



Before

After

National Pollutant Discharge Elimination System Permits Consent Decree **2016 Annual Report**

Metropolitan Water Reclamation District of Greater Chicago



An engineer inspects the nearly completed Wescott Park Stormwater Reservoir in the Village of Northbrook in June 2016. The MWRD contributed \$475,000 to install a control system that will allow the reservoir's water to be used for irrigating nearby landscaping.

Introduction

Metropolitan Water Reclamation District of Greater Chicago (District) National Pollutant Discharge Elimination System (NPDES) Permits Consent Decree (Civil Action No. 11 C 8859)—2016 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 2016 and is due March 31, 2017.

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 2016.
- 3. 2016 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 2016 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 2017 Progress Report

An aerial view of McCook Reservoir from June 2016 with the Chicago skyline visible in the distance. Two waterways that will be protected by the reservoir, the Des Plaines River (left) and Chicago Sanitary and Ship Canal (right), flow on either side of it.

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 is responsible for designing and constructing the reservoir features, and the District is responsible

District Work

In order to accomplish its responsibilities under the PCA, 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.

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

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. The first stage will provide 3.5 billion gallons of storage and the second stage will expand the total capacity to 10 billion gallons of storage.

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 small amount (<0.13%) of material remains which is needed for construction purposes.
- ✓ A mining ramp into Stage 2 was initiated in 2013 and production mining began in 2014, concurrent with Stage 1 mining. Approximately 15 percent of the stone from Stage 2 had been mined by the end of 2016. 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 was somewhat reduced in 2016 compared to the previous year. In order to maintain the required schedule for completion of the Stage I Reservoir, Vulcan mined the lower quality stone at the bottom of Stage I at a rate that exceeded its market demand and disposed of the excess poor quality material on their property. Currently, mining of Stage 2 is still expected to be completed by December 31, 2028. Vulcan's annual mining progress report for 2016 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 2019.

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 intends to award a contract to construct retaining walls and stabilize the overburden slopes for the expanded portion of the reservoir. This work is scheduled to be completed in 2018.

EXPANDED STAGE 2 ROCK WALL STABILIZATION (17-131-4F): As the final vertical rock faces of the expanded portion 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 2022.

EXPANDED STAGE 2 MISCELLANEOUS FLOOR FEATURES (17-132-4F): Additional solar powered aeration equipment will need to be installed in the expanded portion of the reservoir. This work is scheduled to begin in 2026.

Corps Work

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

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 began in 2015 and will be completed in 2017.

The following projects have been completed or are being pursued by the Corps to complete 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 ROCKWALL STABILITY CONTRACTS: As the final vertical rock faces of the reservoir are exposed, scaling, rock bolting, or other ground support will be installed as required to make the permanent walls stable. This work is in progress.

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 2 MISCELLANEOUS FLOOR FEATURES: 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.

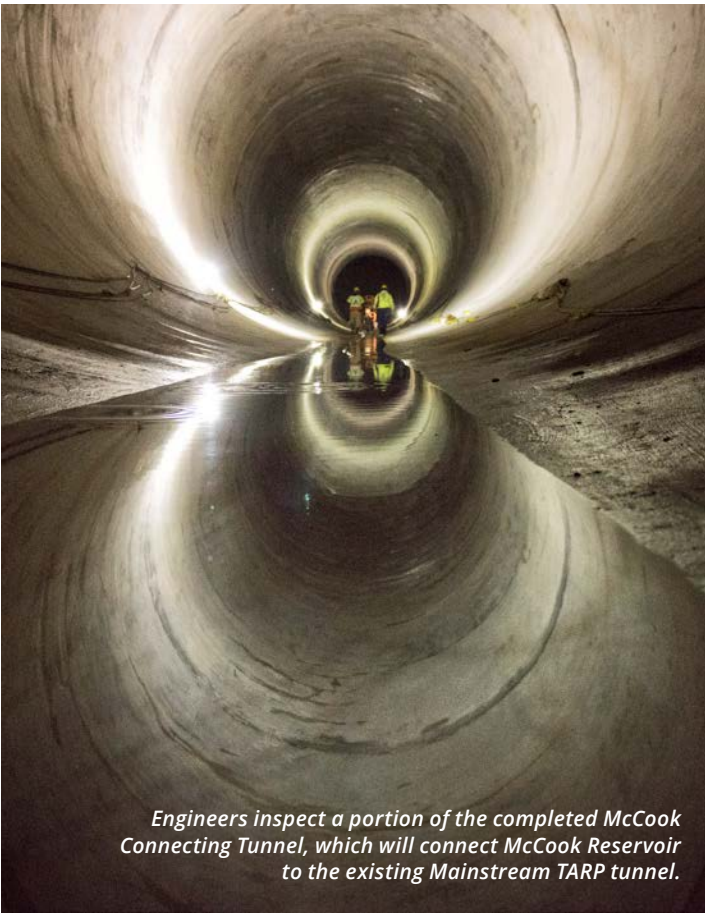
STAGE 1A AND 1B ROCKWALL STABILITY CONTRACTS: As the final vertical rock faces of the reservoir are exposed, scaling, rock bolting, and other ground support is installed as required to make the permanent walls stable. This work was completed under two separate contracts for Stage 1 of the reservoir.

STAGE 1 OVERBURDEN RETAINING WALLS: Retaining walls were constructed in several areas of Stage 1 where the top of 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 is completed.

MAIN TUNNELS AND GATES: The Mainstream Tunnel will be 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. The fabrication of the gates and the main shaft excavation are completed, and the third contract to complete the tunnels and install the gates is underway with completion expected in 2017.

FINAL RESERVOIR PREP: Final connections to the reservoir will be made, including completion of the Distribution Tunnel and Outlet Structure. Floor drainage, reservoir aeration, ramps, roads, and other miscellaneous work will be completed under this contract which was awarded in 2015 and is scheduled for completion in 2017.

INSTRUMENTATION AND GROUNDWATER MONITORING WELLS: Groundwater monitoring wells, piezometers, inclinometers, and other instrumentation will be 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.



Engineers inspect a portion of the completed McCook Connecting Tunnel, which will connect McCook Reservoir to the existing Mainstream TARP tunnel.

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 to be 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 are currently being installed in the reservoir.

Final Reservoir Preparation (04-203-4F): All remaining items required for operation of the Thornton Composite Reservoir such as the future 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 officially became operational January 1, 2016, although it took water for the first time on November 26 and 27, 2015, before the gates were operational. Since that time and throughout the duration of 2016, the reservoir captured a total of 4.5 BG of combined sewage during 15 storms events. A table showing the dates and respective volumes captured by the Thornton Composite Reservoir is provided on the enclosed CD. During 2016, there was only one CSO from the Calumet TARP System; this occurred on August 20, 2016 at C-1 and CDS-45 on the Little Calumet Leg. The storm on that day resulted in an average rainfall over the south area in the amount of 1.24 inches; however, the capacity of the TARP System had not been exceeded. Subsequent investigations revealed that the weir elevation at these locations was too low, resulting in a CSO. Once this problem was discovered, the District made an adjustment to the weir elevations to prevent future discharges.



Participants in a “Cal-Sag Plunge” event enjoy the Channel, which is protected from combined sewer overflow pollution by Thornton Composite Reservoir.



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Combined Sewer Overflow Quarterly Discharge Reports submitted to the IEPA for Calendar Year 2016

*A group of canoers on the North Branch of the
Chicago River in the summer of 2016.*



“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 rainfall 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 2016 are on the enclosed CD.

A kayak rental company employee on the banks of the Main Stem of the Chicago River.



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2016 Water Quality Data for Waterway Systems within the District's Jurisdiction

An MWRD technician removes a water quality monitor from its housing on the Main Stem of the Chicago River.



“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 2016, 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.

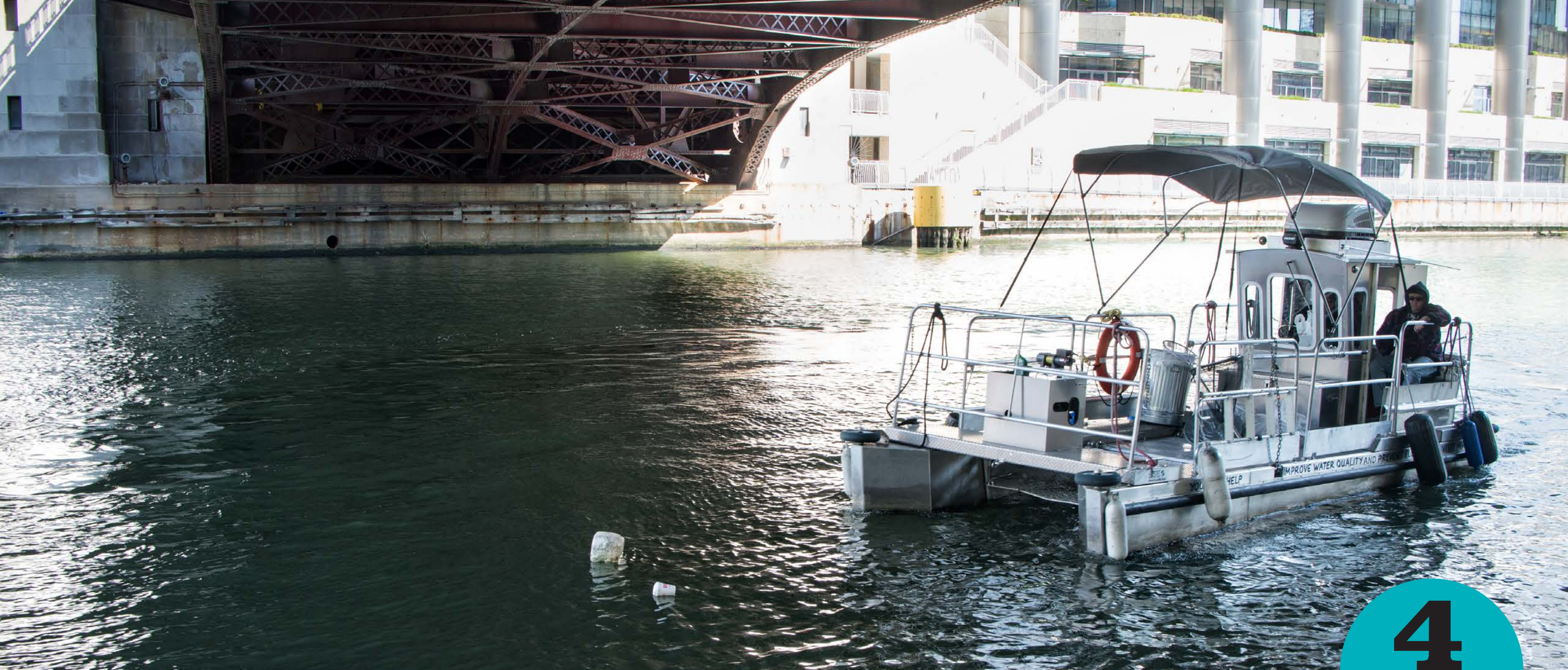
The CAWS Use Attainability Analysis (IPCB Rulemaking R08-009) resulted in more stringent water quality standards for the CAWS, effective July 1, 2015, based on new CAWS A and CAWS B Aquatic Life Use designations. The CAWS exhibited high compliance with water quality standards. Of the parameters analyzed 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 station.

In 2016, 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.

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 9 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 will occur during 2017 and 2018, with the final report scheduled for submittal by June 30, 2019.

Bacteriological monitoring at the Stickney Water Reclamation Plant.



4

Record of Floatable Control Activities

Floating debris in the sights of the MWRD's Skimmy Dipper skimmer boat on the Main Stem of the Chicago River.

A recreational boat passes under the Chicago Avenue bridge on the North Branch of the Chicago River.



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 2016.

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 2016 Floatable Control Activities*, is a summary of data collected for debris, skimmer and pontoon boat operations.
- ✓ Additionally, scanned copies of the log for each day a boat was in operation is also transmitted on the enclosed CD. (2016 Debris and Skimmer Boats Floatable Control Logs.pdf)

Status of Combined Sewer Overflow Floatables Control in Addison Creek:

The final design of the floatables control boom is complete, and the District continues the process of obtaining the three necessary easements. The boom will be installed upon acquisition of the easements. The necessary permits from the regulatory authorities have been obtained. 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 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, which will be installed upon acquisition of all three easements (See copy of Purchase Order on CD).
- ✓ It is expected that the District will obtain the two additional easements in the first half of 2017.



5

Green Infrastructure Activities

Daniel J. Corkery Elementary School students participate in a Space To Grow planting event, helping to transform the grounds of their school with native plants and green infrastructure.

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.

2016 Rain Barrel Program Annual Report (Appendix E.II.A)

Enhanced 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. (See revised [Rain Barrel Policy Program](#) on the enclosed CD.) 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. Once registered, residents living in those municipalities were able to order up to four 55-gallon rain barrels per household. The barrels were offered in blue, black, terra cotta and gray and were delivered directly to residents’ homes. In 2016, 88 municipalities were enrolled as partners. (See [complete list of participants](#) and a [template for an IGA Rain Barrel Agreement](#) on the enclosed CD.)

The District also provided free rain barrels to campus-type facilities that committed to being a community partner and good steward of stormwater. These types of facilities included: schools, municipal properties (i.e. town halls, libraries, park district buildings, fire and police stations, garage/ outbuildings), churches, community centers, senior centers, hospitals and clinics. The facility representatives were able to request rain barrels by contacting the District and including information about the location of where the rain barrels would be installed.

Non-government organizations (NGO), planning groups, or community groups throughout Cook County also had access to the District’s Rain Barrel Program by signing a Memorandum of Understanding. These entities were required to submit a detailed plan describing how they would distribute barrels and provide an educational outreach component regarding how to install, care for, and maintain the barrels. In 2016, 23 NGO partners were enrolled in the rain barrel distribution program. (See [template for an NGO/Community Rain Barrel Agreement](#) on the enclosed CD.)

For Cook County residents who did not have access to the District’s free rain barrel program, the District sold and delivered barrels for \$47 each via mwrđ.org.

Marketing Activities

The District vigorously marketed rain barrels through multiple channels in 2016. (See a [list of all media mentions](#) on the enclosed CD.)

Our marketing materials introduced rain barrels to those unfamiliar with them and emphasized their utility in preventing flooding and improving water quality. The marketing efforts also countered common barriers to

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.

acceptance of rain barrels: 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 with an easy to follow demonstration; 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.

The District enlisted the help of municipalities participating in the enhanced rain barrel program to help market them to their residents.

PUBLICATIONS: The District updated and printed a rain barrel brochure that municipalities participating in the enhanced rain barrel program could utilize in their individual communities. (See [Lansing Rain Barrel Brochure](#) on the enclosed CD.) In addition to the marketing messages described above, the brochure provided specific details for ordering. The District customized these brochures for each participating municipality with the municipal logo and specific ordering instructions unique to each municipality. 5,000 brochures were produced for 10 participating municipalities in 2014, 13,000 brochures were produced for 13 participating municipalities in 2015, and 16,000 brochures were produced for 10 municipalities in 2016.

The District produced and distributed a version of this brochure to promote the rain barrels that are available from the District for \$47. (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 were distributed with our rain barrels and available at mwrđ.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, videos and sharing the productive uses of rain barrels and other green infrastructure via Facebook and Twitter. 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 community members.

WEBSITE: Rain barrels were prominently advertised with a large graphic on the home page of the District’s website, mwrđ.org. The rain barrel content on mwrđ.org was refreshed in 2016 to match the messaging and content of the other marketing materials. The website was routinely updated as new municipalities and NGOs enrolled.

PRESS RELEASES: Rain barrels were mentioned in three District-issued press releases in 2014, nine press releases in 2015, and six press releases

in 2016. The 2016 press releases detailed various green initiatives and community garden events where barrels were given away. One press release highlighted an award that was given to a local NGO for most rain barrels distributed. (See complete list of press releases on the enclosed CD.)

OUTREACH EVENTS AND RAIN BARREL DRAWINGS: The District heavily promoted rain barrels at public outreach events by bringing a rain barrel to these events and giving it away in a drawing to an attendee. To qualify, event attendees were required to fill out a “Water Environment Pledge” detailing water conservation actions. One hundred thirteen rain barrels were distributed in this manner at different events. (See [list of all events with rain barrel drawings](#) on the enclosed CD.) These outreach efforts were established 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. The benefits of rain barrels were also marketed through the Space to Grow program, which works to transform Chicago Public Schools playgrounds into vibrant outdoor spaces that better absorb rain water. For more information on this program, please see the Green Infrastructure Section of this document. At our Fourth Annual Sustainability Summit (see press release on enclosed CD), we presented an award to the Historic Chicago Bungalow Association for the highest number of rain barrels (12,000+) distributed in 2016; we also held neighborhood events where residents could pick up free rain barrels. (See [list of all outreach events](#) on the enclosed CD.)

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 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 School 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

WATER ENVIRONMENT PLEDGE MAILING LIST: The District maintained an electronic mailing list of those who signed the Water Environment Pledge. These individuals have a demonstrated interest in rain barrels and may be targeted in future marketing efforts. Over 1000 addresses were added to this database in 2016.

Number of Barrels Distributed

The District distributed 925 rain barrels in 2014, 29,358 barrels in 2015, and 92,981 barrels in 2016, for a total of 123,264 free barrels. The cost to the District to provide the rain barrels in 2014, 2015, and 2016 was \$17,458.00, \$1,520,817.55, and \$4,417,121.69, respectively.

Technical Assistance

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

Potential Volume

If all rain barrels distributed through December 31, 2016 were properly utilized during the entire year, the volume of rainwater kept out of the sewer system in 2016 would be 447,448,320 gallons:

123,264 rain barrels × 55 gallons × 66 average annual days of rain = 447,448,320 gallons

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 otherwise would have drained into local sewers.

The four elementary schools selected for Phase I Space to Grow are in low income areas throughout the City:

- ✓ Virgil I. Grissom Elementary School, 12810 S. Escanaba
- ✓ Morrill Elementary School of Math & Science, 6011 S. Rockwell Street
- ✓ Schmid Elementary School, 9755 S. Greenwood Avenue
- ✓ George Leland Elementary School, 512 S. Lavergne

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 to 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 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 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. This program is highlighted in the report, [Green Schoolyards: A Growing Movement Supporting Health, Education and Connection with Nature](#) (See enclosed CD).

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, through 2020, 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.

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 will contribute almost \$1,500,000 towards the work at these three schools, which will provide a combined DRC of 388,648 gallons per rain event.



Gunsaulus Elementary Scholastic Academy students make use of their newly completed athletic field, one component of the transformation of the school's grounds under the Space To Grow program.

As with prior schools, one of the main criteria for choosing Corkery, Gunsaulus, and Wadsworth was to identify playgrounds that could facilitate a large amount of Design Retention Capacity in flood prone areas. The actual work was started once the schools were closed for the summer. Ribbon cuttings for each school were held during October and November 2016, and all work has since been completed.

Corkery Elementary School

Corkery's playground was transformed from a patchy, compacted lawn and concrete area into permeable surfaces that store and percolate stormwater. Site improvements include: two age-specific play structures, with porous rubber surfacing beneath, for fall protection and permeability; an outdoor classroom surrounded by native plants; vegetable garden beds where students can grow their own food; a volleyball or basketball court; native and deep-rooted plants; and an asphalt track which drains into a permeable turf athletic field for soccer or football play. Stormwater is stored beneath the two play structures, under the landscaped areas, and in the gravel beneath the athletic field, for a total DRC of approximately 102,738 gallons per rain event. Interpretive signage in both Spanish and English helps the public to understand the benefits of the project and how stormwater infrastructure works to reduce flooding in the surrounding area. The District will contribute up to \$500,000 of the project costs.

Gunsaulus Elementary Scholastic Academy

This Space to Grow project transformed patchy lawns at the Gunsaulus Elementary Scholastic Academy into a new schoolyard. Site improvements include: an athletic field with artificial turf; a running track; a learning garden; an outdoor classroom; rain gardens; and a bioretention basin. Planted with a mixture of native and ornamental plants, the rain gardens and the bioretention basin filter, detain, and allow infiltration of stormwater collected from the roof and other impervious surfaces. Together with the aggregate-filled storage underneath the athletic field, the green infrastructure components provide an estimated total DRC of 152,517 gallons per rain event. The District will contribute up to \$500,000 of the project costs.

James Wadsworth Elementary School

Prior to implementing this project, the play yard at the James Wadsworth Elementary School was paved entirely of impervious asphalt, with a small playground on rubber tiles. This project consisted of the renovation of an approximately 38,000 sq. ft. area on the north side of the school building. The new play area includes: an athletic field with artificial turf; a running track; a basketball court; a playground with poured-in-place rubberized surface; and a community kitchen garden area, completed with native landscaping. The stormwater management system features a cistern which captures roof runoff, a rain garden which captures runoff from the running track, and a subsurface aggregate-filled storage area which holds stormwater for gradual release into the combined sewer. The project provides an estimated DRC of 133,393 gallons per rain event. The District will contribute up to \$500,000 of the project costs.

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 and groundbreaking ceremonies were hosted and well attended. The District created a time-lapse video of construction of the Wadsworth Elementary School Space to Grow project. (https://youtu.be/s5Hx3f2CkzM)

One school that was designed in 2015, the Oliver S. Wescott Elementary School, located at 409 W. 80th Street, is now slated for construction in 2017. The DRC for this school is estimated to be 146,346 gallons per rain event.

Work will begin soon at five additional schools to be constructed in 2017:

- ✓ John W. Cook Elementary School, 8150 S. Bishop Street

- ✓ Nathan S. Davis Elementary School, 3014 W. 39th Place
- ✓ Fernwood Elementary School, 10041 S. Union Avenue
- ✓ Eugene Field Elementary School, 7019 N. Ashland Avenue
- ✓ Morton School of Excellence, 431 N. Troy Street

Design work will also commence in 2017, with construction planned for 2018, for the following five schools:

- ✓ Arthur R. Ashe Elementary School, 8505 S. Ingleside Avenue
- ✓ James B. Farnsworth Elementary School, 5414 N. Linder Avenue
- ✓ Ninos Heroes Elementary Academic Center, 8344 S. Commercial Avenue
- ✓ Henry H. Nash Elementary School, 4837 W. Erie Street
- ✓ Daniel Webster Elementary School, 4055 W. Arthington Street

The DRC for these five schools will be determined once the plans and specifications are completed.

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 and will continue to be held to describe project details and benefits.

The District and CPS have negotiated another IGA to facilitate projects through 2020, 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 construction, the District frequently visited the sites to gain knowledge on the installation of GI while monitoring progress.

Additional GI Partnerships

In 2016, the District constructed additional GI projects that conform to the criteria established in the GIPP. The District worked with the Village of Northbrook (Northbrook) and the Village of Kenilworth (Kenilworth) to develop GI Projects consisting of permeable pavement, rain gardens and swales. The District contributed a total of \$1,675,000 to these projects which provided a combined DRC of 1,482,753 gallons. The District entered into IGAs with Northbrook and Kenilworth whereby maintenance responsibilities lie with the municipality 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.

NORTHBROOK – WESCOTT PARK: In 2016, the Village of Northbrook installed an approximately 7,500,000 gallon reservoir under Wescott Park to hold water that would normally cause both basement and overland flooding in the area at a cost of \$9,175,000. The District paid an additional \$475,000 to install a control system that will be used to irrigate nearby landscaping, thereby reducing flow to the sewer system while reducing usage of potable water. This project was completed in November 2016. The calculated DRC of this project is 162,926 gallons per rain event. A press release is attached on the CD.

KENILWORTH GREEN INFRASTRUCTURE PROJECT: In 2016, the Village of Kenilworth reconstructed Cumberland Avenue, Roslyn Road, and Melrose Avenue between Abottsford Road and Sheridan Road using green infrastructure, which includes porous asphalt pavements and bioinfiltration parkways. The project provides 1,319,827 gallons of DRC in a flood prone area. The District funded \$1,200,000 of this project, which was approximately 15% of the total \$8,100,000 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. In 2015, the District partnered with the Village

of Glenview and executed an IGA for the purchase of 17 homes that were subsequently demolished and restored to open space. These 17 properties provide approximately 169,000 gallons of stormwater retention. In 2016, 18 additional properties have been purchased, demolished, and restored under similar IGAs with the City of Des Plaines and the Cook County Land Bank Authority which provide approximately 109,975 gallons of additional stormwater retention. The District contributed buyout funds in the amount of \$4,207,000 while the Illinois Emergency Management Authority (IEMA) and U.S. Housing and Urban Development (HUD) contributed the balance of the \$6,810,000 total cost. The District is currently negotiating IGAs with four other municipalities.

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 our jurisdiction. The District will continue 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 2016, 182 permits were issued that required a total of 11,495,209 gallons of GI retention volume. For the WMO permits issued in 2016, 1,839,559 gallons of retention were completed, 7,619,081 gallons were under construction, and 2,036,569 gallons were approved on projects that have yet to be started. An additional 4,854,919 gallons of retention capacity permitted since 2014 has been constructed bringing the total GI installed under the WMO to 6,694,478 gallons. The District anticipates that more GI retention volume will be approved in 2017 and beyond. (see 2016 Green Infrastructure Project Log below and the [table, Green Infrastructure Design Retention Accomplishments](#) on enclosed CD)

In 2016, the total DRC installed at CPS, the District-sponsored projects at Northbrook and Kenilworth, and due to the requirements of the WMO was 1,871,401 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 20 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.

	2014	2015	2016
WMO GI Permits Issued	7	109	182
Permitted GI DRC (Gallons) Installed	248,950	4,605,969	1,839,559
Permitted GI DRC (Gallons) Under Construction	0	3,421,436	7,619,081
Permitted GI DRC (Gallons) to be Constructed	0	169,443	2,036,569
Total DRC (Gallons) Permitted	248,950	8,196,848	11,495,209
Cumulative Total	19,941,007		

Potential Future GI Projects

The District began planning several other GI Projects in 2016. The District entered into an IGA with the City of Berwyn to fund the cost difference between permeable pavement and conventional pavement in rebuilding ten green alleys at an estimated cost to the District of \$666,700, with an estimated DRC of 679,122 gallons per rain event. The Berwyn Project is scheduled to start and be completed in 2017. The District also entered into an IGA with the Village of Skokie to share the cost to build a rain garden and a bioswale in flood prone areas. The District will fund \$200,000 of a total estimated cost of \$500,000 for the project, which has an estimated DRC of 46,424 gallons, and will be completed in 2017. The District entered into an IGA with the Village of Niles to construct a bioswale and a permeable pavement parking lot adjacent to Oak Park with the goals of increasing groundwater infiltration and capture of stormwater, reducing combined sewer overflow events, and offering volunteer opportunities. The District will pay \$200,000 of the total \$400,000 project cost, which will provide a DRC of 53,811 gallons. District staff will participate in workshops with the local public to explain the rationale behind these projects and how the projects will help to alleviate flooding while providing a myriad of other environmental and social benefits.

The replacement of a deteriorating parking lot at the District's Egan Water Reclamation Plant, which began in 2015, continued in 2016, with completion expected in early 2017. The cost is approximately \$1,100,000. The parking lot is being constructed with permeable pavement and will include greenways and a rain garden with an estimated DRC of 483,000 gallons.

The District continues to explore innovative ways to harvest and reuse captured stormwater. In 2015, the District began working with the Chicago Housing Authority to utilize a 290,000-gallon storage tank located in their Dearborn Homes complex at 2930 S. Dearborn Street for harvesting stormwater. This stormwater will later be used to irrigate nearby landscaping, which will reduce flow to the combined sewer system, reduce usage of potable water, and help alleviate localized flooding. The design of this project was near completion in 2016, with construction to start and finish in 2017. The District will pay a total of \$327,695 for the design and an estimated \$750,000 for the construction of this project.

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 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 2016, one lease was issued under this policy. The lessee, the Chicago Park District, will install greenways on a parcel of the District’s land that will provide a Design Retention Capacity (DRC) of 14,293 gallons, which is greater than the 9,005 gallons required under the terms of the lease.

Green Infrastructure Project Log (Appendix E.III)

2016 Log of Green Infrastructure Capture Volume 2016 Chicago Public Schools		
Elementary Schools	Green Infrastructure Technologies	Design Retention Capacity
Daniel J. Corkery Elementary School 2510 S. Kildare Avenue	Rain Gardens, Permeable Surfaces, Bioswales	102,738 gallons
Frank W. Gunsaulus Elementary Scholastic Academy 4420 S. Sacramento Avenue	Rain Gardens, Permeable Surfaces, Bioswales	152,517 gallons
James Wadsworth Elementary School 6650 S. Ellis Avenue	Rain Gardens, Permeable Surfaces, Bioswales	133,393 gallons
Total Retention for CPS schools		388,648 gallons

2016 Log of Green Infrastructure Capture Volume 2016 District-Sponsored Projects	
Project	Design Retention Capacity
Village of Northbrook	162,926 gallons
Village of Kenilworth	1,319,827 gallons
Total Retention	1,482,753 gallons
Watershed Management Ordinance Permits 298 WMO Permits issued Requiring Green Infrastructure	
Construction Status	Capacity
GI Permitted Yet to Begin Construction	2,206,012 gallons
GI Permitted Under Construction	11,040,517 gallons
GI Permitted Construction Complete	6,694,478 gallons
Total WMO GI Permitted	19,941,007 gallons



*nine schools completed through 2016
**five projects completed through 2016

National Pollutant Discharge Elimination System Permits Consent Decree
2016 Annual Report Referenced Resources



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Cover: The MWRD-funded Space to Grow program transformed the grounds of James Wadsworth Elementary School from an impervious asphalt lot with a small play structure to a new play yard including an athletic field, a running track, a basketball court, a playground with poured-in-place rubberized surface, a community kitchen garden area, native landscaping and green infrastructure technology capable of holding 133,393 gallons per rain event.