value/sensitive adjacent resources, and adjustments were made if these resources appeared to be too far away to be impacted or if multiple outfalls occurred into the same resource. Using this refinement technique, a total of 7% of the outfalls were determined to be sensitive.

- Inspections look for any evidence of illicit discharges, as well as note existing conditions of the outfall and storm water quality as it both enters and exits the Illinois Tollway right-of-way. These inspections generally take place May through July.

- **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 storm water management ponds. During these inspections, any illicit discharges or other issues that could impact storm water flow or quality are also identified. The Annual Inspection program has a built-in protocol for reporting any non-conformances noted and generating work orders for correction.

- **Maintenance Staff Inspections.** The Illinois Tollway's 286-mile system has been subdivided into 11 sections for the purpose of roadway management. Each section has its own Maintenance Facility, with staff from each Facility responsible for mowing, snow removal, maintenance of the roadways and adjacent right-of-way, and patrolling their portions of the system daily for trouble shooting. The Maintenance Facility staff has been trained in the identification of illicit discharges and they report any, when noted, to the Illinois Tollway's Environmental Unit. These inspections are an on-going process and are conducted regularly 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 Western Access (EOWA, I-390). This new roadway will include approximately 25 miles of mainline improvements, including 14 miles of improvements on existing roadways and 11 miles on new alignment. Once this roadway is open, the Illinois Tollway's system will be composed of 311 miles and an additional Maintenance Facility will be added, for a total of 12 sections/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 forms (NOI), documentation of weekly and post-precipitation inspections (A-38 forms), any Incidence of Non-Compliances (ION) that may be issued, Notice of Termination (NOT) forms, and Post Construction punch lists that demonstrate that storm water management is a consideration at the end of construction projects.

In order to comply with the ILR40 permit conditions, the Illinois Tollway has developed a global information system (GIS) database that includes all Illinois Tollway outfalls, all Waters of the U.S., impaired waters, watershed plans, sensitive adjacent land use (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 in storm water management. This database will eventually include all Illinois Tollway storm water management components (detention ponds, bioswales, culverts, drainage components, etc.) which will enable the Illinois Tollway to proactively manage and appropriately react to storm water management concerns.

The Illinois Tollway participated in a compliance audit with the IEPA on July 21, 2010. A meeting was held with Mr. Chris Kallis of the IEPA to review Illinois Tollway MS4 Permit compliance. Mr. Kallis determined that the Illinois Tollway was in compliance with their MS4 Permit but suggested that the Illinois Tollway develop a SWPPP for the Illinois Tollway's Maintenance Facilities, Central Auto, and the Central Warehouse/Sign Shop. As recommended by the IEPA, these SWPPPs were prepared in 2012 in accordance with the General NPDES

Permit for Storm Water Discharges from Industrial Activities. Because the Illinois Tollway's facilities are not required to obtain a NPDES Permit for Industrial Activities, components of the Industrial Activities permit that were more stringent than needed for a maintenance facility were not included in the new SWPPPs. Design In compliance with the new SWPPPS, the Maintenance Facilities, Central Auto, Central Warehouse and Sign Shop are now inspected annually.

Part III - Special Conditions

C 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, approved watershed plans must be identified which include requirements for storm water discharges. Using the GIS database developed for ILR40 permit management, waterways have been identified which are impaired, have TMDLs/WLAs developed, and/or have approved watershed plans with storm water management requirements. A summary of these receiving waters and their regulatory implications can be found in Appendix A.

D 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. They are working to improve water quality for a number of parameters, including chlorides. The Illinois Tollway is an active participant in this watershed group, 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 Illinois Tollway is in the process of constructing a new roadway, the Elgin O'Hare Western Access (EOWA, I-390). This new roadway will include approximately 25 miles of mainline improvements, including 14 miles of improvements on existing roadways and 11 miles on new alignment. This new roadway includes the widening of the existing Elgin O'Hare Expressway, the extension of the Elgin O'Hare to the east along Thorndale Avenue to O'Hare Airport, and construction of a new roadway around the western border of O'Hare Airport, linking the Jane Addams Memorial (I-90) and the Tri-State Tollway (I-294). Construction on the western segment from I-290 west to Lake Street (U.S. Rte 20) is complete and the road was opened in July 2016. The portion of the roadway from I-290 east to IL Rte 83 along Thorndale Avenue is anticipated to be completed in 2017. The portion along the western border of O'Hare Airport is currently under construction and anticipated to be finished in 2025.

A permit requirement for the Elgin O'Hare Western Access (EOWA, I-390) required the Illinois Tollway to enter into a Memorandum of Understanding (MOU) with the DuPage River Salt Creek Workgroup for a chloride offset program. As a result of this MOU, the Illinois Tollway is in the process of developing intergovernmental agreements with communities adjacent to the

roadway to help them decrease their use of salt. A menu of technologies and practices has been developed and appropriate methods will be determined for each participating community. The adjacent communities that are participating in this chloride offset program will receive funds from the Illinois Tollway, the communities themselves, and other sources to help reduce the use of chlorides. Monitoring and reporting will occur on an annual basis, with the results shared with the participants so that lessons learned can be used to identify potential adjustments for the next de-icing season.

The application of deicing salt is the most significant water quality concern for the Illinois Tollway, and many avenues have been explored to help reduce the use of chlorides while maintaining road safety. In order to reduce salt usage, the Illinois Tollway coordinated with Wilfred Nixon, PhD of the University of Iowa, who has been conducting 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 rate for the 2013-2014 winter; the application rate was reduced to 100 pounds per lane mile setting. It was determined that this rate was only effective in temperatures above 18° Fahrenheit and only provided the necessary safety factors under certain conditions and at certain locations. The Illinois Tollway is once again using a range of 250 pounds to 500 pounds per lane mile, depending on roadway conditions. 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. These purchases allowed for reduced salt usage for the 2015/2016 winter. 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 has increased 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 in order 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 Tollway 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 position through-out the 286 miles of roadway allowing the Illinois Tollway to understand current pavement conditions for each of the twelve maintenance sections. The pavement sensors provide surface and sub-surface temperatures, icing conditions, and whether or not 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 particular storm event.

Part IV - Storm Water Management Program

The Illinois Tollway has achieved the 2016-2017 reporting year goals for developing, implementing, and enforcing a storm water 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.

B Minimum Control Measures

1. Public Education and Outreach on Storm Water Impacts

The Illinois Tollway does not have a public education or outreach program as required by General NPDES Permit No. ILR40, Part II.B.4.c. The Illinois Tollway cannot implement this BMP because The Illinois Tollway is a transportation agency and not a municipality. As such, it does not have regular interactions with the public, does not have a public involvement program, and does not have a resident population. The Illinois Tollway does interact with the public for some parameters and uses those opportunities for public education. These opportunities are limited, however, when compared to municipalities or communities; they are discussed below.

2016-2017 Compliance with Permit Conditions:

a. The Illinois Tollway has a website accessible by the public. The website maintains an Environmental tab that includes copies of NPDES documentation related to active construction projects. Additional environmental information located on the

Environmental tab includes 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.

The website contains a link to the *Erosion and Sediment Control Landscape Design Criteria* Manual, the *Illinois Urban Manual*, and the *Environmental Studies Manual*, all of which can be used by the public.

b. The Illinois Tollway developed a bioswale pilot program to minimize the volume of storm water 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 land 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. Post-construction monitoring occurred from August 2010 through December 2015. The ISGS monitored both quantity and quality of roadside runoff at four locations. Data obtained via this study is being shared with other transportation agencies, as well as with public agencies, as opportunities present themselves.

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

   - Turbidity was reduced from 35% to 76%, with wet bioswales performing slightly better over Years 2-5. 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 storm water.
   - Post construction output volumes at one wet bioswale indicated a 30% reduction in storm water volume. Two dry and one wet bioswales output volume increased, indicating the likelihood of groundwater inputs.
   - Bioswale operations do 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 Standards 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 disappeared 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 complete reports of the findings of the bioswale pilot study can be found in Appendix B.

c. 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 public education and outreach program on storm water impacts. Appendix C itemizes activities that took place during the 2016-2017 reporting year.

d. 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 storm water component that promotes sustainable storm water management for both quantity and quality. The Illinois Tollway has made multiple presentations related to this program to the public and various national organizations.

2. Public Involvement/Participation

The Illinois Tollway does not have a public involvement/participation program in compliance with General NPDES Permit No. ILR40, Part II.B.4.c. The Illinois Tollway cannot implement this BMP because the Illinois Tollway is a transportation agency and not a municipality. As such, it does not have regular interactions with the public, does not

have a public involvement program, and 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/sediment and erosion 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.

2016-2017 Compliance with Permit Conditions:

2016-2017 Public Meetings:

There were no public meetings conducted between March 2016 and March 2017.

3. Illicit Discharge Detection and Elimination

a. Develop, implement, and enforce an illicit discharge program.

The Illinois Tollway has an illicit discharge/elimination program that is based on several components. These components are 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 storm water management ponds. During these inspections, any illicit discharges or other issues that could impact storm water flow or quality are identified. When problems are found 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 storm water outfalls. Each year, one of the sections has every outfall to Waters of the State/U.S. within its boundaries inspected. In addition, 7% of the most sensitive outfalls within the Illinois Tollway system were identified based on stream impairments, TMDLs, watershed plans, sensitive adjacent ecosystems, and adjacent threatened or endangered species. These sensitive outfalls are inspected annually.

Inspections look for any evidence of illicit discharges, as well as note existing conditions of the outfall and storm water quality as it both enters and exits the Illinois Tollway right-

of-way. The inspections look for unexpected colors, odors, turbidity, trash/debris, sheens, biological oddities, etc. Any illicit discharge noted during these inspections is reported immediately and corrected.

The Illinois Tollway has 11 Maintenance Facilities located throughout the Illinois Tollway system. [Upon completion of the Elgin O'Hare Western Access (EOWA, I-390), a 12th 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 their portions of the system daily for trouble shooting. The Maintenance Facility staff has been trained in the identification of illicit discharges; if any suspected illicit discharge is noted, the Maintenance staff advises the Illinois Tollway's Environmental Unit.

The Illinois Tollway has developed a protocol for handling illicit discharges that occur on/from Illinois Tollway property. The appropriate staff is trained in this protocol. The inspector who notes the illicit discharge completes the illicit discharge form and advises the Illinois Tollway's Environmental Unit regarding the issue. The Environmental Unit conducts further investigation to determine if the suspected discharge has left Illinois Tollway right-of-way, or has been discharged to Waters of the State/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. Follow-up Five Day Reports are issued, as instructed by the IEPA. Remedial action is taken to eliminate the illicit discharge and ensure that it is not repeated. Any illicit discharges or areas of concern noted by the inspectors are also reported to the IEPA in the Annual NPDES Report.

If it is determined that an illicit discharge has occurred, or an area needs further inspections in order to insure 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, 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 appropriately and corrective action is taken.

As a result of the illicit discharge process, an illicit discharge form is completed in advance of any notification to the IEPA. The Illinois Tollway complies with their Permit's Standard Conditions (Attachment H) to respond within 24 hours of noting an illicit discharge, and follows up with a Five Day Report. The 24 hour notice may, however, exceed the required 24 hours from when the suspected discharge has first been identified. It is after the investigation is complete, and the Illinois Tollway has determined that an actual illicit discharge has occurred, that the IEPA is notified.

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.

b. Develop/update storm sewer system mapping.

A comprehensive map of the entire Illinois Tollway storm water management system was accomplished 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. The system-wide maps of storm water management began a re-mapping effort in 2010 with the Illinois Tollway having completed most of its comprehensive storm water management re-mapping effort by 2015. There has been a slight delay in the re-mapping of the Jane Addams Memorial (I-90) between mileposts 76.4 and 78.6 due to construction that is currently occurring on this portion of roadway. This last portion will be re-mapped in 2017, when construction will be complete.

The Illinois Tollway's system-wide map of storm water management has one-fifth of its system re-evaluated on a yearly basis to determine if storm water 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 storm water management maps are maintained and periodically updated.

2016-2017 Compliance with Permit Conditions:

1. 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 2016-2017 reporting year's Annual Inspection identified one location along the 286 miles of Illinois Tollway owned roads that was experiencing ponding; corrections were made to eliminate the ponding.

   The 2016-2017 reporting period's Annual Inspection identified 44 locations along the 286 miles of Illinois Tollway owned roads that needed repairs due to erosion, and five locations that required ditch maintenance. Since these inspections occur annually, none of the locations were causing significant problems; these locations would have been experiencing problems for no more than a year since the previous inspection. The locations were identified with GPS technology, the size and type of erosion was identified, and work orders were initiated for repairs at these locations.

2. Areas that were re-evaluated the 2016-2017 reporting year were:

50 miles of I-90 in the northwest Chicago suburbs:
MP 2.2 to 52.2

The 2016-2017 reporting year's annual NPDES outfall inspections noted six potential illicit discharges during this reporting period (primarily foam in water or discolored water). Follow up investigations determined that in all instances, water flowing into the Illinois Tollway property had the same characteristics as that of the water leaving Illinois Tollway right-of-way. As the Illinois Tollway was not responsible for any of the water quality issues, it was determined that illicit discharges did not occur.

3. No illicit discharges were noted during this reporting period by the Maintenance Facility staff.

4. The anhydrous calcium chloride tank at the Illinois Tollway's Maintenance Yard M-14 (Downers Grove) developed a leak on September 26, 2016, resulting in small amounts of calcium chloride discharging onto the bituminous surfaced parking lot. Approximately 200 gallons discharged from a 2-inch plastic pipe that had been cut in preparation for re-fitting the connection to a new tank. The liquid traveled overland and ponded atop an existing drainage structure that is not currently functioning. Illinois Tollway staff plugged the pipe, flushed the accumulation with water, and spread dry sand atop the diluted spill. Sand was swept up and disposed of. Sandbags were placed around drainage structure to prevent residue from spill finding its way into the yard drainage system due to a rain event. This spill was not reported to the IEPA because it was determined that no illicit discharge occurred.

5. On November 10, 2016, one of the Illinois Tollway's independent Erosion and Sediment Control contractors noted that there was excessive concrete within the concrete washout area of a contractor's mobile concrete plant adjacent to I-90 at Barrington Road. The contractor was immediately notified and asked to clean the concrete washout area. The concrete washout area was cleaned by 2:00 PM on November 15, 2016. In addition, the contractor installed a clay berm to prevent any cement from leaving the site and excavated a sediment basin with a clay liner at the lowest area of the batch plant to store cement so that it would not be discharged from the site. At the time the excessive concrete was noted, no concrete had been discharged from the concrete plant or discharged to streams or storm water sewers. The IEPA was not notified as there was no illicit discharge and the concrete plant was not associated with any particular construction contract and therefore was not covered by any of the NPDES construction permits.

6. A summary of the illicit discharges noted during the March 2016 to March 2017 reporting period can be found in Appendix D.

7. The portions of the Illinois Tollway that will be inspected the summer of 2017 and reported on next year are:

Annually:
The most sensitive 7% of the Illinois Tollway's outfalls

2017's one-fifth of the Illinois Tollway System:

Jane Addams Memorial/I-90	MP 55.5 – 78.6 (23.1 miles)
Elgin O'Hare (EOWA)	MP 6.0 – 14.2 (8.2 miles)
Veterans Memorial (I-355)	MP 0.0 – 29.8 (29.8 miles)

4. Construction Site Storm Water Runoff Control

Storm water runoff control starts in planning with the *Erosion and Sediment Control Analysis Form*. As the design progresses, the *Drainage Design Manual* and the *Erosion and Sediment Control, Landscape Design Criteria* become integral to the process. These manuals stipulate state of the art procedures for erosion and sediment control and drainage design. They include components of the *Illinois Urban Manual* and U.S. Environmental Protection Agency Guidance, as well as checklists to be used during plan preparation and construction. 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 site plans are conducted during various design stages of a construction project. The final plans must be reviewed and approved by a licensed Professional Engineer. For all large construction projects, these plans are also reviewed by Illinois Tollway staff, their consulting engineers, or independent erosion and sediment control engineers/inspectors.

The Illinois Tollway has a policy that requires erosion and sediment control be discussed with the Contractors on several occasions. The Pre-Bid Meeting must include a discussion on the requirements, and the Pre-Construction Meeting at the beginning of the project must discuss requirements in detail. Pre-Construction Meetings are required according to both the *Construction Section Engineer's Manual* and the *Erosion and Sediment Control, Landscape Design Criteria*. 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.

For larger projects, Erosion and Sediment Control Pre-Construction Meetings that are dedicated to this topic are also held. Staging, construction techniques, sediment and erosion control methods and installation, and project documentation are among the items that are reviewed at the Erosion Control Pre-Construction Meeting.

All Illinois Tollway construction projects that disturb one acre of land or more are required to develop a site specific SWPPP. This plan is contained within the Illinois Tollway's Special Provision 111. Requirements of Special Provision 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 protection/s, hierarchy of storm water 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* 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* has been updated to include requirements that natural buffers be maintained around surface waters, that storm water 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 through Standard Specification 211; topsoil immediately adjacent to the roadway is not preserved, however, due to the chloride impacts from 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 erosion and sediment control 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's SWPPP. In addition to the independent erosion and sediment control positions, the Illinois Tollway Construction Manager (CM) is ultimately responsible to ensure that the project's SWPPP is adhered to on a construction project. This is accomplished through the CM's designated Erosion and Sediment Control Manager (E&SCM). The E&SCM confirms that the Contractor's 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 precipitation events, is required. These inspections are documented on an Illinois Tollway-specific form, the A-38 form. If the inspections identify any erosion and sediment control insufficiencies, the Contractor is instructed to make immediate repairs. This is also noted on the Illinois Tollway's A-38 form. If repairs are not satisfactorily made, the Contractor is issued an ION. IONs 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 impacted water to Waters of the U.S., either due to an exceptional rainfall event that exceeds erosion and sediment control capacity, or due to improperly installed/maintained erosion and sediment control, immediate corrections are made. In addition, an ION is issued and the IEPA is notified.

Non-compliance with a project's SWPPP can include penalties as described in Supplemental Specification 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 Supplemental Specification 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 (a web-based system known as e-Builder is currently used, beginning in 2014). This system also makes storm water forms available to all Project Managers.

A final inspection occurs in order to determine that all proper punch list items have been satisfactorily addressed, including any items related to the SWPPP/erosion and sediment control plans, and that the project is acceptable to all parties.

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 makes a determination as to 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 storm water or green infrastructure are forwarded to the Environmental Unit for their consideration and response.

2016-2017 Compliance with Permit Conditions:

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 E – Summary of NPDES Permit Compliance Milestones for a record of meetings that occurred during the 2016-2017 reporting period.

2. Inspections of construction sites and 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 has developed a form for documenting erosion and sediment control inspections. This form (which the Illinois Tollway has designated as form A-38) is required to be filled out at each inspection and filed within the Illinois Tollway's electronic project files (e-Builder). See Appendix E – Summary of NPDES Permit

Compliance Milestones for a record of meetings that occurred during the 2016-2017 reporting period.

3. The Illinois Tollway has independent Contractors to inspect the various construction projects for erosion and sediment control and NPDES requirements. This inspection program is in addition to the regular inspections that are required from the construction Contractors as part of the Illinois Tollway's NPDES Permits. The Illinois Tollway has three firms that are contracted to provide independent Contractors for reviewing erosion control engineering plans and performing field inspections. These inspectors are assigned to the Jane Addams East (I-90), Jane Addams West (I-90), Elgin-O'Hare Western Access (EOWA, I-390), and Reagan Memorial (I-88). A kick-off meeting/training session was conducted on April 18, 2016 with these Contractors 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.

   The independent Contractor performs field inspections to ensure that:
   - proper erosion and sediment control is 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 effectiveness of the BMPs required by that particular contract are in place, and
   - Contractor's files are reviewed to ensure that documentation related to NPDES required inspections and the SWPPP are up to date.

4. 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 all parties. The inspection confirms that temporary erosion and sediment control BMPs have been removed, the site is not experiencing any erosion, and trash or litter is not present. A Post-Construction Meeting is then held after the Final Inspection of the project.

   NOTs are 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 2016-2017 reporting period and have had completed punch lists and NOTs filed with the IEPA.

5. All projects under construction during 2016-2017 reporting period with one acre or more disturbed area have been required to follow the NPDES Permit requirements. An audit was conducted on the Illinois Tollway's e-Builder filing system during the 2016-2017 reporting period. The audit revealed approximately 95% of the NPDES related documentation was correctly filed. For those projects that did not have all of the required documentation, the Illinois Tollway Construction Managers were notified of the deficiencies and corrections were made.

6. Inspections are conducted weekly and following any 0.5" rainfalls. When any erosion and sediment control failures are noted, the Contractors are advised to take corrective action. Follow-up inspections confirm that corrective actions were taken. When erosion and sediment control failures are not corrected, Illinois Tollway inspectors will issue an ION and may assess fines against the Contractor.

   There were 12 IONs issued on construction projects this reporting period. Corrective actions were taken on all erosion/sediment control failures and IONs were submitted to the IEPA. See Appendix E – Summary of NPDES Permit Compliance Milestones for projects that received IONs.

7. During a routine inspection on construction for the Elgin O'Hare Western Access (EOWA, I-390), an oil sheen was noted in Willow Creek within the vicinity of Contracts 4662 and 4644. This sheen was noted on several dates, including 9/7/2016, 9/30/2016, 10/20/2016, and 11/2/2016. Follow-up inspections were conducted to determine the type of water quality issue that was occurring and its source. On several occasions, the oily sheen broke up into small pieces when disturbed, indicating the presence of bacteria rather than oil. On 11/2/16 the oily sheen did not break apart, indicating oil. Following Willow Creek upstream, however, it was determined that Willow Creek had the oil sheen before it entered Illinois Tollway property, indicating the Illinois Tollway was not the source. The E&SCM inspectors continue to monitor this location.

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

5. Post-Construction Storm Water Management in New Development and Redevelopment

The Illinois Tollway includes structural and non-structural BMPs for post-construction projects that reduce the discharge of pollutants and the volume and velocity of storm water 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* and the *Erosion and Sediment Control, Landscape Design Criteria,* and the Annual Inspection Program. The manuals require a drainage design that improves water quality and reduces the volume and velocity of storm water flow; and the inspection program conducts drainage evaluations and makes recommendations for routine maintenance and solutions to potential runoff or erosion/sedimentation concerns. The roadway design process and Annual Inspection address and incorporate long term drainage and maintenance concerns.

The Illinois Tollway's *Drainage Design Criteria* and the *Erosion and Sediment Control, Landscape Design Criteria* have been amended to inform design engineers to design

storm water plans that ensure natural features are preserved, including natural storage and infiltration characteristics; preserve existing natural streams; convey storm water in open vegetated channels; and construct structures that provide both quantity and quality control (in order of preference).

As part of the Annual Inspection, all drainage structures and storm water 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 a 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 has procedures for receiving and considering information submitted by the public. These procedures are discussed above in the section discussing General NPDES Permit No. ILR40, Part IV, B.4. Any communications that are related to storm water or green infrastructure are forwarded to the Environmental Unit for their consideration and response.

The Illinois Tollway's roadway design criteria require that the 50-year storm event not exceed heights above three feet below the edge of pavement, and that the 500-year storm event manage all water off the pavement. These criteria are more stringent than those followed by other Illinois Departments of Transportation. Anticipated increases in precipitation due to climate change will not impact Illinois Tollway facilities because the Illinois Tollway's standards are stringent enough to handle larger storm events.

Other storm water components that accommodates 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 simple change to the overflow and outlet control structures. Storm sewers are designed to a 50-year storm event as compared to the regional standard that is to either 5 or 10-year storm events. Thus, additional conveyance is already provided above the regional standard making the sewer calculations "amendable" based on 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, making it more conservative than the most accurate information available. This factor also allows for the provision of extra storm water storage to accommodate climate change.

The Illinois Tollway has developed and implemented a program to minimize the volume of storm water 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 D. 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 de-icing needed at each location in order to effectively control roadway conditions while minimizing the use of chlorides.

Revisions to the Illinois Tollway's *Erosion and Sediment Control, Landscape Design Criteria* in March 2017 directed engineers to not design storm water infiltration as a BMP in the areas listed in the ILR40 permit.

2016-2017 Compliance with Permit Conditions:

1. The Illinois Tollway developed a bioswale study to determine the effectiveness of bioswales to minimize the volume of storm water runoff and pollutants from public highways. This bioswale program is discussed in detail under the section discussing General NPDES Permit No. ILR40, Part IV, 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 storm water 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.

2. During the 2016 construction season, the Illinois Tollway was in the process of reconstructing the Jane Addams Memorial Highway (I-90), and constructing a new roadway, the Elgin O'Hare Western Access (EOWA, I-390), which will provide transportation improvements in the vicinity of O'Hare Airport. The roadway improvements will include approximately 25 miles of mainline improvements, including 14 miles on existing roadways and 11 miles on new alignment. The project corridor is within the Des Plaines River drainage basin, Hydrologic Unit Code (HUC) 07120004, which has been divided into several smaller sub-watersheds near the project corridor, including Addison Creek, Des Plaines River (main stem), Salt Creek, West Branch DuPage River, and Willow Creek. Of these sub-watersheds, Addison Creek, the Des Plaines River, Salt Creek, and the West Branch DuPage River all have portions of that are impaired and are considered 303d Listed Waters. TMDLs have been prepared for waters in the Salt Creek Watershed and the West Branch DuPage River. In addition, segments of Salt Creek, West Branch DuPage River, and Higgins Creek have TMDLs in progress to address impairments. Salt Creek and West Branch DuPage River have had TMDLs developed for chloride, and Higgins Creek has a TMDL for chloride in the process of development. Because of the sensitivity of these watersheds to chloride, the Illinois Tollway has implemented unique methods of reducing the amount of chloride this new roadway will contribute.

As part of the EOWA commitments, the Illinois Tollway will implement chloride reduction and chloride offset programs, which is discussed fully in the section discussing General NPDES Permit No. ILR40, Part III. D.

In addition to the chloride offset programs, additional storm water BMPs have been incorporated into the widening of the Jane Addams Memorial (I-90) and construction of the Elgin O'Hare Western Access (EOWA, I-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 storm water management features that will improve water quality prior to discharging it to downstream waterways. The goal is to maximize storm water filtering and infiltration. The intent was that, to the extent possible, all storm water will pass through at least one BMP prior to discharging from the right-of-way. In most cases, storm water will pass through several BMPs, aligned as a treatment train, to capture pollutants and promote infiltration of runoff.

Included in the storm water management BMPs, the Illinois Tollway is installing bioswales for water quality purposes. Work 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 212 bioswales and 14 wetland detention basins were installed along this corridor, planted with native species, and with on-going monitoring and maintenance to ensure success.

The bioswales associated with eastern portion of the Jane Addams Memorial (I-90) (east of the Fox River to east of River Road in Rosemont) are still under construction. A total of 91 bioswales are proposed, as well as 10 detention basins. At the close of the 2016 construction season, one bioswale has been installed.

The bioswales associated with the Elgin O'Hare Western Access (EOWA, I-390) are still under construction. There are 50+ bioswales and wetland detention ponds proposed, as well as 10+ infiltration sites. A total of 17 bioswales, 19 wetland detention basins, and two infiltration areas were installed and planted in 2016. Additional installations will occur in 2017.

3. 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 is in the process of being formalized and will include topics related to storm water 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.

   Training of Illinois Tollway Maintenance Yard staff took place in April and November 2016. Topics included maintenance of bioswales, use of beet heat to

reduce the volume of salt needed for deicing, use of herbicides adjacent to aquatic systems, and maintenance of naturalized detention basins.

Annual training for contractors occurs in conjunction with the annual update of the Illinois Tollway's *Erosion and Sediment Control, Landscape Design Criteria* and standard drawings related to erosion and sediment control. The manuals and standards are updated each March and training is provided to design engineers and construction personnel when the manuals are released. The 2017 training occurred in two sessions on March 16, 2017; both a morning and afternoon session were offered.

4. Training was conducted on August 24, 2016 at Maintenance Facility M-16 to train mowing staff on bioswale maintenance. The key staff members were advised of the importance of water quality, the key role that the Illinois Tollway's bioswales play in water quality, and appropriate maintenance measures. Native plants and their importance to both water quality and pollinator habitat were also discussed. The training was supplemented with field training on the identification of native plants.

5. The Illinois Tollway conducts an Annual Inspection of the entire Illinois Tollway system, including roadway, culverts, bridges, noise and retaining walls, guardrails, etc. On March 13, 2017, training was provided to the Annual Inspection Team. The Illinois Tollway's Environmental Unit provided a training session on illicit discharges as part of this training, including training on what an illicit discharge is, how to identify one, the Illinois Tollway's procedures for responding to illicit discharges, and a discussion on the importance of compliance with the Illinois Tollway's NPDES Permit.

6. The rehabilitation of the central portion of the Tri-State Tollway (I-294) is currently under study. The early design efforts are utilizing the Illinois Tollway's INVEST program to generate design items that will improve sustainability. Among other initiatives, the Central Tri-State is incorporating storm water storage that accommodates increased storm events anticipated as a result of climate change. The Central Tri-State is designing storm water storage in anticipation of increased volumes in 100-year storm events and is including more storm water storage than the current standard requires.

7 The Illinois Tollway has a regularly scheduled system-wide sweeping program. This provides a surface cleaning program for pollution control, as well as aesthetics. In addition to the sweeping program, the Illinois Tollway cleans out the roadway catch basins once per year and detention ponds and roadside ditches as needed.

8. The Illinois Tollway's policy for material and run off 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 the garage and Help Trucks both have sand, No Flash (for gasoline spills), BioSolve (for diesel spills), and absorbing pillows.

6. Pollution Prevention/Good Housekeeping for Municipal Operations

The ILR40 Permit requires annual training for operations and maintenance staff and contractors as discussed is the section discussing 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* and standard drawings related to erosion and sediment control. Additionally, Maintenance Facility staff gets specific annual training.

The Illinois Tollway Maintenance Facilities minimize the discharge of pollutants to storm water in a variety of ways. Vehicle washing occurs within the maintenance building, with wash water discharged to sanitary sewers. New Maintenance Facilities are being designed with vehicle washing areas outdoors, but water is discharged to detention basins prior to being discharged to outside of the right-of-way. 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 Waters of the State/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 SWPPPs for its Maintenance Facilities, Central Auto, and the Central Warehouse/Sign Shop. These SWPPPs were developed based on the General NPDES Permit for Storm Water Discharges from Industrial Activities. Because the Illinois Tollway's facilities are not required to obtain a NPDES Permit for Industrial Activities, components of the Industrial Activities permit that were more stringent than needed for a maintenance facility were not included in the new SWPPPs. Per these SWPPPs, inspections occur annually at Illinois Tollway facilities, reports are generated, and recommendations for corrections made. Results of the inspections that occurred in 2016 can be found in Appendix F.

Employee training is discussed in the section discussing General NPDES Permit No. ILR40, Part IV.B.5.

2016-2017 Compliance with Permit Conditions:

1. 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 pesticide. 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 2017. In support of these

releases, the Illinois Tollway conducted two separate training sessions for Design Engineers, Construction Managers, and Contractors who work on Illinois Tollway projects. These training sessions, which also highlighted the latest BMP technologies supported by the Illinois Tollway, were conducted on March 16, 2017.

3. 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 which the Illinois Tollway participates in. Appendix C itemizes activities that took place during the 2016-2017 reporting year.

4. The annual inspections of the Illinois Tollway's Maintenance Facilities, Central Auto, and the Central Warehouse/Sign Shop occurred in May 2016. Reports were generated, and recommendations for corrections were provided to the Maintenance Facilities. Copies of this report can be found in Appendix F.

5. The Illinois Tollway has instituted an annual training program for its Maintenance Facility staff. This BMP is discussed above in the section discussing General NPDES Permit No. ILR40, Part IV.B.5.

Part V - Monitoring, Recordkeeping, and Reporting

A Monitoring

The Illinois Tollway has developed a monitoring program that allows for the determination of 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. As a result, 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 most sensitive outfalls; these outfalls are inspected annually. The sensitive outfalls were identified through a process where all of the Tollway's outfalls were included in a GIS database along with parameters that would increase 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 GIS database, 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 storm water management have been determined to be effective based on field review 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 methods contained in the Illinois Tollway's *Erosion and Sediment Control, Landscape Design Criteria*, the *Drainage Design Manual,* and the *Illinois Urban Manual,* which are required for Illinois Tollway projects, have had rigorous in-field testing and are known to be effective.

The Illinois Tollway utilizes three primary BMPs to maintain water quality; i.e., vegetated detention ponds, roadside ditches, and bioswales. These BMPs provide water quality improvements by slowing runoff and facilitating the settlement of sediments, promoting infiltration, filtering pollutants, and allowing for vegetative uptake of pollutants. The Illinois Tollway's detention basins, naturalized detention basins, and bioswales have been inventoried and incorporated into the Tollway's GIS database. Additional bioswales are being incorporated into the current reconstruction of the Jane Addams Memorial (I-90) and these locations will be included in the inventory upon completion of their construction. The Illinois Tollway ditches are in the process of being inventoried and will be included in the GIS database when that inventory is complete.

Storm water 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 storm water 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	Kearfott, Pamela J., Michael Barrett, Joseph Malina, Jr. (2005) *Stormwater Quality Documentation of Roadside Shoulders*

		amount of TSS is removed. Average TSS removed is 72%. Heavy metals removals: copper up to 60%, lead up to 90%, zinc up to 50%	*Borrow Ditches* (Online) Available at: 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
	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% to 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
	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)
	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 storm water 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 7% of its most sensitive outfalls, its Annual Inspection Program, and regular inspections by the Illinois Tollway Maintenance Staff. Because the Illinois Tollway has a population of less than 25,000, the outfall inspections consist of visual observations of storm water for color, odor, foam, oil sheens, or other obvious indicators of pollution.

The results of the Illinois Tollway monitoring program are discussed in the section discussing General NPDES Permit No. ILR40, Part 4. B.3.

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. These documents are located on the Illinois Tollways website under the Environment tab. Documents are also available to the public should they be requested.

C Reporting

This constitutes the 2016-2017 NPDES Annual Report. A copy of this report will be maintained on the Illinois Tollway's website for a period of five years.

D Storm Water Activities Planned for 2017

The Annual Inspection program will again be conducted for the entire 286-mile Illinois Tollway system in 2017. These inspections will include inspections for the detection/elimination of illicit discharges. Inspections will note water quality issues, erosion and sediment control, illegal dumping, drainage and maintenance issues, illicit discharges, as well as perform visual dry weather screening for detecting areas that are wet during dry weather.

The Illinois Tollway will conduct an NPDES Inspection of the storm water outfalls for detection of non-storm water discharges and illicit discharges to Waters of the State/U.S. The Illinois Tollway will begin annual inspections of the most sensitive outfalls in the system, which were derived as discussed in Part V – Monitoring, Recordkeeping, and Report, Section A: Monitoring. The Illinois Tollway system also inspects one-fifth of the system every year so that each outfall is inspected at least once during the NPDES MS4 permit cycle. Portions of the Illinois Tollway that will have the outfalls inspected in 2017 are:

The most sensitive 7% of the Illinois Tollway's outfalls (annually)

2017's one-fifth of the Illinois Tollway System:

Jane Addams Memorial/I-90	MP 52.2 – 78.6 (23.1 miles)
Elgin O'Hare (EOWA)	MP 6.0 – 14.2 (8.2 miles)
Veterans Memorial (I-355)	MP 0.0 – 29.8 (29.8 miles)

Annual Inspections will occur for all of the Maintenance Facilities, Central Auto, and Central Warehouse/Sign Shop for compliance with the SWPPP developed in March 2012.

Construction Activities Planned for the 2017-2018 Reporting Period are summarized in Appendix G.