

National Pollutant Discharge Elimination  
System Permits Consent Decree  
**2018 Annual Report**

**Metropolitan Water Reclamation District of Greater Chicago**

*Final touches were made at the connection of the Mainstream Tunnel System to McCook Reservoir to place the reservoir in service by the start of 2018. The reservoir is so large that more than 11 Soldier Field Stadiums can fit inside it, and it is nearly deep enough to stack another 11 on top of that.*

# Introduction

Metropolitan Water Reclamation District of Greater Chicago (District) National Pollutant Discharge Elimination System (NPDES) Permits Consent Decree (Civil Action No. 11 C 8859)—2018 Annual Report

This report is being submitted to comply with the District's Consent Decree entered on January 6, 2014. Per the Consent Decree, this required Annual Report is for calendar year 2018 and is due March 31, 2019.

**Per Section XII.44.a of the District's Consent Decree, this pre-TARP completion annual report transmits the following information:**

- 1.** Status of Design and Construction Activities (Consent Decree Section V) and Reservoir Mining Progress for Thornton Composite and McCook Reservoirs.
- 2.** Combined Sewer Overflow (CSO) Quarterly Discharge Reports submitted to the Illinois Environmental Protection Agency (IEPA) for calendar year 2018.
- 3.** 2018 Water Quality Data for Waterway Systems within the District's Jurisdiction.
- 4.** Record of Floatable Control Activities (Consent Decree Paragraph 18 and Appendix B).
- 5.** Green Infrastructure (GI) Activities (Consent Decree Section V of Appendix E).

This Annual Report for calendar year 2018 is intended to demonstrate satisfactory compliance with the Annual Reporting obligation of the District per the Consent Decree entered on January 6, 2014.

In addition to the above, the District would like to note that it is in compliance with Section II, Paragraph 5 of the Consent Decree, which requires the District to transmit copies of the Consent Decree to its officers, employees, and agents, as well as to CSO municipalities and its contractors. Letters were transmitted to all of the parties and a copy of the Consent Decree has been posted on the District's website. Language regarding the Consent Decree continues to be included in all contracts where the required work may impact the ability of the District to comply with the terms and conditions of the Consent Decree.

Also, as required in Section V of the Consent Decree, the District remitted the civil penalty to both the IEPA and USEPA within 30 days from the date the Court entered the Consent Decree.



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## McCook and Thornton Composite Reservoir March 2019 Progress Report

*Water rushes into McCook Reservoir Stage I. Baffle blocks built at the tunnel openings prevent the force of the water coming out of the tunnel from eroding the reservoir floor.*

# This report provides an update on the progress of the McCook and Thornton Composite Reservoirs as required in the Consent Decree paragraphs 21 and 44.

## McCook Reservoir

The District owns the land for the McCook Reservoir, which is being built within the Lawndale Avenue Solids Management Area (LASMA). A Project Cooperation Agreement (PCA) with the US Army Corps of Engineers (Corps) to construct, operate, and maintain the reservoir was signed on May 10, 1999. Under the PCA, the Corps was responsible for designing and constructing the reservoir features, and the District was responsible for providing lands, easements, right-of-way, and relocations, including providing the storage capacity for the reservoir through excavation of overburden and rock mining. The reservoir is being completed in two stages. A major

## District Work

In order to accomplish its responsibilities, the District has initiated a number of projects which are described below, along with their status.

**DECOMMISSIONING OF LOW SOLIDS LAGOONS:** Seventeen of the District's biosolids stabilization and drying lagoons were decommissioned to provide the land necessary for constructing the reservoir.

**WILLOW SPRINGS BERM (96-149-2P):** Approximately 300,000 cubic yards of the reservoir overburden was hauled off-site in a test project and placed as a berm along the canal.

**SITE PREPARATION (73-161-BH):** Sludge lines that cut through the reservoir footprint were relocated, and earthwork was performed to drain the reservoir footprint to facilitate future work. This work commenced in July 1999 and was the start of construction work for the McCook Reservoir.

**73RD STREET TUNNEL RELOCATION (97-156-2H):** The existing 73rd Street TARP Tunnel cut through the future reservoir footprint and was relocated to go around the reservoir.

**CONVEYANCE TUNNEL (73-161-AH):** This tunnel was constructed to connect LASMA to Vulcan's McCook Quarry and is used to transport the crushed rock to the Vulcan processing plant.

**STAGES 1 AND 2 OVERBURDEN REMOVAL (73-161-CH):** Approximately 7.3 million cubic yards of overburden was removed from the footprint of the original Stage 1 and 2 McCook Reservoir sites to expose the top of rock for mining.

**MISCELLANEOUS OVERBURDEN REMOVAL (73-161-JH):** An additional 450,000 cubic yards of overburden was removed from the site under this contract.

**EXPANDED STAGE 2 OVERBURDEN REMOVAL (73-161-DH):** The remaining 1.8 million cubic yards of overburden overlying the rock in the expanded Stage 2 portion of the reservoir was removed in 2015, fulfilling the District's obligations from Paragraph 17.d. of the Consent Decree ahead of schedule.

**VULCAN CONVEYANCE SYSTEM AND MAINTENANCE FACILITIES (73-161-FH):** Mining facilities were constructed to crush and transport the rock from the reservoir site to the existing Vulcan Quarry. The contract included construction of the conveyance system, the office and maintenance buildings, installation of a rock crusher, relocation of the LASMA access road and sludge lines, and miscellaneous site work (access ramp, parking area, site lighting). The crusher was purchased separately in advance due to the long lead time.

**VULCAN MINING EQUIPMENT (73-161-GH AND 73-161-HH):** A fleet of mining trucks and other mining equipment were procured to facilitate mining of the reservoir.

milestone was reached at the end of 2017 when the first stage was placed in service providing 3.5 billion gallons of storage for CSOs. The second stage is currently under construction and will expand the total capacity to 10 billion gallons of storage. The District and the Corps are negotiating a new Project Participating Agreement (PPA) under which the Corps will transfer the remaining federal funds for Stage 2 to the District, and the District will complete the remaining design and construction. The PPA is anticipated to be executed in early 2019.

**MINING (73-161-EH):** The District entered into an agreement with Vulcan on October 1, 2003, to mine the rock to create the storage capacity required for the original two-stage reservoir. Terms of the Agreement require Vulcan to mine at the same production rates they would have achieved at the existing quarry to meet the market demand.

- ✓ Mining for Stage 1 commenced in 2008 and was essentially completed in 2016, fulfilling the District's obligations from Paragraph 17.a. of the Consent Decree, which required that the Stage 1 mining be completed by December 31, 2016.

- ✓ A mining ramp into Stage 2 was initiated in 2013 and production mining began in 2014, concurrent with Stage 1 mining. Approximately 30 percent of the stone from Stage 2 had been mined by the end of 2018. Paragraph 17.e. of the Consent Decree requires that the Stage 2 mining be completed by December 31, 2028.

The overall market for stone in the Chicagoland area remained relatively stable and less than historical averages. However, mining of Stage 2 is still expected to be completed by December 31, 2028. Vulcan's annual mining progress report for 2018 was transmitted to the IEPA and USEPA within 30 days of receipt (per paragraph 21 of the Consent Decree).

**DES PLAINES INFLOW TUNNEL (13-106-4F):** The Corps' original plan to use the existing dewatering tunnels and distribution tunnels to convey water from the Des Plaines Tunnel to the reservoir was modelled and it was determined that a new direct connection to the reservoir would provide greater flood relief benefits to the Des Plaines Tunnel's service area. Construction of a new 20-foot diameter tunnel and associated gate shaft to convey and control flow from the Des Plaines Tunnel System to the McCook Reservoir began in 2016 and is scheduled to be completed in 2020.

**EXPANDED STAGE 2 SLOPE STABILIZATION AND RETAINING WALLS (16-125-4F):** The District has committed to expanding the Corps-authorized 7 billion gallon reservoir to hold a total volume of 10 billion gallons. The District constructed retaining walls and stabilized the overburden slopes for the expanded portion of the reservoir. This work was completed in 2018.

**STAGE 2 ROCK WALL STABILIZATION (17-131-4F):** As the final vertical rock faces of Stage 2 of the reservoir are exposed, scaling, rock bolting, and other ground support will need to be installed to make the permanent walls stable. This work is scheduled to begin in 2020.

**STAGE 2 MISCELLANEOUS FLOOR FEATURES (17-132-4F):** Drainage improvements to the reservoir floor and reservoir aeration provisions will be provided after the mining is completed. Two tunnels will be constructed through the weir to allow water to pass between Stages 1 and 2.

## Corps Work

The following projects have been completed or are being pursued by the Corps for McCook Reservoir Stage 1:

**TEST GROUT CURTAIN:** A test grout curtain was constructed along 400 linear feet of the reservoir perimeter to test the effectiveness of a grout curtain to prevent polluted water in the reservoir from migrating into the groundwater aquifer.

**STAGE 1 GROUT CURTAIN:** Based on the performance of the test grout curtain, a grout curtain was constructed around the north and west sides of the reservoir perimeter to create a full hydraulic barrier between the reservoir rock walls and surrounding groundwater.

**STAGE 1 GROUNDWATER CUT-OFF WALL:** A bentonite slurry wall was constructed through the overburden, around the perimeter of Stage 1 of the reservoir, to prevent migration of groundwater into the reservoir.

**ADDITION OF PUMPS AND MOTORS:** Two additional 330 cubic feet per second pumps were installed at the Mainstream Pumping Station to provide adequate pumping capacity to dewater the reservoir to the Stickney Water Reclamation Plant.

**DISTRIBUTION TUNNEL SYSTEM:** Tunnels and an underground control chamber were installed to connect the future reservoir to the Mainstream Pumping Station.

**DISTRIBUTION TUNNELS EMERGENCY WORK:** Due to excessive infiltration in the new distribution chamber from the distribution tunnels, emergency leakage investigation and repair work was completed.

**DISTRIBUTION TUNNEL SYSTEM – ELECTRICAL AND MECHANICAL SYSTEM & MISCELLANEOUS REPAIRS:** Corroded equipment in the distribution chamber needed to be replaced and new communication for fire and gas alarms installed. This work was completed in 2017.

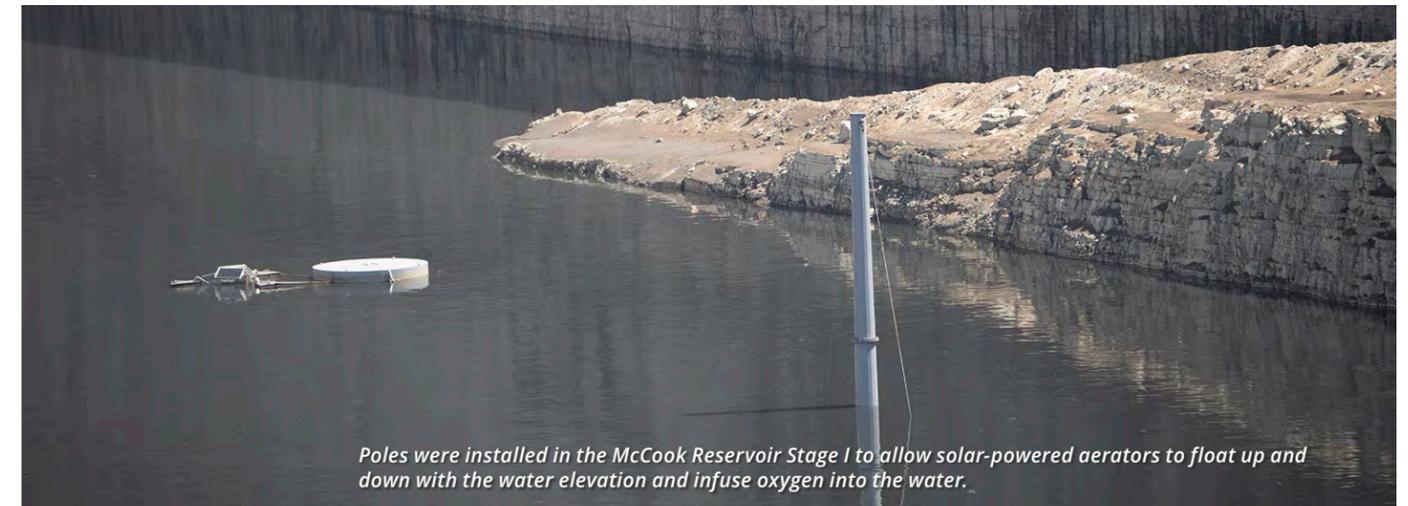
**STAGE 1A AND 1B ROCKWALL STABILITY CONTRACTS:** As the final vertical rock faces of the reservoir are exposed, scaling, rock bolting, and other ground support is installed as required to make the permanent walls stable. This work was completed under two separate contracts for Stage 1 of the reservoir.

**STAGE 1 OVERBURDEN RETAINING WALLS:** Retaining walls were constructed in several areas of Stage 1 where the top of the rock is lower than expected, in order to allow the footprint of the reservoir to be mined; due to time constraints, the District did part of this work. This work was completed.

**MAIN TUNNELS AND GATES:** The Mainstream Tunnel was connected to the reservoir by a new set of tunnels and control gates. This work was split among three contracts: one to fabricate the gates, another to excavate the main shaft, and the third to complete the tunnels and install the gates in the shaft. This work was completed in 2017.

**FINAL RESERVOIR PREP:** Final connections to the reservoir were made, including completion of the distribution tunnel and outlet structure. Floor drainage, reservoir aeration, ramps, roads, and other miscellaneous items were also installed under this contract which was completed in 2017.

**INSTRUMENTATION AND GROUNDWATER MONITORING WELLS:** Groundwater monitoring wells, piezometers, inclinometers, and other instrumentation were provided to monitor the reservoir under several different contracts. The groundwater monitoring wells and instrumentation for Stage 1 have been installed and are now functioning.



Poles were installed in the McCook Reservoir Stage 1 to allow solar-powered aerators to float up and down with the water elevation and infuse oxygen into the water.

The following projects have been completed by the Corps for the Stage 2 McCook Reservoir:

**STAGE 2 GROUT CURTAIN:** Based on the performance of the test grout curtain contract, a grout curtain was constructed around the south and east sides of the reservoir perimeter to create a full hydraulic barrier between the reservoir rock walls and surrounding groundwater.

**STAGE 2 GROUNDWATER CUT-OFF WALL:** A bentonite slurry wall was constructed through the overburden, around the perimeter of Stage 2 of the reservoir, to prevent migration of groundwater into the reservoir.

**STAGE 2 OVERBURDEN RETAINING WALL:** A retaining wall was constructed in several areas to hold back the overburden and allow the footprint of the reservoir to be mined.

Stage 1 of the McCook Reservoir became operational in December 2017 and took water for the first time on January 22, 2018. Since that time and through the end of 2018, the reservoir captured a total of 28.2 BG of combined sewage during 37 storms events. A table showing the dates and respective volumes captured by the McCook Reservoir is provided on the enclosed CD. Overall, more than 83 percent of combined sewer overflows were captured by the Mainstream/Des Plaines TARP System in its first year. Stage 2 of the McCook Reservoir will help capture additional CSOs from within this service area when it is completed.

## Thornton Composite Reservoir

The Thornton Composite Reservoir currently provides 7.9 billion gallons of storage for combined sewage from the Calumet TARP Service Area. In the future, flood waters from Thorn Creek will also be diverted to the Thornton Composite Reservoir when the Thornton Transitional Reservoir is decommissioned. Design and construction of the Thornton Composite Reservoir was planned as a joint venture between the Corps and the District. However, due to uncertainties in federal funding that threatened to deprive the Corps of appropriations sufficient to work on both the McCook and Thornton projects simultaneously, the District committed to proceed with the Corps work on the Thornton Composite Reservoir using the District's own resources in 2004 at a total cost of approximately \$420 million. The following projects were completed as part of construction of Thornton Composite Reservoir:

**VINCENNES AVENUE RELOCATION (77-235-AF):** Approximately 2,500 feet of roadway that cut through the footprint of the reservoir was relocated in order to provide the required storage volume.

**THORNTON TRANSITIONAL RESERVOIR (77-235-BF):** This temporary reservoir was constructed to provide floodwater storage for Thorn Creek while the Thornton Composite Reservoir was being constructed. At the end of 2020, the Thorn Creek flood water will be rerouted to the composite reservoir and the transitional reservoir will be decommissioned and turned back over to the quarry. At that time, the reservoir volume allocated for capturing CSOs will be 4.8 billion gallons while the remaining 3.1 billion gallons will be allocated for floodwater storage from Thorn Creek. Many of the facilities constructed for the transitional reservoir will be reused at the composite reservoir.

**MINING (77-235-2F):** The District entered into an agreement with Material Service Corporation (MSC) to purchase a portion of its existing rock quarry to be used for the reservoir. Under the agreement, MSC expanded their existing quarry to neighboring lands purchased by the District in order to achieve the required storage volume. Mining for the Thornton Composite Reservoir was completed in 2013, in fulfillment of the requirements outlined in Paragraph 16.a. of the Consent Decree.

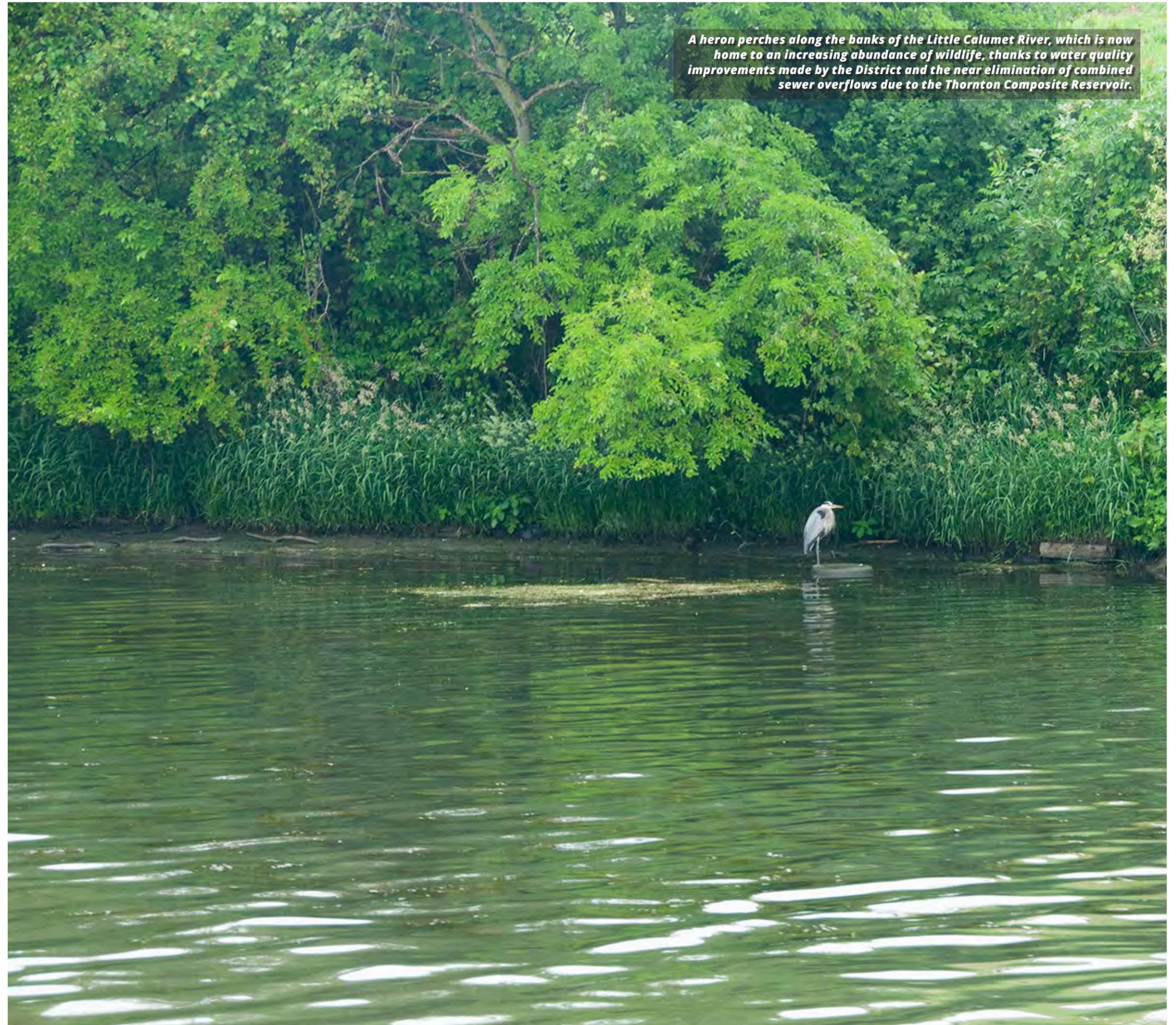
**TOLLWAY DAM, GROUT CURTAIN AND QUARRY PLUGS (04-201-4F):** The south side of the reservoir is a rock dam that separates the reservoir from the rest of the quarry and carries the I-80/294 Tollway. A large opening and two haul tunnels in this wall were plugged to hydraulically isolate the reservoir from the quarry. Also, as part of this contract, a grout curtain was constructed around the entire reservoir perimeter, creating a hydraulic barrier and providing stability to the rock dam. This contract was completed in 2015 as required in Paragraph 16.b. of the Consent Decree.

**CONNECTING TUNNELS AND GATES (04-202-4F):** The existing TARP tunnels were extended to connect to the reservoir. A large gate chamber was constructed to allow for isolation of the tunnels from the reservoir. This contract work was completed in 2015 as required in Paragraph 16.c. of the Consent Decree.

**SURFACE AERATION (04-203-AF):** Floating solar aerators were installed in the reservoir to mitigate odors that may come from the reservoir. This contract was completed in 2015. An additional thirteen floating solar aerators were installed in the reservoir in March 2017.

**FINAL RESERVOIR PREPARATION (04-203-4F):** All remaining items required for operation of the Thornton Composite Reservoir such as the Thorn Creek tunnel connection, live connections to the existing Thorn Creek tunnel, creating a drainage conduit in the Thorn Creek tunnel, site landscaping and stabilization of the finished reservoir walls were completed under this contract in 2015, and the reservoir was placed in operation as required in Paragraph 16.d. of the Consent Decree.

The Thornton Composite Reservoir became operational when it took water for the first time on November 26 and 27, 2015. Since that time and through the end of 2018, the reservoir captured a total of 20.6 BG of combined sewage during 44 storms events. A table showing the dates and respective volumes captured by the Thornton Composite Reservoir is provided on the enclosed CD. Since the Thornton Composite Reservoir became operational, there have been only two CSO discharge events from the Calumet TARP System; these occurred on February 28, 2017 at C-1 and CDS-45 on the Little Calumet Leg and on March 30, 2017 at CDS-18 on the 140th Street Leg and CDS-45. The storms on those days resulted in an average rainfall over the south area in the amount of 3.32 and 2.13 inches, respectively; however, the capacity of the TARP System had not been exceeded. Overall, more than 99.9 percent of combined sewer overflows were captured by the Calumet TARP System. The approximately six million gallons that discharged to the waterways were the result of local conditions which prevented conveyance of storm flows into the TARP dropshafts. The District is planning to make some structural adjustments at these locations in 2019 to prevent recurrence.



*A heron perches along the banks of the Little Calumet River, which is now home to an increasing abundance of wildlife, thanks to water quality improvements made by the District and the near elimination of combined sewer overflows due to the Thornton Composite Reservoir.*



# 2

## Combined Sewer Overflow Quarterly Discharge Reports submitted to the IEPA for Calendar Year 2018

*Pollution Control Technicians collect water samples in the Chicago River Main Stem, while tour boats cruise by and visitors flock to the Chicago Riverwalk. Activity has soared in the area as a result of the District's water quality improvements documented in the District's Ambient Water Quality Monitoring program.*



**“CSO monitoring reports and other CSO-related reports submitted to Illinois EPA including, but not limited to, all documentation of water quality data for the waterway systems within MWRD’s jurisdiction, as required by the Calumet, North Side, and Stickney NPDES Permits.” (44(a)(iii))**

### **CSO Monitoring**

The District utilizes its approved CSO Representative Monitoring and Reporting Plans for the North, Central, and South Areas to track the frequency, duration, and volume of individual CSOs within the Des Plaines River and Chicago Area Waterway System (Plans on the enclosed CD).

In summary, the District monitors 221 (28 permitted to the District; 193 permitted to the City of Chicago and Suburbs) of the 394 (39 permitted to the District; 355 permitted to the City of Chicago and Suburbs) total outfalls within its service area. Most of the monitored outfalls have tide gates with telemetry; however, there are six monitored outfall locations permitted to the District that are pump stations. Unmonitored outfalls are assumed to discharge when select monitored ones discharge because of similar invert elevations. Signals are transmitted to the Stickney and Calumet Water Reclamation Plants (WRPs) when the outfall tide gate is open and assumed to be discharging. Plant staff are notified when the pumps are activated at the six pump stations. Volume estimates at six pump station locations are based on pump ratings and run times while volume estimates at the other outfall locations are performed via a conservative method which assumes that all rain that falls during the period that a tide gate is open is being discharged to the waterway. These discharge volumes are then compared to two boundary conditions: (1) total area rainfall volume and (2) outfall pipe capacity. The minimum of these three values are used as the final discharge volumes.

CSO Quarterly Discharge Reports submitted to the IEPA for calendar year 2018 are on the enclosed CD.

*A hungry bird watches for fish to swim by the North Branch Dam at the confluence of the North Branch of the Chicago River and North Shore Channel. The century-old dam was demolished as part of restoration efforts by the U.S. Army Corps of Engineers-Chicago District, the District and the Chicago Park District to allow upstream fish migration and improve navigation and surroundings for boaters.*



3

## 2018 Water Quality Data for Waterway Systems within the District's Jurisdiction

*Kayakers meet up before paddling on the Main Stem of Chicago River alongside the Chicago Riverwalk.*



*A sign of summer in Chicago, the District's Melas Centennial Fountain graces the city skyline, spraying its arch over the Chicago River. The cannon shoots off for five minutes on the hour each day and is named after former District President Nicholas J. Melas. It was dedicated in 1989 to celebrate the District's 100th anniversary.*

"CSO monitoring reports and other CSO-related reports submitted to Illinois EPA including, but not limited to, **all documentation of water quality data for the waterway systems within MWRD's jurisdiction**, as required by the Calumet, North Side, and Stickney NPDES Permits." (44(a)(iii))

The District conducts Ambient Water Quality Monitoring (AWQM) and Continuous Dissolved Oxygen Monitoring (CDOM) on the Chicago Area Waterway System (CAWS).

In 2018, AWQM was conducted monthly at fifteen locations (weekly at Lockport) on the CAWS in accordance with the attached Quality Assurance Project Plan (See [Appendix A](#) on the enclosed CD). A spreadsheet containing the water quality data generated from this monitoring is submitted as [Attachment 1](#) on the enclosed CD.

The CAWS Use Attainability Analysis (IPCB Rulemaking R08-009) resulted in more stringent water quality standards for the CAWS, effective July 1, 2015, based on new CAWS A and CAWS B Aquatic Life Use designations. The CAWS exhibited high compliance with water quality standards. Of the parameters analyzed that had applicable water quality standards, only dissolved oxygen (DO), fecal coliform, and low-level mercury (human health criteria) were exceeded more than once at any single station during 2018.

In 2018, CDOM was conducted at fifteen locations on the CAWS in accordance with the attached Quality Assurance Project Plan (See [Appendix B](#) on the enclosed CD). A spreadsheet containing the hourly dissolved oxygen data generated from this monitoring is submitted as [Attachment 2](#) on the enclosed CD. A report entitled "Continuous Dissolved Oxygen Monitoring in the Chicago Area Waterways During 2017" was released in 2018 and is included as [Appendix C](#) on the enclosed CD.

The District submitted a petition for variance related to the more stringent DO water quality standards for the CAWS, resulting in a stay of the DO standards that would otherwise have been effective July 1, 2015. As such, most CAWS waterways were subject to the Secondary Contact and Indigenous Aquatic Life Use DO water quality standard of 4.0 mg/L, with the exception of the Cal-Sag Channel, which had a DO standard of 3.0 mg/L, anytime, and the Chicago River, which was subject to General Use Standards. The DO concentration was greater than the applicable water quality standard over 95 percent of the time on an annual basis at 11 out of 15 stations on the CAWS.

A draft of the Calumet TARP System Post Construction Monitoring Plan was submitted to the required agencies on November 7, 2014 in accordance with Section IX, paragraph 35a of the Consent Decree. Discussions regarding the plan continued in 2016 and a revised plan was submitted to the required agencies on September 30, 2016 (copy on enclosed CD). This plan was approved by the USEPA in a letter dated October 7, 2016 (copy on enclosed CD). The sampling and monitoring required in this plan occurred during 2017 and 2018, with the final report scheduled for submittal by June 30, 2019.

A draft of the Mainstream/Lower Des Plaines TARP System Post Construction Monitoring Plan was submitted to the required agencies on November 5, 2018 in accordance with Section IX, Paragraph 35b of the Consent Decree (copy on enclosed CD). The sampling and monitoring required in this plan will occur during 2030 and 2031, with the final report scheduled for submittal by June 30, 2032.



# 4

## Record of Floatable Control Activities

*Skim Pickens takes to the Chicago River to protect the waterways from trash and debris. The skimmer boat provides a vital community service by improving water quality and the recreational experience for thousands of people canoeing, kayaking, boating, and enjoying the waterways.*



*The District's 36-foot debris boat operates year-round with a team of up to four responding to pollution and debris in the waterways. It has a crane on an attached barge to grab large logs and other heavy objects from the waterway.*

The following is a record of floatable control activities undertaken pursuant to the Consent Decree Paragraph 18 and Appendix B:

**Dates of purchase and commencement of operations of each skimmer boat:**

- ✓ The two skimmer boats were procured under Contract 13-611-21, "Furnish and Deliver Trash Collection Boats to the Stickney Water Reclamation Plant." The boats were delivered on January 2, 2015 and commenced operations on April 6, 2015. These boats continued operations during 2018.

**The dates on which each skimmer boat, pontoon boat, or other piece of equipment was operated:**

- ✓ A spreadsheet on the enclosed CD, entitled [Summary of 2018 Floatable Control Activities](#), is a summary of data collected for debris, skimmer and pontoon boat operations.
- ✓ Additionally, logs for each day a boat was in operation are also transmitted on the enclosed CD. ([2018 Debris and Skimmer Boats Floatable Control Logs.pdf](#))

**Status of Combined Sewer Overflow Floatables Control in Addison Creek:**

The floatables control boom was installed during the summer of 2017 and continued operation in 2018. All necessary permits and easements were obtained before the installation of the boom. The following is the summary of activities:

- ✓ In late September 2014, the District spoke to the Village of Broadview and the two private property owners regarding the proposed installation of the debris boom.
- ✓ On November 14, 2014, the District received a [Letter of No Objection \(LONO\)](#) from the United States Army Corps of Engineers (USACE) (on the enclosed CD).
- ✓ On January 8, 2015, the District Board of Commissioners adopted an ordinance establishing the right-of way in the installation, operation, and maintenance of the containment boom.
- ✓ On July 7, 2015, the District received [Permit No. NE2015032 from the Illinois Department of Natural Resources \(IDNR\)](#) (on the enclosed CD) authorizing the project.
- ✓ On February 19, 2016, the District obtained an executed easement agreement (on the enclosed CD) from the first private property owner, Real Group, LLC. The District's Board of Commissioners approved payment of the easement on April 7, 2016.
- ✓ In February 2016, the District purchased the floatables control boom.
- ✓ On March 31, 2017, the District obtained an executed easement agreement (on the enclosed CD) from the second private property owner, 2920 South 19th Avenue, LLC. The District's Board of Commissioners approved payment of the easement on March 3, 2017.
- ✓ On April 17, 2017, the District obtained an executed agreement (on the enclosed CD) from the third private property owner, the Village of Broadview.
- ✓ On July 31, 2017, the floatables control boom was installed (photo on enclosed CD).



# 5

## Green Infrastructure Activities

*The City of Berwyn replaced 10 alleys with green infrastructure thanks to funding support and expertise from the District. The green alleys temporarily store stormwater prior to infiltration into the subgrade, lessening the amount of runoff that enters the sewer system.*

# The following is a report on Green Infrastructure activities undertaken pursuant to Consent Decree Section V of Appendix E:

## Introduction

The Consent Decree required the District to submit a Green Infrastructure Program Plan (GIPP) to the EPA and IEPA for approval within one year of the effective date. A draft of the District's GIPP was submitted to the EPA and IEPA on December 23, 2014 and ultimately approved on October 7, 2015. (See [Green Infrastructure Program Plan](#) on the enclosed CD)

Going forward, the Consent Decree (Appendix E, Section V) requires the District to include Green Infrastructure reporting in its Annual Report.

## 2018 Rain Barrel Program Annual Report (Appendix E.II.A)

### Rain Barrel Program

In May 2015, the District revised and expanded the rain barrel distribution program that offered free rain barrels to Cook County residents and organizations to increase the number of barrels disseminated. The District delivered free rain barrels through three distribution networks: municipalities; campus-type facilities; and non-government organizations, planning groups, or community groups. This free program continued through 2016 and ended on December 31, 2016. To participate in this free program, municipalities were required to sign an Intergovernmental Agreement (IGA) with the District, and non-governmental organizations, planning groups, or community groups throughout Cook County were required to sign a Memorandum of Understanding. During the free program, a total of 88 municipalities and 23 organizations were enrolled as partners. Since the free program concluded, the District began selling rain barrels to Cook County residents at cost (\$45.78 per rain barrel) via mwrdd.org.

### Marketing Activities

The District marketed rain barrels through multiple channels in 2018. Our marketing materials educated the public about the value of rain barrels in preventing flooding and improving water quality while countering barriers to their acceptance. To address concerns about the difficulty of installation, simple installation instructions were included in every barrel, and a link to an installation video developed by the District in partnership with Openlands (a not-for-profit organization that unites people and resources around the goal of land and water protection) was available. Concerns that rain barrels would have a negative impact on the appearance of a property were countered by using photography of rain barrels installed in beautifully landscaped yards.

**PUBLICATIONS:** The District created a rain barrel brochure that continued to be distributed at all community outreach events in 2018. The brochure provides specific details for ordering (See [MWRD Rain Barrel Brochure](#) on the enclosed CD). The District continued to print an installation, use and maintenance instructional guide for rain barrels which was distributed with our rain barrels. The instructional guide is also available at mwrdd.org. (See [MWRD Rain Barrel Instructions](#) on the enclosed CD).

**SOCIAL MEDIA:** The District promoted rain barrels throughout the year on social media by posting photos, press releases, and videos and sharing the productive uses of rain barrels and other green infrastructure tools

## Early Monitoring, Evaluation & Knowledge Building (Appendix E.II.B.)

The Consent Decree also required the District to implement one or more GI projects and dedicate a minimum of \$325,000 towards such projects prior to January 6, 2015, within one year of the effective date of the Consent

The GIPP outlines the District's strategy to gain the public's acceptance and understanding of how GI can be beneficial to alleviate flooding issues and Combined Sewer Overflows in addition to describing how the District will satisfy the Consent Decree's GI Design Retention Capacity (DRC) requirements. The District is required to provide a minimum of 2 million gallons of DRC within five years and 10 million gallons of DRC within 15 years of the approval date of the Consent Decree.

via Facebook, Twitter, LinkedIn, YouTube and Instagram. Postings included general educational information regarding the environmental and monetary value of utilizing rain barrels, while other postings detailed specific events where rain barrels would be or were distributed to the public.

**WEBSITE:** Rain barrels were prominently advertised with a large graphic on the home page of the District's website, mwrdd.org. The rain barrel content is refreshed as changes to the program are incorporated.

**OUTREACH EVENTS AND RAIN BARREL DRAWINGS:** The District continued to promote rain barrels at public outreach events. Attendees were asked to complete a "Water Environment Pledge" detailing water conservation actions. One of the pledges was selected, and the individual was given a free rain barrel. These outreach efforts are designed to educate the public on the value of rain barrels and other green infrastructure in the District's pursuit of water quality improvements and flooding solutions.

**WATER ENVIRONMENT PLEDGE MAILING LIST:** The District maintains an electronic mailing list of those who signed the Water Environment Pledge. The 9,500+ addresses in this database may receive additional educational materials and program updates.

### Number of Barrels Distributed

The District distributed 925 rain barrels in 2014, 29,358 barrels in 2015, 92,981 barrels in 2016, 10,294 barrels in 2017, and 779 in 2018 for a total of 134,337 barrels. The cost to the District to provide the rain barrels was \$6,383,417.14.

### Technical Assistance

The District continued to provide instructions on how to install a rain barrel with each order. The District worked with Openlands to create a YouTube video that demonstrates how to install a rain barrel. (See [storyboards](#) on the enclosed CD.)

### Potential Volume

With proper utilization, if all rain barrels distributed and sold through December 31, 2018 were properly utilized during the entire year, the volume of rainwater kept out of the sewer system in 2018 is 465,477,705 gallons.

Decree or prior to approval of the GI Plan, whichever was later. As further described below, the District satisfied this requirement in 2014 through collaboration with the Chicago Public Schools (CPS), the City of Chicago

Department of Water Management (DWM), Openlands, and Healthy Schools Campaign in the Space to Grow Program (Phase I Space to Grow) and continued to participate in this program in 2016 (Phase II Space to Grow). The District and the DWM each invested approximately \$2 million towards the construction of GI at four CPS schools in 2014. The District's nearly \$2 million investment was used solely for GI improvements at the selected CPS schools, thereby far exceeding the minimum \$325,000 requirement of the Consent Decree.

## Phase I Space to Grow Program – Financial Partnership between the District, CPS & DWM

Space to Grow is an innovative public-private partnership with a mission of transforming Chicago schoolyards into vibrant green spaces for physical activity, outdoor learning and play. As centers of school and community life, Space to Grow projects promote active and healthy lifestyles and connect people with nature in their daily lives. The schoolyards are also designed to prevent flooding and water pollution via rainfall-capturing green infrastructure features such as permeable surfaces, native plants and rain gardens.

The program is co-managed by the Healthy Schools Campaign and Openlands with capital funding, leadership and expertise from the District, CPS and the DWM. The District also provides technical support for green infrastructure elements to ensure that the new schoolyards provide optimal stormwater capture benefits.

Each Space to Grow schoolyard is unique, and the architectural landscape designs incorporate input from neighborhood residents, students, families, staff and faculty. Prior to renovations, many of the schoolyards were little more than asphalt parking lots with aging, or in many cases a lack of, playground equipment. In contrast, the new schoolyards typically feature expanded and safer playground equipment, track and field areas, multi-purpose courts on permeable asphalt, turf fields, outdoor classrooms, rain gardens and vegetable gardens. Also, on average, each Space to Grow schoolyard has the capacity to capture hundreds of thousands of gallons of rainwater that would otherwise have drained into local sewers.

- ✓ Virgil I. Grissom Elementary School, 12810 S. Escanaba Avenue

## Green Infrastructure Program (Appendix E)

### Phase II Space to Grow Program – Partnership between the District, CPS & DWM

Given the success of the Phase I Space to Grow Program, the District's Board of Commissioners authorized expansion of the program to fund GI at up to thirty schools, which started in 2015, and will continue through 2022, with a total investment by the District of approximately \$15 million. These projects will not only address localized flooding but will also serve to educate students, parents, and school staff about the benefits of GI. The District will also invest up to \$1,000,000 to fund project design at ten schools.

In 2015, plans and specifications were prepared for six schools and construction completed for two schools: Willa Cather (Cather) Elementary School, located at 2908 W. Washington Boulevard, and the Orozco Fine Arts and Sciences (Orozco) Elementary School, located at 1940 W. 18th Street. Both of these elementary schools are located in low-income neighborhoods in the city. The combined DRC for these two schools is an estimated 364,504 gallons per rain event. The District contributed a total of \$898,477.66 for the work at Cather and Orozco.

- ✓ Morrill Elementary School of Math & Science, 6011 S. Rockwell Street
- ✓ Schmid Elementary School, 9755 S. Greenwood Avenue
- ✓ George Leland Elementary School, 512 S. Lavergne Avenue

These schools were prioritized for implementation by CPS, DWM, and the District based on flood risk, site suitability, and socioeconomic factors. Numerous community meetings were held to describe project details and benefits. The District and CPS executed an intergovernmental agreement (IGA) to facilitate this project whereby long term maintenance responsibilities are assigned to CPS. The District has perpetual rights to inspect the GI to ensure it is being properly maintained in accordance with the Operations and Maintenance (O&M) Manual developed for each school.

The District reviewed and provided comments on the construction drawings and specifications at various intervals during the course of design. During the course of construction, the District frequently visited the sites to gain knowledge on the installation of GI. The four sites combine for a Design Retention Capacity (DRC) of 731,004 gallons per rain event. Educational signage has been placed at the sites to inform students and the surrounding community of the benefits of GI. Neighborhood residents were involved in the installation of GI plantings at some of the schools.

Groundbreaking and ribbon cutting ceremonies were held at each of the schools and were attended by students, parents, school staff, local residents, and elected officials, including the District's Commissioners. The four projects have positively impacted thousands of local residents by providing a safe place for their children to play, educating all to the benefits of GI, and providing much needed relief from localized flooding. CPS has indicated that the new playgrounds are being utilized by students at a far greater rate than before, as well as reducing gang activity within close proximity to the schools.

The District is proud to be a part of the Space to Grow program as it successfully brings communities together, enhances the educational experience for children throughout Chicago, connects people to nature and encourages physical activity while reducing the risk of flooding and water pollution.

In 2016, Space to Grow projects were completed at three additional schools, also located in low-income neighborhoods: Daniel J. Corkery Elementary School, located at 2510 S. Kildare Avenue; Frank W. Gunsaulus Elementary Scholastic Academy, located at 4420 S. Sacramento Avenue, and the James Wadsworth Elementary School, located at 6650 S. Ellis Avenue. The District contributed a total of \$1,371,508.67 towards the work at these three schools, which provided an estimated combined DRC of 388,648 gallons per rain event.

In 2017, projects were designed for the following schools: John W. Cook Elementary School, located at 8150 S. Bishop Street, Nathan S. Davis Elementary School, located at 3014 W. 39th Place, Fernwood Elementary School, located at 10041 S. Union Avenue, Eugene Field Elementary School, located at 7019 N. Ashland Avenue, and Morton School of Excellence, located at 431 N. Troy Street. Unfortunately, due to financial issues at both CPS and CDWM, the projects at these schools were not constructed in 2017. The financial issues have since been addressed, and the projects were constructed in 2018.

Also constructed in 2018 was the previously designed project at the James B. Farnsworth Elementary School located at 5414 N. Linder Avenue. The District contributed almost \$3,000,000.00 towards the work at these six schools which will provide a combined DRC of 1,287,651 gallons per rain event.

Currently, four more Space to Grow projects are being designed with construction anticipated in 2019. These four schools are Arthur R. Ashe Elementary School, 8505 S. Ingleside Avenue; Ninos Heroes Elementary Academic Center, 8344 S. Commercial Avenue; Henry H. Nash Elementary School, 4837 W. Erie Street; and Daniel Webster Elementary School, 4055 W. Arthington Street. The DRC for these four schools will be determined once the plans and specifications are completed. In addition, one school designed in 2015, the Oliver S. Wescott Elementary School, located at 409 W. 80th Street, was lacking enough financing from CPS to start construction at the time it was designed. Recently, the additional funding was allocated and this project will also be constructed in 2019. The DRC for Wescott Elementary School was estimated to be 146,346 gallons per rain event.

All Space to Grow schools were prioritized for implementation by CPS, DWM, and the District based on flood risk, site suitability, and socioeconomic factors. Numerous community meetings were and will continue to be held to describe project details and benefits.

The existing IGA between the District and CPS facilitates projects through 2019, and a pending amendment would extend the timeline for completion of the remaining projects through 2022. Under the agreement, long term maintenance responsibilities are assigned to CPS. The District has perpetual rights to inspect the GI to ensure it is being properly maintained in accordance with the Operations and Maintenance (O&M) Manual developed for each school. The District reviewed and provided comments on the construction drawings and specifications at various intervals during the course of design. During construction, the District frequently visited the sites to gain knowledge on the installation of GI, while monitoring progress.

### Space to Grow Awards

The Space to Grow program continues to be recognized by numerous awards, including:

- ✓ The 2014 Silver Ribbon Award, Friends of the Chicago River;
- ✓ The 2015 Active Design Excellence Award, Honorable Mention: This was the only submission from Chicago to be recognized this year. Fellow award recipients span the globe;
- ✓ The 2015 Emerald Award from the Illinois Chapter of the U.S. Green Building Council, Mission category;
- ✓ The 2015 New Champions Award from the National Physical Activity Plan Alliance (NPAPA);
- ✓ The 2015 Sustainability Award from the Illinois Association for Floodplain and Stormwater Management (IAFSM), which recognizes excellence in stormwater management across the state of Illinois;
- ✓ Top 100 Finalist for the 2015 Chicago Innovation Awards;
- ✓ Best of Green Schools 2016 – Collaborator, Green Schools National Network;
- ✓ First Place - Large Population Green Infrastructure, 2016, National Association of Flood and Stormwater Management Agencies (NAFSMA);
- ✓ The 2016 Special Achievement Award to Primera Engineers, Ltd. for Morrill Elementary - American Council of Engineering Companies (ACEC) of Illinois;
- ✓ The 2017 MWRD Sustainable Landscaping Award;



*Fernwood Elementary School's new playground and playing field is designed to absorb stormwater, following upgrades made by the District's Space to Grow partnership. The new schoolyard was formally unveiled on August 31, 2018, as MWRD commissioners, CPS officials, school administration and students, joined project partners from Openlands, the Healthy Schools Campaign and Chicago Department of Water Management to cut the ceremonial ribbon.*

- ✓ The 2017 Stormwater Solutions Magazine Top Project;
- ✓ The 2018 Local Initiatives Support Corporation Chicago Neighborhood Development Awards – Blue Cross Blue Shield of Illinois Healthy Community Award;
- ✓ The 2018 Metropolitan Planning Council Burnham Award for Excellence in Planning.

### Additional GI Partnerships

In 2018, the District constructed additional GI projects that conform to the criteria established in the GIPP. The District worked with the Villages of Skokie, Arlington Heights and River Forest, as well as the Wheeling Park District, to develop GI Projects consisting of permeable pavement parking, green alleys and bioretention facilities. The District contributed a total of \$694,000 to these projects which provided a combined DRC of 181,082 gallons. The District entered into IGAs with these entities whereby maintenance responsibilities lie with the local municipality or park district and the District retains perpetual rights to inspect the facilities to ensure they are being maintained as required by the O&M Manuals of the respective projects.

#### Skokie – Green Infrastructure at Devonshire Park and the Skokie Police Headquarters

In 2018, the Village of Skokie completed a Green Infrastructure Project. A rain garden was constructed at Devonshire Park near the intersection of Greenwood Street and Kenneth Terrace. In addition, a naturalized stormwater detention basin was constructed at the Police Station Headquarters located at 7300 Niles Center Road. The District funded \$200,000 of the approximately \$500,000 total cost for both projects. These projects provide 46,424 gallons to alleviate flooding in the project areas.

#### Arlington Heights – Parking Lot Pavers and a Bio-infiltration Basin at the Arlington Heights Police Station

In December 2018, the new Arlington Heights police department headquarters was built to replace the old station at 200 E. Sigwalt St. The station includes a number of “green” features, including wooden benches, display cases, paneling, and tables made of recycled village parkway ash trees that were cut down due to emerald ash borer infestation. The District contributed \$358,000 to help pay for the green infrastructure components which consist of permeable pavement in the back parking lot and in the main access driveway, a bio-infiltration basin in an adjacent park, and a nearby rain garden. The District’s funding represents nearly 24% of the total \$1,515,000 construction costs; the police headquarters is a part of a larger Village project which cost nearly \$30 million. The project provides 90,807 gallons of DRC in a flood prone area.

#### River Forest – Gale Avenue Green Alley Improvements

In late 2018, the Village of River Forest reconstructed a 10,000 square foot alley with a permeable surface and open-graded stone base with the goals of capturing stormwater, improving public safety (basement backups, ponding on roadway, etc.), and reducing combined sewer overflow events. The District funded \$75,000 of the total \$193,740 construction cost. This project provides 26,490 gallons per rain event in a flood prone area.

#### Wheeling Park District – Rain Garden

In late 2018, the Wheeling Park District reconstructed an existing park lot at Chamber Park and added a new 41,732 gallon rain garden to capture and retain stormwater runoff. The District funded \$61,000 of the total \$160,000 construction cost.

#### Buyouts

The District initiated a buyout program for properties in chronic flood-prone areas in 2015. Buildings that qualify will be purchased, demolished,

and restored to pervious space, thereby increasing stormwater retention and detention. Since the program was initiated the District has partnered with seven communities to acquire 81 homes thus far. These homes were subsequently demolished and restored to open space. These 81 properties provide approximately 580,000 gallons of stormwater retention. Three of these partnerships are still actively pursuing acquisition of an additional 70 properties. The District contributed buyout funds in the amount of \$16,734,000 while the Illinois Emergency Management Authority (IEMA) and U.S. Housing and Urban Development (HUD) contributed \$12,264,000 of funding towards the acquisition of these flood-prone properties to date. The District is currently reviewing three applications for potential new acquisition projects for 47 homes.

The District will continue to pursue additional projects that will exceed the goals required by the Consent Decree.

#### Chicago-Calumet Rivers Fund

A team of private and public organizations, including the District, established and funded the Chicago-Calumet (Chi-Cal) Rivers Fund (Fund), administered by the National Fish and Wildlife Foundation (NFWF). The Fund’s main goals include reducing damages caused by flooding, improving water quality, and restoring habitat and safe public access on the local waterways. One method to achieve these goals is through green infrastructure such as rain gardens, green roofs, pervious surfaces, bioswales, and cisterns.

In 2014 and 2015, the District contributed to the Chi-Cal Fund for green infrastructure projects throughout the region. However, in 2016 the District decided to no longer contribute to the Fund in order to have more flexibility to fund projects with high DRCs in flood prone areas throughout its jurisdiction. However, the District has continued to work with the Chi-Cal team in evaluating projects that will reduce flooding, improve water quality and reduce loads to the local sewer systems.

#### Watershed Management Ordinance

The District began requiring stormwater detention in 1972 under the Sewer Permit Ordinance (SPO) for development projects greater than five acres. In 2007, the District began work on a new stormwater management regulatory ordinance known as the Watershed Management Ordinance (WMO). Numerous public hearings were held on the WMO in order to receive public input. The District’s Board of Commissioners subsequently approved the WMO, which became effective on May 1, 2014. The WMO is a comprehensive regulatory ordinance drafted with the assistance of an Advisory Committee consisting of regulatory agencies, municipalities, and non-governmental organizations.

The WMO aims to protect public health, safety, and welfare, and Cook County homes and businesses from flood damage by managing and mitigating the effects of development and redevelopment on stormwater drainage. It provides uniform minimum stormwater management regulations for Cook County that are consistent with the region. The WMO replaces the District’s Sewer Permit Ordinance (SPO) with WMO permit requirements more comprehensive than those of the SPO. The District has included a GI component in its WMO, which requires the capture of 1-inch of runoff from impervious surfaces for parcels greater than ½ acre in size when a WMO permit is required.

In 2018, 208 permits were issued that required a total of 16,196,196 gallons of GI retention volume. For the WMO permits issued in 2018, 1,885,960 gallons of retention were completed, 8,933,694 gallons were under construction, and 5,376,542 gallons were approved on projects that have yet to be started. An additional 9,106,883 gallons of retention capacity permitted since 2014 has been constructed bringing the total GI installed under the

WMO to 25,257,721 gallons. The District anticipates that more GI retention volume will be approved in 2018 and beyond. (see Green Infrastructure Project Log below and table showing [Green Infrastructure Design Retention Accomplishments on enclosed CD](#))

In 2018, the total DRC installed at CPS, the District-sponsored projects in Skokie, Arlington Heights, River Forest and the Wheeling Park District was 1,468,733 gallons.

The District’s WMO requires GI for new development and redevelopment projects. As can be seen in the table below, the WMO’s GI requirements will lead to the eventual installation of nearly 38 million gallons of DRC throughout Cook County. This number will continue to grow significantly in future years. The District’s permit review engineers provide input to design consultants on GI at the onset and during the permitting process. A list of all [GI Permits](#) issued from 2014 through 2018 is on the enclosed CD.

#### Potential Future GI Projects

In order to assist communities in addressing urban flooding issues and promote the use of GI in the region, the District has been sending out a “Call for Green Infrastructure Projects” to governmental organizations (i.e. municipalities, townships, and various agencies) within its corporate boundaries. In 2017, the District received 47 project submittals and selected 19 partnerships to help fund GI installations. Some of these projects began construction in 2018 and the projects with Arlington Heights, River Forest

#### Green Infrastructure Comprehensive Land Use Policy (Appendix E.II.C)

As part of the GI Plan, the District has also developed a Comprehensive Land Use Policy.

The District’s Comprehensive Land Use Policy was approved by the District’s Board of Commissioners on August 6, 2015 and approved by the USEPA on October 7, 2015 (see Appendix B of the GIPP on the enclosed CD). The Comprehensive Land Use Policy requires public entities leasing property at a nominal fee from the District to provide GI based on the size of the leasehold and the desired use. For any new/renewed lease, the public lessee must now pay for and include GI on its leasehold. Private entities leasing District land are provided incentives to implement and maintain GI for development projects based on the size and type of use of the property. Private entities installing GI will receive a credit equal to \$0.50 on the \$1.00 up to 10% of the leasehold cost, capped at 10 years, for GI improvements in excess of WMO requirements. The District will seek credit towards the DRC requirements outlined in Section III of this plan for any GI installed

	2014	2015	2016	2017	2018
WMO GI Permits Issued	7	107	191	206	208
Permitted GI DRC (Gallons) Installed*	247,647	7,711,362	8,338,038	7,074,714	1,885,960
Permitted GI DRC (Gallons) Under Construction*	0	447,067	3,318,597	8,895,406	8,933,694
Permitted GI DRC (Gallons) to be Constructed*	0	0	387,763	1,524,983	5,376,542
<b>Total DRC (Gallons) Permitted</b>	<b>247,647</b>	<b>8,158,429</b>	<b>12,044,398</b>	<b>17,495,103</b>	<b>16,196,196</b>
<b>Cumulative Total</b>	<b>54,141,773</b>				

\*Values reflect status of permits issued in each respective year

and the Wheeling Park District (described previously) were substantially completed by the end of the year. The remainder of these projects are anticipated to be completed in 2019. In 2018, the District again solicited project submittals and received 48 applications, and selected another 20 project partnerships. While the DRC figures have not yet been finalized for all the projects yet to be constructed, the total DRC for those projects selected in both 2017 and 2018 is estimated to be 4.8 million gallons.

by leaseholders of District property due to GI installed as a result of the requirements of the Comprehensive Land Use Policy.

Additionally, the District is in the process of implementing a Geographical Information System (GIS), allowing it, among other things, to input and track the type of GI on its various leaseholds as well as such information as GI stormwater capture rate. In 2018, two leases were issued under this policy. One lessee, the City of Evanston, will install rain gardens on the District’s North Shore Channel Parcel 3.04 located at 2525 Church Street in Evanston, Illinois that will provide a Design Retention Capacity (DRC) of 37,377 gallons, which is greater than the 19,463 gallons required under the terms of its lease. Another lessee, the Chicago Park District, has requested the District’s approval to install native plants and landscaping on the District’s SEPA Station No. 1 site located north of the Calumet River and west of Torrence Avenue in Chicago, Illinois. The DRC of this project has not yet been finalized but will also exceed the number of gallons required under the terms of its lease.

#### Watershed Management Ordinance Permits 719 WMO Permits issued requiring Green Infrastructure

Construction Status	Capacity
GI Permitted Yet to Begin Construction	7,289,288 gallons
GI Permitted Under Construction	21,594,764 gallons
GI Permitted Construction Complete	25,257,721 gallons
<b>Total WMO GI Permitted</b>	<b>54,141,773 gallons</b>

#### Summary Log of Green Infrastructure Capture Volume 2014–2018

Installed Design Retention Capacity (Gallons)	2014	2015	2016	2017	2018	Totals
CPS School Retention	731,004	364,504	388,648	0	1,287,651	2,771,807
District Partnership Projects	0	392,764	1,482,753	1,093,788	205,453	3,174,758
WMO Projects (Installed)	247,647	7,711,362	8,338,038	7,074,714	1,885,960	25,257,721
<b>Total DRC Installed</b>	<b>978,651</b>	<b>8,468,630</b>	<b>10,209,439</b>	<b>8,168,502</b>	<b>3,379,064</b>	<b>31,204,286</b>

## National Pollutant Discharge Elimination System Permits Consent Decree 2018 Annual Report Referenced Resources



The District and its partners at Space to Grow transformed six Chicago Public Schools campus grounds in 2018, including at Fernwood Elementary School on the South Side of Chicago, where students also learned the value of green infrastructure, such as rain gardens and permeable pavement as tools to combat urban flooding.

### Space to Grow Schools

Year Completed	Name of School	Address	Design Retention Capacity (Gallons)
2014	Virgil I. Grissom Elementary School	12810 S. Escanaba Ave.	253,902
2014	George Leland Elementary School	512 S. Lavergne Ave.	128,197
2014	Morrill Elementary School of Math & Science	6011 S. Rockwell St.	118,098
2014	Theophilus Schmid Elementary School	9755 S. Greenwood Ave.	230,807
2015	Willa Cather Elementary School	2908 W. Washington Blvd.	56,152
2015	Orozco Fine Arts & Science Elementary School	1940 W. 18 <sup>th</sup> St.	308,352
2016	Daniel J. Corkery Elementary School	2510 S. Kildare Ave.	102,738
2016	Frank W. Gunsaulus Elementary Scholastic Academy	4420 S. Sacramento Ave.	152,517
2016	James Wadsworth Elementary School	6650 S. Ellis Ave.	133,393
2018	John W. Cook Elementary School	8150 S. Bishop St.	217,978
2018	Nathan S. Davis Elementary School	3014 W. 39 <sup>th</sup> Pl.	197,422
2018	Fernwood Elementary School	10041 S. Union Ave.	138,222
2018	Eugene Field Elementary School	7019 N. Ashland Ave.	422,169
2018	Morton School of Excellence	431 N. Troy St.	155,783
2018	James B. Farnsworth Elementary School	5414 N. Linder Ave.	156,077
<b>Total</b>			<b>2,771,807</b>

### GI Installed Through 2018

CPS SCHOOL RETENTION\* + DISTRICT PARTNERSHIP PROJECTS\*\* = 5,946,565 GALLONS

\*Fifteen schools completed through 2018  
\*\*Eleven projects completed through 2018

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#### Attachments for Item 1 - TARP Reservoirs

McCook Reservoir Fill Events.pdf  
Thornton Composite Reservoir Fill Events.pdf

#### Attachments for Item 2 - CSOs

O'Brien (North) CSO M&R Plan February 2018.pdf  
Stickney (Central) CSO M&R Plan February 2018.pdf  
Calumet (South) CSO M&R Plan February 2018.pdf  
IEPA Quarterly Report Jan-Mar 2018.pdf  
IEPA Quarterly Report Apr-June 2018.pdf  
IEPA Quarterly Report July-Sept 2018.pdf  
IEPA Quarterly Report Oct-Dec 2018.pdf

#### Attachments for Item 3 - Water Quality

Appendix\_A\_AWQM QAPP.pdf  
Attachment\_1\_2018\_CAWS\_AWQM.xlsx  
Appendix\_B\_CDOM QAPP.PDF  
Attachment\_2\_2018\_CAWS\_CDOM.xlsx  
Continuous Dissolved Oxygen Monitoring in the CAWS during 2017.pdf  
Post Construction Monitoring Plan for Calumet TARP System.pdf  
USEPA Approval Letter PCMP for Calumet TARP System October 7, 2016.pdf  
Post Construction Monitoring Plan for Mainstream/Des Plaines TARP System.pdf

#### Attachments for Item 4 - Floatables

Summary of 2018 Floatable Control Activities.pdf  
2018 Debris and Skimmer Boats Floatable Control Logs.pdf  
USACE Letter of No Objection - Debris Boom.pdf  
IDNR Approval Letter - Debris Boom.pdf  
Executed Easement Agreement No. 1.pdf  
Executed Easement Agreement No. 2.pdf  
Executed Easement Agreement No. 3.pdf  
Photo - Addison Creek Debris Boom

#### Attachments for Item 5 - Green Infrastructure

Green Infrastructure Program Plan.pdf  
MWRD Rain Barrel Brochure.pdf  
MWRD Rain Barrel Instructions.pdf  
Rain Barrel Install Storyboard.pdf  
Green Schoolyards Report.pdf  
GI Design Retention Capacity Accomplishments  
GI Permits 2014-2018

## Board of Commissioners

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*Front cover: District engineers peer into the McCook Reservoir Stage I, as it fills for the first time on January 22, 2018. The initial inflow was 263 million gallons of water, accounting for snowmelt and unseasonable rain. By the year's end, the reservoir captured more than 28 billion gallons of water.*