



# National Pollutant Discharge Elimination System Permits Consent Decree **2021 Annual Report**

**Metropolitan Water Reclamation District of Greater Chicago**



# Introduction

*About 270 feet below ground, the District's Des Plaines Inflow Tunnel is a one-mile section that links the McCook Reservoir to a 26-mile tunnel system that collects stormwater and wastewater and conveys it for treatment.*

Metropolitan Water Reclamation District of Greater Chicago (District) National Pollutant Discharge Elimination System (NPDES) Permits Consent Decree (Civil Action No. 11 C 8859)—2021 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 2021 and is due March 31, 2022.



**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 2021.
- 3.** 2021 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 2021 demonstrates satisfactory compliance with the Annual Reporting obligation of the District per the Consent Decree.

In addition to the above, the District notes 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.





# 1

## McCook and Thornton Composite Reservoir March 2021 Progress Report

*McCook Reservoir Stage 2 is under construction and will have the capacity to hold 6.5 billion gallons of water. The reservoir is part of the District's Tunnel and Reservoir Plan (TARP) working to mitigate flooding and waterway pollution by containing the first flush of combined stormwater and sewage, enabling the District's Stickney Water Reclamation Plant enough time to catch up on treatment operations during heavy rainfalls.*

# 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 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 executed a new Project Participating Agreement (PPA) under which the Corps transferred the remaining federal funds for Stage 2 to the District, and the District will complete the remaining design and construction.

### **District Work**

**In order to accomplish its responsibilities, the District initiated numerous 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 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 50 percent of the stone from Stage 2 had been mined by the end of 2021. 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 slightly down last year due to the pandemic, but mining of Stage 2 is still expected to be completed by December 31, 2028. Vulcan's annual mining progress report for 2021 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 early in 2022.

**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 2022.

**STAGE 2 MISCELLANEOUS FLOOR FEATURES (17-132-4F):** Drainage improvements to the reservoir floor and reservoir aeration equipment 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 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 AND 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.



*McCook Reservoir Stage 1 can hold 3.5 billion gallons of water and was completed in 2017. Through December 2021, approximately 83 billion gallons of polluted water was captured.*

### 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 2021, the reservoir captured a total of 82 BG of combined sewage, preventing it from polluting waterways and flooding homes. A table showing the dates and respective volumes captured by the McCook Reservoir is [linked here](#). Overall, more than 144 BG of combined sewer overflows were captured by the Mainstream/Des Plaines TARP System since Stage 1 of McCook became operational. Stage 2 of the McCook Reservoir will help capture additional CSO volume 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 \$445 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. By the end of 2022, 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 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 2021, the reservoir captured a total of 48 BG of combined sewage during 108 storms events. A table showing the dates and respective volumes captured by the Thornton Composite Reservoir is [linked here](#). Since the Thornton Composite Reservoir became operational, there have been very few CSO discharge events within the Calumet TARP service area. Overall, more than 99.9 percent of combined sewer overflows have been captured by the Calumet TARP System since Thornton became operational. The few discharges to the waterways that have occurred were the result of local conditions which prevented conveyance of storm flows into the TARP dropshafts. A contract to make some structural adjustments at these locations was completed in 2020 to prevent recurrence.

On November 4, 2021, Contract 15-266-4H5 was awarded to connect the Thorn Creek tunnel to the Thornton Composite Reservoir and abandon the Thornton Transitional Reservoir (TTR), so that the TTR can be returned to a rock quarry by its owner upon termination of the District's lease at the end of 2022.







*Since coming into service in 2015, the Thornton Composite Reservoir has prevented more than 47 billion gallons of combined sewage from entering the waterways. It contains the sewer overflows prior to the water being transported by tunnel for treatment at the Calumet Water Reclamation Plant. The District uses goats and sheep for vegetation control at its facilities.*





# 2

## Combined Sewer Overflow Quarterly Discharge Reports submitted to the IEPA for Calendar Year 2021

*District staff operate a 36-foot debris boat with a 25-foot by 50-foot barge for removing larger objects, but they clear the small debris just the same, traveling along all 76 miles of local canals to maintain the quality of the Chicago River and local waterways throughout the year.*





**“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 are [linked here](#)).

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 that 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 2021 are [linked here](#) .

*Humans are not the only ones benefitting from improved water quality. This egret represents the increasing diversity of wildlife on the Chicago Area Waterway System. Since the District began monitoring fish population in the waterways in the 1970s, the number of fish species has skyrocketed from 10 fish species to 77, including 60 since 2000, drawing birds and other wildlife that are attracted to this increasing amount of fish.*





# 3

## 2021 Water Quality Data for Waterway Systems within the District's Jurisdiction

*MWRD commissioners, community leaders and clean water advocates brought their favorite float, noodle, raft or kayak to the Dammrich Rowing Center in Skokie, Ill. to commemorate healthy waterways and a restored habitat along the North Shore Channel on August 22, 2021. The MWRD constructed local waterways more than 100 years ago for the purpose of reversing the flow of the river with the main intent of providing drainage for the Chicago region and conveying wastewater. Today the Chicago Area Waterway System has never been healthier.*



*Recreation along the Chicago River has increased thanks to water quality improvements that have drawn new economic development, like the Chicago Riverwalk.*





**“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 the District’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 2021, AWQM was conducted monthly at sixteen locations (weekly at Lockport) on the CAWS in accordance with the attached Quality Assurance Project Plan ([Appendix A](#)). A spreadsheet containing the water quality data generated from this monitoring is submitted as [Attachment 1](#).

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. Analysis of the District’s AWQM data shows that the CAWS typically exhibits high compliance with the new water quality standards, only dissolved oxygen (DO), fecal coliform, chloride, and low-level mercury (human health criteria) were exceeded more than once at any single station during 2021.

In 2021, CDOM was conducted at fifteen locations on the CAWS in accordance with the attached Quality Assurance Project Plan ([Appendix B](#)). A spreadsheet containing the hourly dissolved oxygen data generated from this monitoring is submitted as [Attachment 2](#). A report entitled “*Continuous Dissolved Oxygen Monitoring in the Service Area of the Metropolitan Water Reclamation District of Greater Chicago During 2020*” was released in 2021 and is included as [Appendix C](#).

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 more stringent water quality standard over 96 percent of the time on an annual basis at 12 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 Nov. 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 Sept. 30, 2016. This plan was approved by the USEPA in a letter dated Oct. 7, 2016 ([copy linked here](#)). The sampling and monitoring required in this plan occurred during 2017 and 2018, and the required report was submitted on June 27, 2019. A report entitled “*Post-Construction Monitoring Report for the Calumet Tunnel and Reservoir Plan System*” is included as [Appendix D](#).

A revised Mainstream/Lower Des Plaines TARP System Post Construction Monitoring Plan was approved by the USEPA on May 11, 2021 in accordance with Section IX, Paragraph 35b of the Consent Decree ([copy linked here](#)). 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

*The District removed 1,681.9 cubic yards of floatable debris from the Chicago Area Waterway System in 2021.*



*The District's Skim Pickens and its partner the Skimmy Dipper work along the Chicago River to protect the quality of the waterway by removing trash, debris and other floatables polluting the water. The District's skimmer boats provide a vital community service by improving water quality and the recreational experience for thousands of people canoeing, kayaking, boating and enjoying the waterways.*



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 2021.

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

- ✓ A spreadsheet [linked here](#), entitled *Summary of 2021 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 [linked here](#). (*2021 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 2021. All necessary permits and easements were obtained before the installation of the boom. A summary of floatables collected is also [linked here](#). (*Summary of 2021 Floatable Control Activities*) 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) [linked here](#).
- ✓ 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)* [linked here](#) authorizing the project.
- ✓ On February 19, 2016, the District obtained an executed easement agreement [linked here](#) 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 [linked here](#) 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 [linked here](#) from the third private property owner, the Village of Broadview.
- ✓ On July 31, 2017, the floatables control boom was installed [linked here](#).





# 5

## Green Infrastructure Activities

*Combining rain gardens with permeable places to play, Space to Grow has now completed 30 schoolyard renovations in Chicago, bringing the grand total of storage volume to 5,559,821 gallons per rain event.*

# 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 linked here](#).)

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

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. The District accomplished the DRC requirements in 2020.

## 2021 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 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. When the free program concluded, the District reinstated sales of rain barrels to Cook County residents at cost (\$45.78 per rain barrel) via [mwrdd.org](#). The fee includes delivery.

### Marketing Activities

The District marketed rain barrels through multiple channels in 2021. 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 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:** Community Outreach events were on hold beginning in March 2020 due to the pandemic, so the rain barrel brochure that Public Affairs created was not physically distributed during that time, but the District resurrected this outreach in late 2021 to promote new rain barrel discounts. The brochure is posted online and provides specific details for ordering (See [MWRD Rain Barrel Brochure linked here](#)). The District continued to print an installation, use and maintenance instructional guide for rain barrels which were distributed with our rain barrels. The instructional guide is also available at [mwrdd.org](#) (See [MWRD Rain Barrel Instructions linked here](#)). The creation of a storybook "Where Does IT GO?" in 2021 features a rain barrel on page 12. Rain barrels are also described in the District's "Green Neighbor Guide" which is [linked here](#).

**SOCIAL MEDIA:** The District promoted rain barrels on social media by posting photos to demonstrate the productive uses of rain barrels and

other green infrastructure tools 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 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 promoted rain barrels at public outreach events before the pandemic started. 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. In 2020 and 2021, Public Affairs presented virtual tours, and rain barrels are mentioned as a valuable green infrastructure tool. They were also mentioned during other virtual presentations to schools and community groups.

**WATER ENVIRONMENT PLEDGE MAILING LIST:** The District maintains an email list of those who have signed the Water Environment Pledge. The 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, 779 in 2018, 981 in 2019, 1,545 rain barrels in 2020, and 5,002 rain barrels in 2021 for a total of 141,865 barrels. The cost to the District to provide the rain barrels was \$6,513,991.34.

### 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 linked here](#).)

### Potential Volume

With proper utilization, if all rain barrels distributed and sold through December 31, 2021, were properly utilized during the entire year, the volume of rainwater kept out of the sewer system in 2021 is 374,523,600 gallons.



## 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 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 and 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.

## Green Infrastructure Program (Appendix E)

### Phase II Space to Grow Program – Partnership between the District, CPS and 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 also invested up to \$1,000,000 to fund project design at ten schools.

Between 2015 and 2020, the District contributed funding and technical support towards the installation of green infrastructure at 21 CPS schools, providing over 3.7 million gallons of DRC as detailed in the following tables. In 2021, additional Space to Grow projects were completed at five CPS schools which added 1,079,595 gallons of DRC, which have been added to the tables.

Currently, four more Space to Grow projects are being designed with construction anticipated in 2022. These four schools are Robert A. Black

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

- ✓ Virgil I. Grissom Elementary School, 12810 S. Escanaba Avenue
- ✓ 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 provide an estimated combined 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.

Magnet Elementary School, 7133 S. Coles Avenue, Edward Coles Language Academy, 8441 S. Yates Boulevard, Benjamin E. Mays Elementary Academy, 6656 S. Normal Boulevard, and Brian Piccolo Elementary School, 1040 N. Keeler Avenue. The DRC for these four schools will be determined once the plans and specifications are completed. Numerous virtual community meetings were and will continue to be held to describe project details and benefits.

The existing IGA and amendments between the District and CPS facilitates 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 O&M Manual developed for each school. The District reviewed and provided comments on the construction drawings and specifications at various intervals during 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;
- ✓ 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;
- ✓ The 2020 SHIFT Award for Land Management Innovation.

## Additional GI Partnerships

In 2021, the District constructed additional GI projects that conform to the criteria established in the GIPP. The District worked with the Villages of Bartlett, Harwood Heights, Lyons, Oak Park, and Westchester to develop GI projects consisting of permeable pavement parking, green alleys, and bioretention facilities. The District committed \$1,451,580 to these projects which provided a combined DRC of 552,358 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.

### Bartlett – Bioswale and Bike Path Replacement

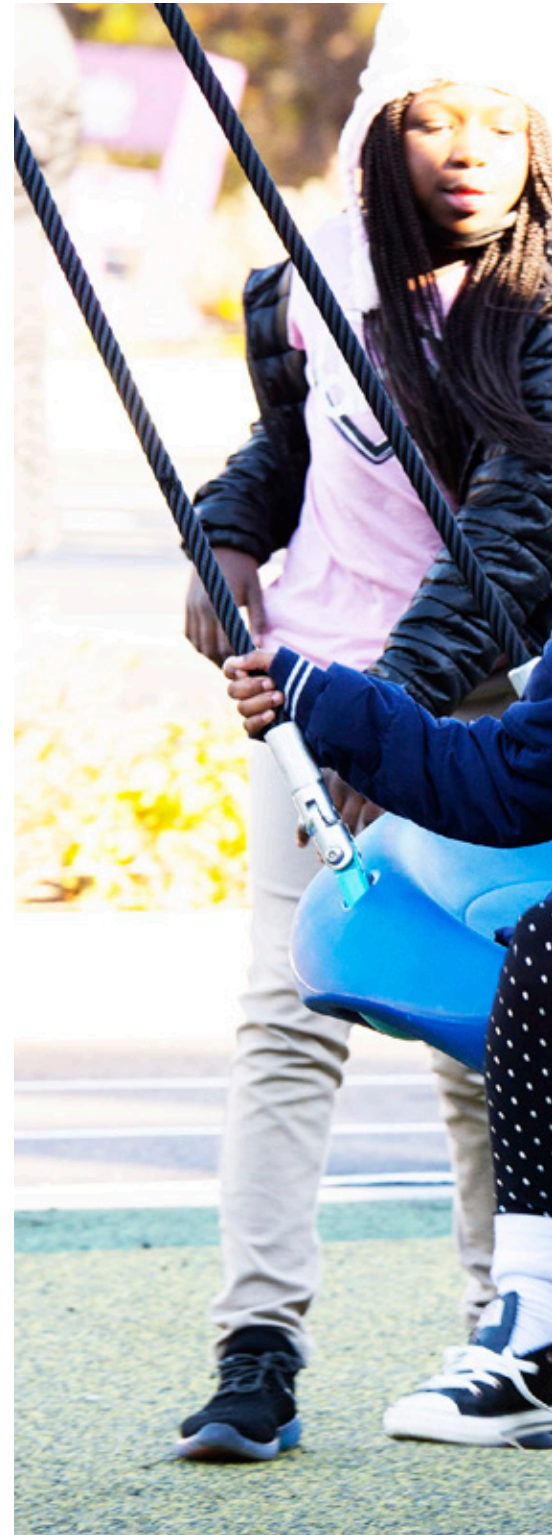
In 2021, the Village of Bartlett constructed this project which entailed adding new stormwater drainage systems, including bioswales with native plantings, additional storm sewers and inlets in order to control the excess water that ponds and floods the area. This project also included a new 8-foot wide bike path to replace the deteriorated path currently in this location, construction of an ADA compliant intersection and the removal of a curb cut along West Bartlett Rd to increase pedestrian safety and enhance the bioswale. The project corrects major flooding and standing water issues during and after rain events by creating proper slopes for drainage as well as bioswales with native plantings that absorb and filter stormwater runoff and encourage pollinators to the area. The District funded \$84,507.21 of the total \$227,169.93 estimated construction cost. This project provides 32,095 gallons per rain event in a flood prone area.

### Harwood Heights – Green Alleys Project

The Village of Harwood Heights converted two impervious alleys into permeable pavement alleys. The project locations are residential alleys that are between Leland Avenue and Gunnison Street and bounded by New England Avenue and Newcastle Avenue. In total the District funded \$219,370.62 of the total \$313,386.60 estimated construction cost for both alleys. Both projects provide a combined 55,189 gallons per rain event in a flood prone area.

### Lyons – Green Alleys Water Management Project

The Village of Lyons Green Alleys Water Management Project consisted of constructing three permeable alleys. Permeable pavers were installed in areas where packed gravel alleys did not drain water. This condition caused flooding in residential yards and water damage to property. A concentration of these alleys are located in the area of the 8000 and 8100 blocks between Ogden Avenue to 45th Street, of which three were converted. The District funded \$485,530 of the total \$775,607 estimated construction cost. This project provides 202,696 gallons per rain event in a flood prone area.





*The District's Space to Grow partnership provides students with a fun and resilient place to play, like here at Isabelle C. O'Keeffe School on Chicago's South Side, where the schoolyard can now hold more than 250,000 gallons of stormwater per rain event due to a new artificial turf field, porous playground surfacing, play hills, rain gardens and an outdoor classroom.*

#### **Oak Park – Public Works Facility Demonstration Rain Gardens**

In 2021, the Village of Oak Park Public Works Demonstration Rain Garden consisted of constructing a 5,000-square-foot native garden space at the Public Works Facility, 201 South Boulevard. This project was built to provide public education and to reduce flooding and provide green infrastructure in the general area. The District funded \$20,000 of the total \$73,291 estimated construction cost. This project provides 12,211 gallons per rain event in a flood prone area.

#### **Westchester – Green Alley Reconstruction Project**

In 2021, the Village of Westchester Green Alley Reconstruction Project consisted of constructing four permeable alleys using permeable pavers in the following locations in Westchester, Illinois, for the public benefit of reducing flooding and providing green infrastructure. The District funded \$642,173 of the total \$1,057,945 estimated construction cost. This project provides 250,167 gallons per rain event in a flood prone area.

In 2021, the total DRC installed at CPS and the District-sponsored projects in the Villages of Bartlett, Harwood Heights, Lyons, Oak Park, and Westchester was 1,631,953 gallons.

### Flood-Prone Property Acquisition Program

The District initiated a buyout program for properties in chronic flood-prone areas in 2015. Properties that qualify will be purchased, buildings demolished, and restored to pervious space, thereby increasing stormwater retention and detention. Since the program was initiated, the District has partnered with several Cook County communities to acquire 93 homes thus far. The properties were subsequently restored to open space and provide approximately 672,000 gallons of stormwater retention. The District will continue to pursue additional flood-prone property acquisition 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

### 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.

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.

In 2021, 165 permits were issued that required a total of 14,470,717 gallons of GI retention volume. For WMO permits issued in 2021, 847,213 gallons of retention capacity was constructed, 10,127,123 gallons were under construction, and 3,496,381 gallons were approved on projects that have yet to be started. An additional 14,535,886 gallons of retention capacity permitted since 2014 was constructed in 2021 bringing the total GI installed under the WMO to 63,596,926 gallons. The District anticipates that more GI retention volume will be approved in 2022 and beyond. (see Green Infrastructure Project Log below and table showing Green Infrastructure Design Retention Accomplishments [linked here](#)).

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 over 104 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 2021 is [linked here](#).

	2014	2015	2016	2017	2018	2019	2020	2021
WMO GI Permits Issued	7	107	181	198	204	206	169	165
Permitted GI DRC (Gallons) Installed*	247,647	8,145,395	10,139,994	13,562,082	11,135,469	11,489,506	8,029,620	847,213
Permitted GI DRC (Gallons) Under Construction*	0	13,034	1,283,853	3,196,598	3,685,375	4,858,438	9,386,138	10,127,123
Permitted GI DRC (Gallons) to be Constructed*	0	0	13,034	492,035	1,059,016	1,335,989	2,334,397	3,496,381
<b>Total DRC (Gallons) Permitted</b>	<b>247,647</b>	<b>8,158,429</b>	<b>11,436,881</b>	<b>17,250,715</b>	<b>15,879,860</b>	<b>17,683,933</b>	<b>19,750,155</b>	<b>14,470,717</b>
<b>Cumulative Total</b>				<b>104,878,337</b>				
<i>*Values reflect status of permits issued in each respective year</i>								

### 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. Due to the positive response to the program, the District again solicited project submittals in 2018, and

received 48 applications, and selected another 20 project partnerships. In 2019, 41 more applications were submitted, with the District selecting another 20 additional projects. In 2020, 32 more applications were submitted, with the District selecting another 16 additional projects. In 2021, 32 more applications were submitted, with the District selecting 7 additional projects. 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 the four years of "Call for Green Infrastructure Projects" is estimated to be 7.9 million gallons.

## 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 linked here](#)). 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.

In late 2020 and 2021, the District's Board of Commissioners authorized four lease transactions with public entities requiring the installation of Green Infrastructure as required by the Comprehensive Land Use Policy. These leases are as follows:

- ✓ Village of Lemont - Lease on 170+ acres of District real estate located along the Main Channel in Lemont, Illinois; Main Channel Parcels 20.01, 21.01, 21.03 and 21.04. The lease commencement date is September 1, 2021.
- ✓ Village of Lemont/Lemont Park District - Lease on 48+ acres of District real estate located north of the Des Plaines River and east of Lemont Road in Lemont, Illinois; Main Channel Parcel 23.06. Although authorized, this lease has not yet commenced.
- ✓ Village of Lemont/Lemont Park District - Lease amendment on 27.19 acres of District real estate located south of the Main Channel, west of Stephen Street in Lemont, Illinois; Main Channel Parcel 23.04 to include Main Channel Parcel 22.04 comprising 9+ additional acres. The lease commenced on October 1, 2020. Although authorized, this lease amendment including Parcel 22.04 has not yet commenced.
- ✓ Chicago Park District - Lease on 78.68 acres of District real estate located south of 122nd Street, east of Stony Island Avenue, and along the northern bank of the Calumet River in Chicago, Illinois. Although authorized, this lease has not yet commenced.

An update on the green infrastructure component of these leases will be contained in future Annual Reports.

## Green Infrastructure Project Log (Appendix E.III)

### Watershed Management Ordinance Permits

1,237 WMO Permits issued requiring Green Infrastructure

Construction Status	Capacity
GI Permitted Yet to Begin Construction	8,730,852 gallons
GI Permitted Under Construction	32,550,559 gallons
GI Permitted Construction Complete	63,596,926 gallons
<b>Total WMO GI Permitted</b>	<b>104,878,337 gallons</b>

### GI Installed Through 2021

$$\text{CPS SCHOOL RETENTION}^* + \text{DISTRICT PARTNERSHIP PROJECTS}^{**} = \mathbf{12,108,257 \text{ GALLONS}}$$

\* Thirty schools completed through 2021

\*\* Thirty-nine projects completed through 2021

### Summary of Green Infrastructure Capture Volume

2014–2021

Installed Design Retention Capacity (Gallons)	2014	2015	2016	2017	2018	2019	2020	2021	Totals
CPS Design Retention	731,004	364,504	388,648	0	1,287,651	881,416	827,003	1,079,595	5,559,821
District Partnership Projects	0	392,754	1,482,823	1,093,788	205,453	1,297,697	1,523,563	552,358	6,548,436
WMO Projects (Installed)	247,647	8,145,395	10,139,994	13,562,082	11,135,469	11,489,506	8,029,620	847,213	63,596,926
<b>Total DRC Installed</b>	<b>978,651</b>	<b>8,902,653</b>	<b>12,011,465</b>	<b>14,655,870</b>	<b>12,628,573</b>	<b>13,668,619</b>	<b>10,380,186</b>	<b>2,479,166</b>	<b>75,705,183</b>



*The District maintains a partnership with the Illinois Monarch Project to help save monarch butterflies by distributing free milkweed seed packets and growing milkweed among its more than 50 acres of native prairie landscaping, which serve as certified monarch waystations and work to mitigate stormwater runoff.*

## Attachments Table of Contents

### Attachments for Item 1 - TARP Reservoirs

1. Total McCook Reservoir CSO Capture Volume 2018-2021.pdf
2. Total Thornton Composite Reservoir CSO Capture Volume- 2016-2021.pdf

### Attachments for Item 2 - CSOs

3. O'Brien (North) CSO M&R Plan Rev. February 2018.pdf
4. Stickney (Central) CSO M&R Plan Rev. February 2018.pdf
5. Calumet (South) CSO M&R Plan Rev. February 2018.pdf
6. IEPA Quarterly Report Jan to Mar 2021.pdf
7. IEPA Quarterly Report Apr to June 2021.pdf
8. IEPA Quarterly Report July to Sept 2021.pdf
9. IEPA Quarterly Report Oct to Dec 2021.pdf

### Attachments for Item 3 - Water Quality

10. Appendix\_A\_AWQM QAPP.pdf
11. Attachment 1\_CAWS\_AWQM\_2021.xlsx
12. Appendix\_B\_CDOM QAPP.PDF
13. Attachment 2\_CAWS\_CDOM\_2021.xlsx
14. Appendix C Continuous Dissolved Oxygen Monitoring in the Service Area of the MWRDGC during 2021.pdf
15. Appendix D Post Construction Monitoring Plan for Calumet TARP . . . System.pdf
16. USEPA Approval Letter PCMP for Calumet TARP System October 7, . . . 2016.pdf
17. Post Construction Monitoring Plan for Mainstream/Des Plaines TARP System.pdf

### Attachments for Item 4 - Floatables

18. Summary of 2021 Floatable Control Activities.pdf
19. 2021 Floatable Control Logs.pdf
20. USACE Letter of No Objection – Debris Boom.pdf
21. IDNR Approval Letter - Debris Boom.pdf
22. Executed Easement Agreement No. 1.pdf
23. Executed Easement Agreement No. 2.pdf
24. Executed Easement Agreement No. 3.pdf
25. Addison Creek Debris Boom Photo

### Attachments for Item 5 - Green Infrastructure

26. Green Infrastructure Program Plan.pdf
27. MWRD Rain Barrel Brochure.pdf
28. MWRD Rain Barrel Instructions.pdf
29. Rain Barrel Install Storyboard.pdf
30. GI Design Retention Capacity Accomplishments through 2021.pdf
31. GI Permits List, 2014-2021.pdf

# National Pollutant Discharge Elimination System Permits Consent Decree

## 2021 Annual Report Referenced Resources

### 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
2019	Arthur R. Ashe Elementary School	8505 S. Ingleside Ave.	244,771
2019	Ninos Heroes Elementary Academic Center	8344 S. Commercial Ave.	179,432
2019	Henry H. Nash Elementary School	4837 W. Erie St.	152,841
2019	Daniel Webster Elementary School	4055 W. Arthington St.	151,742
2019	Oliver S. Wescott Elementary School	409 W. 80th St.	152,630
2020	John Barry Elementary School	2828 N. Kilbourn Ave.	151,367
2020	Daniel Boone Elementary School	6710 N. Washtenaw Ave.	186,241
2020	Genevieve Melody Elementary School	3937 W. Wilcox St.	154,000
2020	Jesse Sherwood Elementary School	245 W. 57th St.	184,454
2020	Harold Washington Elementary School	9130 S. University Ave.	150,941
2021	Horace Mann Elementary School	8050 S. Chappel Ave.	271,203
2021	Arnold Mireles Elementary School	9000 S. Exchange Ave.	208,117
2021	Isabelle C. O'Keeffe Elementary School	6940 S. Merrill Ave.	250,064
2021	Daniel S. Wentworth Elementary School	1340 W. 71 <sup>st</sup> Street	196,358
2021	John Whistler Elementary School	11533 S. Ada Street	153,853
<b>Total</b>			<b>5,559,821</b>

## Board of Commissioners

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Established in 1889, the MWRD is an award-winning, special purpose government agency responsible for wastewater treatment and stormwater management in Cook County, Illinois.

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**Metropolitan Water Reclamation District of Greater Chicago**

100 East Erie Street • Chicago, Illinois 60611-3154

     [mwrdd.org](http://mwrdd.org)

*Front cover: The Space to Grow program, a collaboration between the District and partners, addresses localized flooding and serves to educate students, parents, school staff and neighbors about the benefits of green infrastructure.*