



**Metropolitan Water  
Reclamation District  
of Greater Chicago**

STORMWATER MANAGEMENT PROGRAM  
**2020 Annual Report**



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**CLOCKWISE FROM TOP LEFT:** A car stuck in high water after a rain event in May 2020; construction of the Addison Creek Reservoir; flooding after a May 2020 rain event; permeable pavers at La Grange Village Hall; construction of the Space to Grow schoolyard at Melody Elementary in West Garfield Park.

## BACKGROUND AND HISTORY

For years, stormwater management in Cook County has been a patchwork of efforts by local, regional, state and federal agencies. The Illinois General Assembly enacted Public Act 93-1049 in November of 2004, allowing for the creation of a comprehensive stormwater management program in Cook County under the supervision of the Metropolitan Water Reclamation District of Greater Chicago (MWRD).

The Act required MWRD to develop the Cook County Stormwater Management Plan. The Cook County Stormwater Management Plan provides the framework for the stormwater management program, including its mission, goals, and program elements. MWRD's Board of Commissioners adopted the plan in February 2007. Adoption of the plan and the implementation of MWRD's countywide stormwater management program afford Cook County the means to address a range of stormwater management issues through proper watershed regulations and watershed planning.

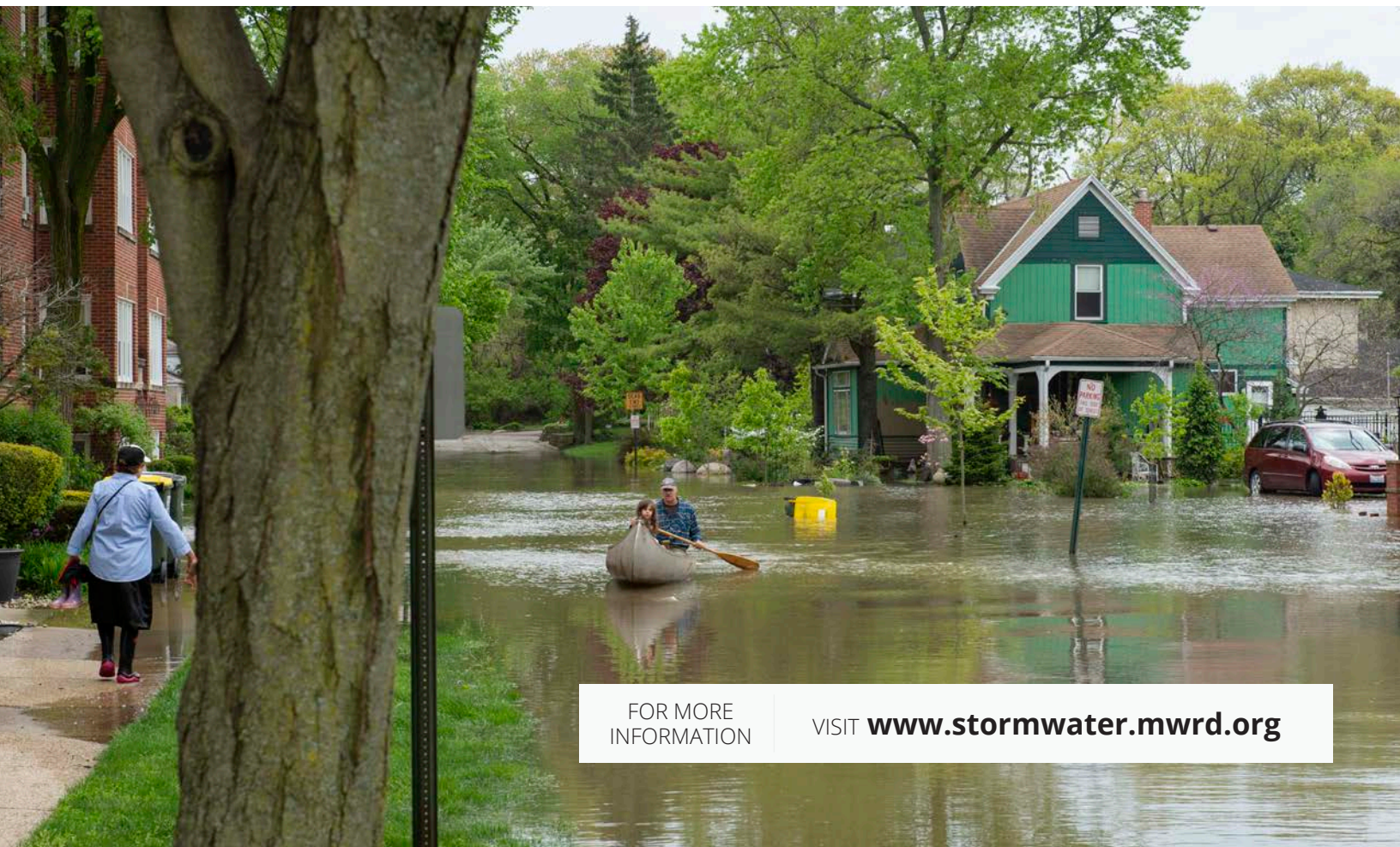
Under this plan, MWRD has established Watershed Planning Councils and completed Detailed Watershed Plans for all six major watersheds in Cook County, initiated a Stormwater Management Capital Improvement Program, initiated a Small

Streams Maintenance Program, and adopted and implemented the Watershed Management Ordinance (WMO).

The program expanded significantly in 2014. The Cook County Stormwater Management Plan was amended in July 2014 to be consistent with P.A. 98-0652, which grants MWRD authority to allow for acquisition of flood-prone properties and to plan, implement, finance, and operate local stormwater management projects. MWRD entered into a Consent Decree with the Environmental Protection Agency in January 2014, establishing the Green Infrastructure Program. Additionally, the Infiltration/Inflow Control Program was incorporated into the WMO in 2014.

Through a variety of engineered solutions, both green and gray, and flood-prone property acquisitions, MWRD's Stormwater Management Program addresses both regional and local flooding problems throughout Cook County. MWRD has made significant investments in developing over 140 capital stormwater projects since it assumed the authority for stormwater management in 2004. These projects, which range in both size and scope, provide flood protection for thousands of homes, businesses, and critical infrastructure.

▼ Flooding in Riverside after a rain event in May 2020.



FOR MORE  
INFORMATION

VISIT [www.stormwater.mwrdd.org](http://www.stormwater.mwrdd.org)

## 2020 YEAR IN REVIEW

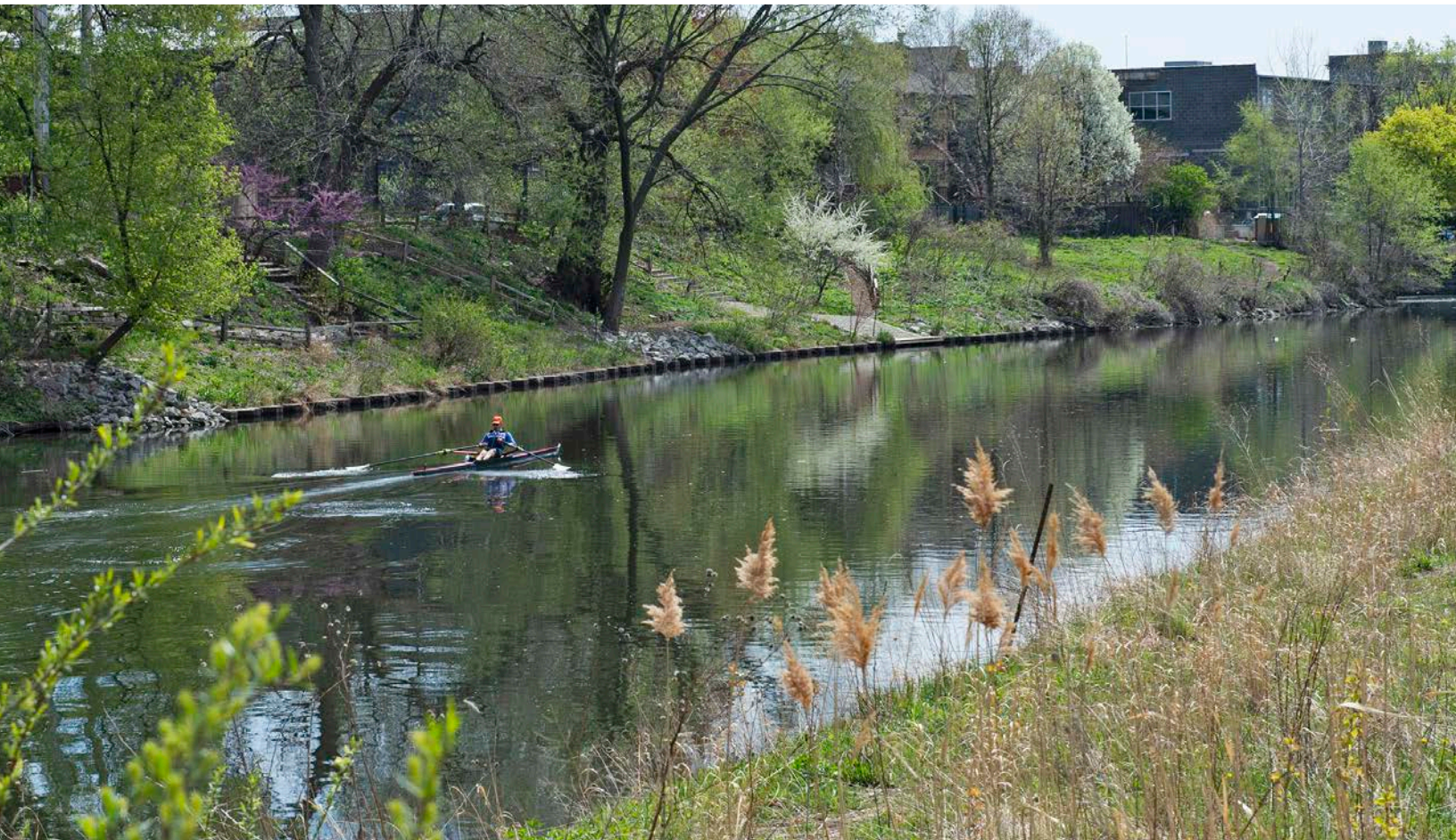
On March 13th, the MWRD implemented reduced staffing orders in order to cope with the COVID-19 pandemic. MWRD staff quickly adapted to a telework environment to maintain continued stormwater management services, including advancing its capital improvement programs and administering the watershed management ordinance (WMO). May of 2020 marked the third consecutive May on record with the greatest total rainfall in the region. While the intense storms did not have significant impacts on the MWRD's Stormwater Management projects under construction, the increasing rainfall patterns have reinforced the need for the MWRD to assist local communities in their efforts to address the impacts of flooding. To accomplish this, the MWRD called for Green Infrastructure project submittals in a solicitation for MWRD assistance in mid-2020, and also called for Local Stormwater and Flood-Prone Property Acquisitions projects later in the year.

While design and construction of ongoing MWRD projects were not directly impacted by the COVID-19 pandemic, some minor delays in contract advertisement and award were encountered related to the operational adjustment to telecommuting. The impacts of the COVID-19 pandemic on partner agencies contributed to the

cancellation of projects previously approved for funding assistance from the MWRD. In 2020, the following partner-led projects were canceled at the requests of the local jurisdiction: Clarkson Park Green Infrastructure Improvements in Northfield, NSA, Evanston/Skokie School District 65 Green Infrastructure at Orrington Elementary School, Permeable Pavement Installation at Popular Creek Library in Streamwood, Permeable Pavement and Rain Gardens in Posen, Green Infrastructure in Calumet City, Parking Lot Improvements Project in Evanston, and Cornell Avenue Green Infrastructure Project in Dolton.

In 2020, projects under construction in partnership with municipalities included: Addison Creek Reservoir, Addison Creek Streambank Stabilization, Buffalo Creek Reservoir Expansion, Lyons and McCook Levee Improvements Projects, Melvina Ditch Streambank Stabilization, Natalie Creek Flood Control, Green Alley projects in Cicero, Harwood Heights, Lyons, and Maywood, Green Infrastructure Retrofits at Bartlett, Northlake, Thornton School District 154, and Union Ridge School District 86, and New Storm Sewers in Mount Prospect and Lincolnwood. Further details concerning these items and other stormwater management activities are provided in this Annual Report.

▼ A rower on the Chicago River.



## 2020 Accomplishments for the Stormwater Management Program include the following:

**Completed construction** of a capital improvement project to stabilize Addison Creek streambanks;



▲ Streambank stabilization on Addison Creek.

**Negotiated Intergovernmental Agreements (IGA)** for acquisition of flood-prone properties within the Cities of Des Plaines, Palos Hills, Prospect Heights, and in unincorporated Palatine Township. Negotiations for acquisition of two additional flood-prone properties in Northlake, to be funded through the Capital Improvements Bond Fund, were also initiated;

**Required construction** of 186 million gallons of volume control, detention, and floodplain compensatory storage, in conjunction with development throughout Cook County, as a result of WMO enforcement;

**Amended the WMO** on May 7, 2020, to allow the regional stormwater detention and volume control trading program pilot study in the Lower Des Plaines River and Little Calumet River watershed planning areas to commence. References to current rainfall data were also updated;

**Conducted technical advisory committee meetings** to present changes to the WMO and Technical Guidance Manual (TGM) when updates were applicable;

**Updated the TGM** based on the WMO Amendment;

**Provided Global Positioning System (GPS)** units to local municipalities as a resource to begin mapping their sewer systems in a Geographic Information System or to improve their existing sewer system map;

**Began receiving permit submittals** electronically as well as electronic payments as a result of the COVID-19 pandemic;

**Conducted a survey** of suburban school districts to assess interest and get feedback on a program focused on Suburban Green Schoolyards, similar to the Space to Grow program in the City of Chicago;

**Initiated a survey** of existing stormwater partners to identify ways to improve the MWRD's Green Infrastructure Partnership Program

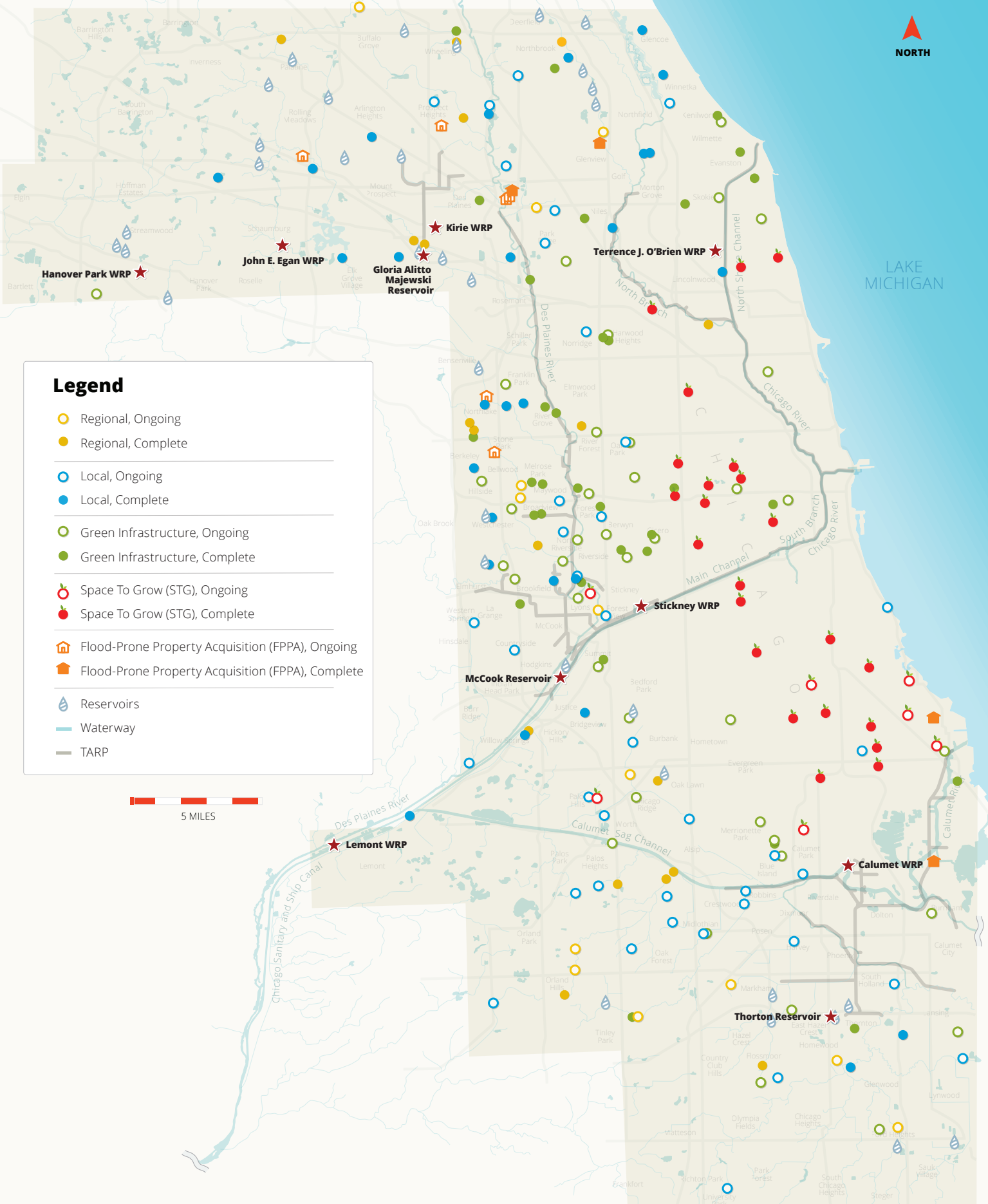
## 2020 Budget

### SIGNIFICANT FEATURES

- Prioritize and implement new Green Infrastructure projects from 2019 solicitations;
- Continue engineering design for Phase I and Phase II projects and begin construction of projects that have completed final design and have been approved by the Board of Commissioners;
- Identify partnership opportunities to assist in implementing local drainage improvements and acquisition of flood-prone properties;
- Award the Addison Creek Channel Improvements project in Bellwood, Broadview, Melrose Park, Northlake, Stone Park, and Westchester, and the Melvina Ditch Streambank Stabilization project in Oak Lawn and Chicago Ridge;
- Continue the SSMP to reduce flooding in urbanized areas;
- Continue to expand the online content related to the Chicago Area Waterway System and the SSMP to provide educational materials, as well as general information regarding the management of the system before, during, and after a storm;
- Amend the WMO and update the TGM to include clarifications to better serve the MWRD and its constituents;
- Continue the implementation of the I/I Control Program to reduce sanitary sewer overflows and basement backups.



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### Legend

- Regional, Ongoing
- Regional, Complete

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- Local, Ongoing
- Local, Complete

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- Green Infrastructure, Ongoing
- Green Infrastructure, Complete

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- Space To Grow (STG), Ongoing
- Space To Grow (STG), Complete

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- 🏠 Flood-Prone Property Acquisition (FPPA), Ongoing
- 🏠 Flood-Prone Property Acquisition (FPPA), Complete

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- 💧 Reservoirs
- Waterway
- TARP



5 MILES

## 2020 COMPLETED PROJECTS



### STREAMBANK STABILIZATION PROJECTS FOR ADDISON CREEK, SSA

**ID:** ADCR-9; ADCR-7A **Contract:** 14-108-5F

**Watershed:** Des Plaines River

**Location:** Northlake; North Riverside, IL

**Description:** Stabilizing approximately 750 feet of Addison Creek adjacent to Fullerton Avenue in Northlake and 410 linear feet of streambank adjacent to 19th Avenue in North Riverside. Stabilization methods include the installation of native vegetation, a vegetated geogrid, turf reinforcing mat, and the placement of riprap.

**Estimated Construction Cost:** \$998,696

**Status:** Construction completed 5/10/2020.

### RIVERSIDE-PHASE 2 IGA

**ID:** Riverside 13 **Contract:** 16-IGA-03 **Watershed:** Des Plaines River **Location:** Riverside, IL

**Description:** Construction of a 24" storm sewer outlet to the Des Plaines River and block or restrict flow from the storm sewers of the Railroad Drainage Area to the existing combined sewer. This is a cost-sharing agreement with the Village of Riverside.

**Estimated Construction Cost:** \$90,000 **Status:** Construction completed 4/6/2020.

### CULVERT IMPROVEMENTS IN ELK GROVE VILLAGE, NSA

**ID:** Elk Grove Village **Contract:** 18-IGA-30 **Watershed:** Des Plaines River

**Description:** Culvert improvements in conjunction with channel maintenance.

**Estimated Construction Cost:** \$1,250,000 **MWRD Contribution:** \$1,250,000

**Status:** Construction completed 4/30/2020.

### NEW STORM SEWERS AND OUTFALL ALONG NORTH SHORE AVENUE

**ID:** Lincolnwood **Contract:** 18-IGA-22 **Watershed:** North Branch **Location:** Lincolnwood, IL

**Description:** New storm sewer system will protect residential homes from basement backups and drain into a new outfall along North Shore Avenue.

**Estimated Construction Cost:** \$1,391,763 **MWRD Contribution:** \$1,391,763

**Status:** Construction completed 6/18/2020.

### STORMWATER STORAGE IN MOUNT PROSPECT

**ID:** Mount Prospect **Contract:** 18-IGA-25 **Watershed:** Lower Des Plaines **Location:** Mount Prospect, IL

**Description:** Design and construction of two new flood storage basins and upgrade of ancillary storm sewers to provide a cumulative flood storage volume of approximately 30 acre-feet.

**Estimated Construction Cost:** \$1,862,322 **MWRD Contribution:** \$1,348,000

**Status:** Construction completed 6/25/2020.

### GREEN ALLEYS PROJECT IN CHICAGO, CSA

**ID:** Chicago-10th Ward **Contract:** 18-IGA-03

**Watershed:** Combined Sewer/Sanitary and Ship Canal Area **Location:** Chicago, IL

**Description:** Replacing two alleys with permeable pavement in the 10th Ward.

**Estimated Construction Cost:** \$220,000 **MWRD Contribution:** \$110,000

**Status:** Construction completed 6/25/2020.

### STORMWATER INFILTRATION THROUGH THE ESTABLISHMENT OF NATIVE HABITAT AT THREE CHICAGO PARKS, VARIOUS LOCATIONS

**ID:** CPD **Contract:** 18-IGA-04 **Watershed:** Combined Sewer/Sanitary and Ship Canal Area

**Location:** Chicago, IL

**Description:** Replacing turf grass with native plantings at three Chicago parks.

**Estimated Construction Cost:** \$477,978 **MWRD Contribution:** \$238,930

**Status:** Construction completed 10/14/2020.



▲ Installation of permeable pavement in La Grange.

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### UNIVERSITY OF ILLINOIS AT CHICAGO GREEN INFRASTRUCTURE AT THE ARTHINGTON MALL, SSA

**ID:** UIC **Contract:** 18-IGA-18 **Watershed:** Combined Sewer/Sanitary and Ship Canal Area

**Location:** Chicago, IL

**Description:** Installing porous pavers, rain gardens, and native landscaping at Arthington Mall at the University of Illinois at Chicago.

**Estimated Construction Cost:** \$654,900 **MWRD Contribution:** \$242,000

**Status:** Construction completed 10/1/2020.

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### SCHOOL DISTRICT 154 WOLCOTT SCHOOL PLAYGROUND ENHANCEMENT IN THORNTON, CSA

**ID:** Thornton SD 154 **Contract:** 19-IGA-09 **Watershed:** Little Calumet River

**Location:** Thornton, IL

**Description:** Removing asphalt playground surfaces and constructing permeable playground surfaces and bioswales.

**Estimated Construction Cost:** \$281,954 **MWRD Contribution:** \$140,952

**Status:** Construction completed 7/30/2020.

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### GREEN INFRASTRUCTURE ALLEY PAVING IMPROVEMENTS IN CICERO, SSA

**ID:** Cicero **Contract:** 19-IGA-02 **Watershed:** Combined Sewer/Sanitary and Ship Canal Area

**Location:** Cicero, IL

**Description:** Replacing an alley with the permeable pavement.

**Estimated Construction Cost:** \$475,416 **MWRD Contribution:** \$268,865

**Status:** Construction completed 4/17/2020.

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### SUMMIT GREEN INFRASTRUCTURE ALLEY IMPROVEMENTS

**ID:** Summit **Contract:** 19-IGA-06 **Watershed:** Calumet-Sag Channel **Location:** Summit, IL

**Description:** Replacing an alley with the permeable pavement.

**Estimated Construction Cost:** \$463,273 **MWRD Contribution:** \$289,545.63

**Status:** Construction completed 5/12/2020.



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### **GREEN ALLEY IMPROVEMENTS IN BROADVIEW, SSA**

**ID:** Broadview **Contract:** 20-IGA-04 **Watershed:** Des Plaines River **Location:** Broadview, IL  
**Description:** Replacing three alleys with the permeable pavement.  
**Estimated Construction Cost:** \$568,444 **MWRD Contribution:** \$321,739  
**Status:** Construction completed 9/22/2020.

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### **GREEN ALLEY PAVING PROJECT IN CICERO, SSA**

**ID:** Cicero **Contract:** 20-IGA-08 **Watershed:** Combined Sewer/Sanitary and Ship Canal Area  
**Location:** Cicero, IL  
**Description:** Replacing two alleys with the permeable pavement.  
**Estimated Construction Cost:** \$295,713 **MWRD Contribution:** \$168,556  
**Status:** Construction completed 10/19/2020.

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### **GREEN ALLEYS PROGRAM IN MAYWOOD, SSA**

**ID:** Maywood 2 **Contract:** 20-IGA-13 **Watershed:** Des Plaines River **Location:** Cicero, IL  
**Description:** Replacing three alleys with the permeable pavement.  
**Estimated Construction Cost:** \$768,722 **MWRD Contribution:** \$538,105  
**Status:** Construction completed 11/17/2020.

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### **CITY CENTRE PERMEABLE PARKING LOT PROJECT IN NORTHLAKE, SSA**

**ID:** Northlake **Contract:** 20-IGA-15 **Watershed:** Des Plaines River **Location:** Cicero, IL  
**Description:** Replacing an asphalt lot with the permeable pavement.  
**Estimated Construction Cost:** \$514,725.25 **MWRD Contribution:** \$317,322.00  
**Status:** Construction completed 12/14/2020.

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### **GREEN ALLEY PROGRAM IN RIVER GROVE, SSA**

**ID:** River Grove 2 **Contract:** 20-IGA-17 **Watershed:** Des Plaines River **Location:** River Grove, IL  
**Description:** Replacing three alleys with the permeable pavement.  
**Estimated Construction Cost:** \$570,450.50 **MWRD Contribution:** \$263,548.13  
**Status:** Construction completed 11/22/2020.

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### **UNION RIDGE ELEMENTARY SCHOOL PARKING LOT IMPROVEMENTS IN HARWOOD HEIGHTS, NSA**

**ID:** Union Ridge SD86 **Contract:** 20-IGA-19 **Watershed:** North Branch of the Chicago River  
**Location:** Harwood Heights, IL  
**Description:** Replacing an asphalt lot with the permeable pavement.  
**Estimated Construction Cost:** \$585,605.00 **MWRD Contribution:** \$250,000  
**Status:** Construction completed 9/24/2020.

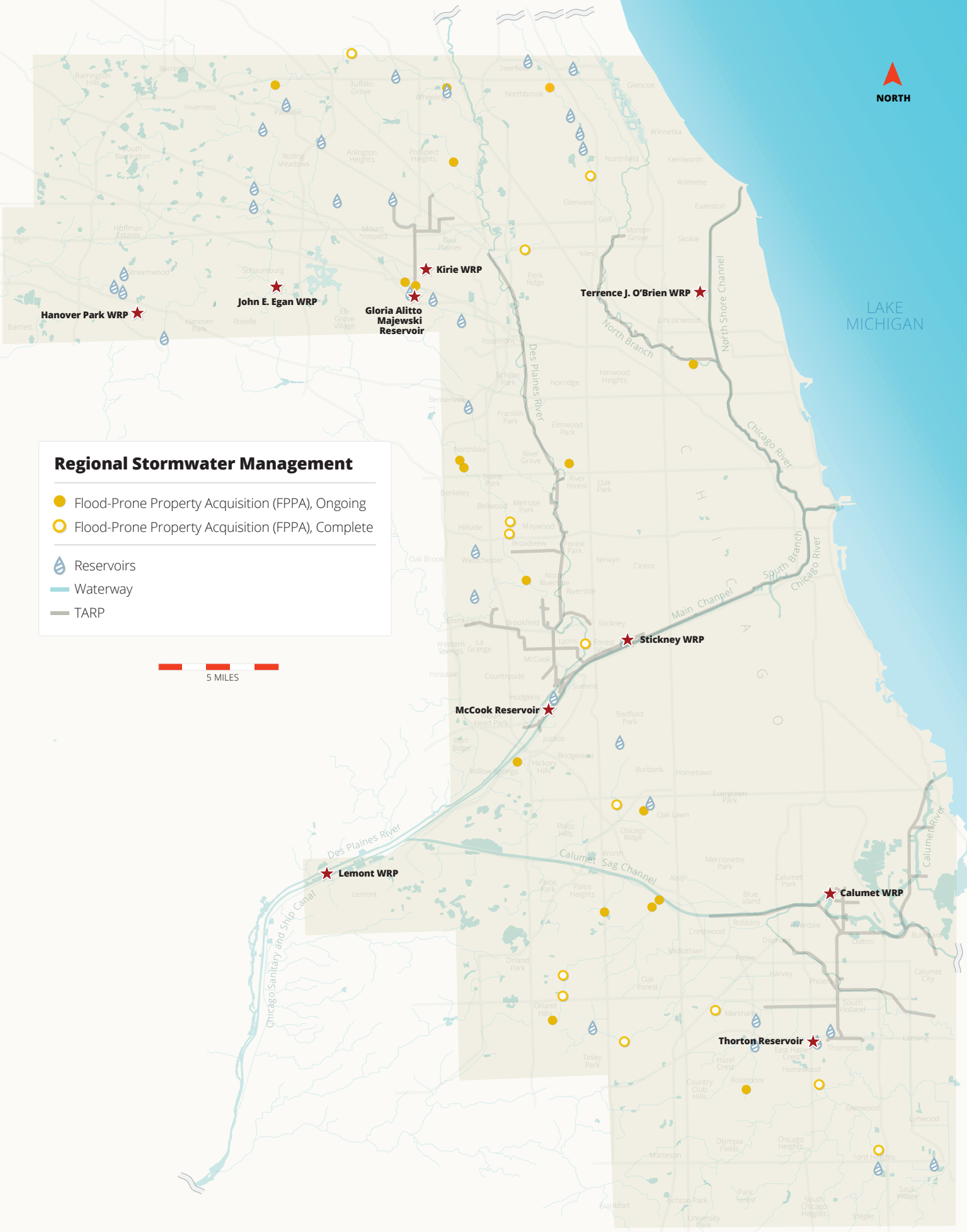
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### Regional Stormwater Management

- Flood-Prone Property Acquisition (FPPA), Ongoing
- Flood-Prone Property Acquisition (FPPA), Complete
- 💧 Reservoirs
- Waterway
- TARP



# MWRD STORMWATER MANAGEMENT PROGRAM OVERVIEW

## PHASE I – REGION-WIDE STREAMBANK AND FLOOD CONTROL PROJECTS

One of the initial goals of the Stormwater Management Program was to develop detailed watershed plans for each of the six watersheds in Cook County. The detailed watershed plans identified and prioritized “regional” stormwater projects based on a benefit to cost ratio. Projects were identified into two categories. Streambank stabilization projects address critical active streambank erosion threatening public safety, structures, and/or infrastructure. Flood control projects address regional overbank flooding through traditional measures such as stormwater detention reservoirs, levees, and conveyance improvements. The Board of Commissioners has approved over 30 regional projects moving forward to design and construction.

### Streambank Stabilization Projects (PHASE I – REGIONAL)

The following is a detailed list of ongoing streambank stabilization projects. For projects completed in 2020, refer to page 6. Locations of both ongoing and completed streambank stabilization projects can be found on page 10.



Calumet Union Drainage Ditch

#### STREAMBANK STABILIZATION ALONG CALUMET UNION DRAINAGE DITCH

**ID:** CUDD-G3 **Contract:** 10-882-BF

**Watershed:** Little Cal River **Location:** Markham, IL

**Description:** Stabilize approximately 3,559 LF of Calumet Union Drainage Ditch, between Sunset and Central Park Avenues. Replaces sanitary sewer under the ditch with new sanitary sewer on each side with service connections to existing residences.

**Estimated Construction Cost:** \$2,475,000

**Status:** Preparing final documents for bidding in 2021.



MWRD Small Streams Maintenance crew removing downed trees along Midlothian Creek.

#### STREAMBANK STABILIZATION ALONG MIDLOTHIAN CREEK

**ID:** MTCR-G2 **Contract:** 19-IGA-21

**Watershed:** Little Cal River **Location:** Tinley Park, IL

**Description:** Cost sharing agreement with the Village of Tinley Park. Project will stabilize approximately 495 linear feet of Midlothian Creek from 66th Court, north of 173rd Street and 500 linear feet near Scott Court. It will lay back the creek banks, install two rock Cross-vanes, four rock vanes and 280 linear feet of soil lifts. Project protects structures and infrastructure in imminent danger of failure from active streambank erosion and flooding.

**Estimated Construction Cost:** \$866,500

**Status:** Under construction.

#### STREAMBANK STABILIZATION ALONG TINLEY CREEK

**ID:** TICR-7 **Contract:** 19-IGA-22 **Watershed:** Cal-Sag Channel **Location:** Orland Park, IL

**Description:** Stabilize approximately 2,200 LF of Tinley Creek between 86th Avenue and Crystal Creek Drive and 2,800 linear feet between 151st Street and Oriole Court.

**Estimated Construction Cost:** \$3,806,000

**Status:** Working with the Village of Orland Park on finalizing terms of intergovernmental agreement.

## Flood Control Projects (PHASE I - REGIONAL)

The following is a detailed list of ongoing flood control projects. For projects completed in 2020, refer to page 6. Locations of both ongoing and completed flood control projects can be found on page 10.



### ADDISON CREEK RESERVOIR

**ID:** ADCR-6 **Contract:** 11-186-3F

**Watershed:** Lower Des Plaines **Location:** Bellwood, IL

**Description:** Creates an approximately 600 acre-foot flood control reservoir in Bellwood just north of Washington Boulevard and east of Addison Creek. Includes reservoir excavation and installation of necessary appurtenances for operation of the facility, such as control structure, inlet structure, spillway, piping, and a pumping station.

**Estimated Construction Cost:** \$63,280,000

**Status:** Project under construction.

### ADDISON CREEK CHANNEL IMPROVEMENTS

**ID:** ADCR-6B **Contract:** 11-187-3F **Watershed:** Lower Des Plaines

**Location:** Northlake, Melrose Park, Stone Park, Bellwood, Westchester, and Broadview, IL

**Description:** Improves channel conveyance through channel improvements from Northlake to Broadview that include open channel, soldier piles wall, articulated concrete blocks, gabions, and channel clearing.

Removal of 3 bridges along Harrison St. at 30th Ave., 31st Ave., and 32nd Ave

**Estimated Construction Cost:** \$43,400,000

**Status:** Right-of-way acquisition in progress. Estimate construction bidding in Summer 2021.

### FLOOD CONTROL PROJECT ON FARMERS CREEK

**ID:** FRCR-12 **Contract:** 12-056-AF **Watershed:** Lower Des Plaines

**Location:** Des Plaines and Maine Township, IL

**Description:** Provides flood storage and conveyance improvements along Farmers Creek, including channel modifications and detention expansion.

**Estimated Construction Cost:** \$1,000,000

**Status:** Modifying final design. Intergovernmental agreement being finalized. Acquiring permits.

### FLOOD CONTROL PROJECT ON PRAIRIE CREEK

**ID:** FRCR-12 **Contract:** 12-056-BF **Watershed:** Lower Des Plaines

**Location:** Park Ridge and Maine Township, IL

**Description:** Provides flood storage and conveyance improvements along Prairie Creek, including channel modifications, detention expansion, diversion sewer construction, and streambank stabilization.

**Estimated Construction Cost:** \$13,000,000

**Status:** Modifying final design. Intergovernmental agreement being finalized. Acquiring easements.

### LYONS LEVEE FLOOD CONTROL IMPROVEMENTS

**ID:** DPR-14D **Contract:** 13-199-3F **Watershed:** Lower Des Plaines **Location:** Lyons, IL

**Description:** Restoration and improvement of the levee to a condition that will elevate the levee to modern design standards, provide flood protection, and prevent overtopping by events up to a 100-year design flood.

**Estimated Construction Cost:** \$3,500,000

**Status:** Phase I completed. Easement acquisition for Phase II underway.



▲ Buffalo Creek Reservoir.

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### **BUFFALO CREEK RESERVOIR EXPANSION**

**ID:** BUCR-3 **Contract:** 13-370-3F **Watershed:** Lower Des Plaines **Location:** Buffalo Grove, IL

**Description:** Increases the storage volume of the existing Buffalo Creek Reservoir by approximately 180 acre-feet. Pedestrian bridges and boardwalks will be replaced and existing trails will be relocated to remove them from the 10-year storm event.

**Estimated Construction Cost:** \$9,678,900

**Status:** Construction substantially completed, monitoring and maintenance ongoing.

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### **LEVEE ALONG THORN CREEK AT ARQUILLA PARK**

**ID:** THCR-G1 **Contract:** 15-IGA-14 **Watershed:** Little Cal River **Location:** Glenwood, IL

**Description:** A cost-sharing agreement with the Village of Glenwood to provide a levee at Arquilla Park to protect residential structures from overbank flooding.

**Estimated Construction Cost:** \$5,770,000 **MWRD Contribution:** \$3,870,000

**Status:** Design underway.

---

### **FLOOD CONTROL PROJECT FOR THE WEST FORK OF THE NORTH BRANCH OF THE CHICAGO RIVER**

**ID:** WF-06 **Contract:** 16-IGA-18 **Watershed:** North Branch **Location:** Glenview, IL **Location:** Glenview

**Description:** Construct 80 acre-feet of storage, a floodwall, pump station, and a new storm sewer.

**Estimated Construction Cost:** \$6,600,000 **MWRD Contribution:** TBD

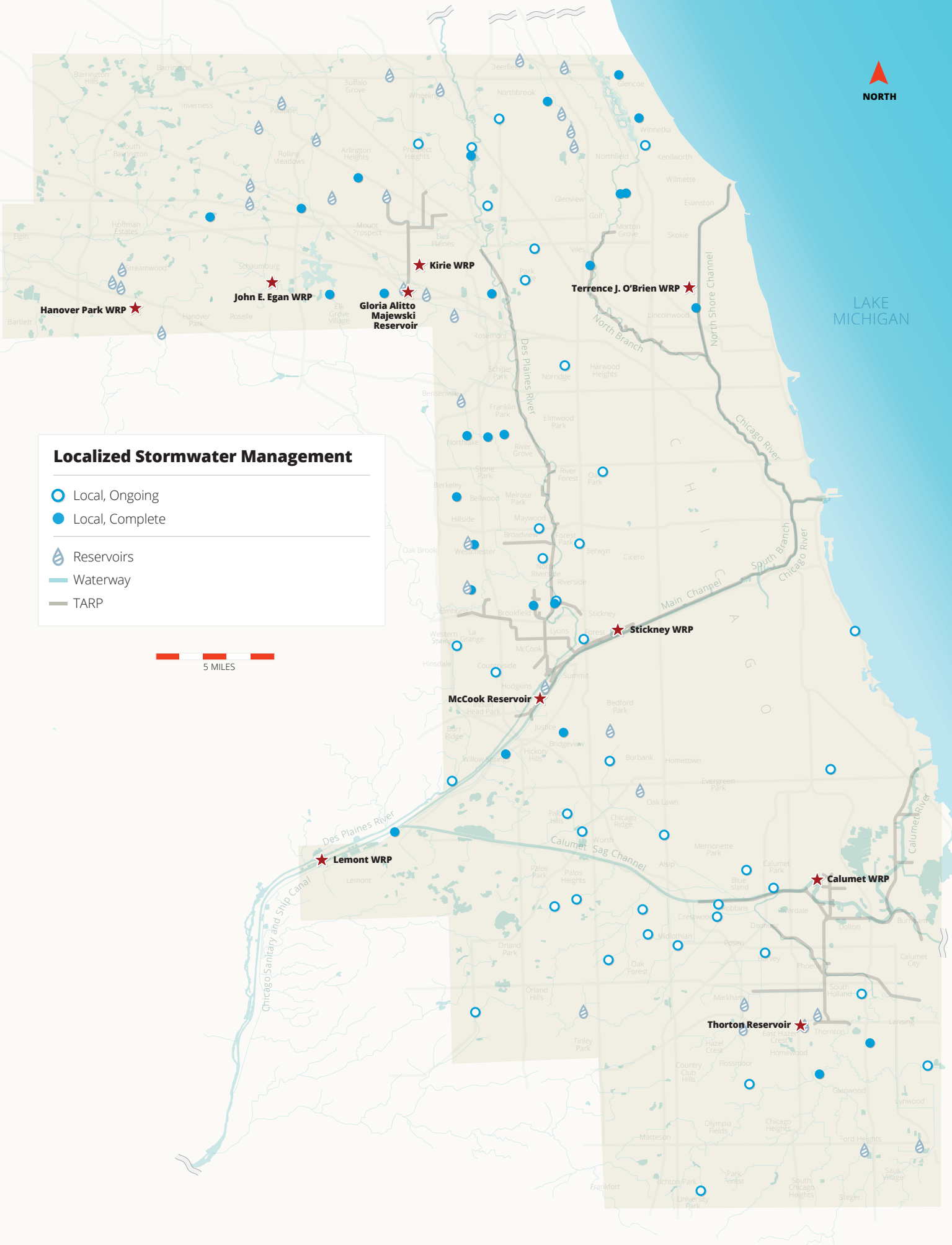
**Status:** Working with the Village of Glenview on finalizing terms of intergovernmental agreement.



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### Localized Stormwater Management

- Local, Ongoing
- Local, Complete
- Reservoirs
- Waterway
- TARP



## PHASE II – LOCALIZED STORMWATER MANAGEMENT

In 2014, the State Legislature expanded the authorities of MWRD’s stormwater management legislation to address local drainage and flooding problems, and to acquire flood-prone property from property owners on a voluntary basis. These legislative changes form the basis of MWRD’s Phase II Stormwater Management Program. MWRD is also conducting Stormwater Master Plan studies to address flooding by identifying potential projects within publicly and privately owned property.

### Localized Flooding ‘Call For Projects’

MWRD initiated a Phase II ‘Call for Projects’ to directly support municipalities with stormwater management. The program assists municipalities throughout Cook County in identifying, funding, and building projects that address localized flooding and drainage concerns. These projects utilize a variety of traditional engineered solutions such as localized detention, upsizing critical storm sewers and culverts, pumping stations, and establishing drainage way, alongside green infrastructure.

Projects are prioritized on their ability to reduce localized flooding and the number of structures benefitted by the project amongst other criteria. Projects are identified as either ‘Shovel Ready’, projects with a near finalized design, or ‘Conceptual’ projects where flooding has been identified but no engineering analysis has been performed. Selected ‘Shovel Ready’ projects will enter into a cost-share agreement to build the project. MWRD assists ‘Conceptual’ projects with identifying flood control alternatives through a preliminary engineering study.

MWRD and partnering agency execute an intergovernmental agreement to facilitate the project, with long term maintenance responsibilities assigned to the partnering agency.

Design and/or construction of each installation is monitored by the MWRD. After completion, MWRD inspects the project installation, ensuring maintenance is in line with the project’s operation and maintenance plan.

Based on the initial Phase II outreach by the MWRD starting in September 2013, dozens of projects were approved by the MWRD Board of Commissioners. The approved projects that resulted from the initial outreach and subsequent ‘Call for Projects’ are distributed across Cook County and include green infrastructure improvements, localized detention, upsizing critical storm sewers/culverts, pump stations, and establishing drainage ways.

In 2020, the Phase II Program became the Local Stormwater Partnership Program to better reflect the fact that the resulting projects are a partnership between the MWRD and government agencies. A Local Stormwater Partnership Program “Call for Projects” was made in late 2019 with 46 applications submitted in February of 2020. After evaluation, 10 “Shovel Ready” projects were approved in 2020 and are undergoing intergovernmental agreement negotiations.

### Localized Flooding Projects (Phase II)

The following is a detailed list of ongoing localized flooding projects. For 2019 completed projects, refer to page 6. Locations of both ongoing and completed localized flooding projects can be found on page 14.

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#### FLOOD CONTROL ALONG NATALIE CREEK

**ID:** Midlothian 1 **Contract:** 14-252-5F **Watershed:** Little Cal River **Location:** Oak Forest; Midlothian, IL  
**Description:** Installation of flood control measures for an estimated 15,800 linear feet along Natalie Creek from 157th and Central Park in Oak Forest to 146th and Pulaski in Midlothian. Flood control measures involve the upsizing of restrictive culverts, improving the channel at several locations and the installation of a stormwater detention basin. The project will reduce flood damages for over 230 structures.  
**Estimated Construction Cost:** \$7,629,000 **Status:** Project under construction

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#### FLOOD CONTROL ON MIDLOTHIAN CREEK

**ID:** Robbins 2 **Contract:** 14-253-5F /17-IGA-02 **Watershed:** Little Cal River **Location:** Robbins, IL  
**Description:** Creation of a naturalized wetland detention area along with channel improvements to resemble a park setting. The project will reduce flood damages for over 92 structures. The actual MWRD cost share will be determined based upon funding being sought from various local and regional agencies as well as grants.  
**Estimated Construction Cost:** \$11,000,000  
**Status:** Working on final design of Phase II. Phase I estimated to go out to bid in August 2021.

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### FLOOD CONTROL ON CALUMET-SAG TRIBUTARY C

**ID:** Bremen Twp 1 **Contract:** 14-257-5C **Watershed:** Cal-Sag Channel

**Location:** Bremen Township & Midlothian, IL

**Description:** Preliminary engineering alternatives developed to address flooding along Calumet-Sag Tributary Channel in the vicinity of 143rd Street and Linder Avenue.

**Estimated Construction Cost:** \$3,600,000 **Status:** Preliminary design

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### FLOOD CONTROL IN THE VICINITY OF 135TH STREET AND CENTRAL AVENUE

**ID:** Crestwood 1 **Contract:** 14-258-5C

**Watershed:** Cal-Sag Channel **Location:** Crestwood, IL

**Description:** Preliminary engineering analysis to identify and evaluate solutions to address flooding in the vicinity of 135th Street and Central Avenue.

**Estimated Construction Cost:** \$9,300,000 **Status:** Final design.

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### FLOOD CONTROL IN THE VICINITY OF 131ST STREET AND CYPRESS DRIVE

**ID:** Palos Heights 4 **Contract:** 14-259-5F /17-IGA-04 **Watershed:** Cal-Sag Channel

**Location:** Palos Heights, IL

**Description:** This project involves the acquisition and demolition of one structure and the installation of a swale and a new downstream storm sewer and outfall to Navajo Creek.

**Estimated Construction Cost:** \$134,000 **Status:** Final design.

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### FLOOD CONTROL FOR THE WASHINGTON STREET AREA

**ID:** Blue Island 1 **Contract:** 14-260-5F **Watershed:** Cal-Sag Channel **Location:** Blue Island, IL

**Description:** Stormwater storage and conveyance improvements to address flooding of approximately 45 structures. The actual MWRD cost share will be determined based upon funding being sought from various local and regional agencies as well as grants.

**Estimated Construction Cost:** \$5,700,000

**Status:** MWRD and the City are investigating additional flood control alternatives in order to ensure that the most effective solution is selected. Additional study is nearing completion.

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Construction of the Melvina Ditch Reservoir

### MELVINA DITCH RESERVOIR IMPROVEMENTS

**ID:** MD Rsvr Exp **Contract:** 14-263-3F **Watershed:** Cal-Sag Channel **Location:** Burbank, IL

**Description:** Expands the existing Melvina Ditch Reservoir by up to 195 acre-feet to increase its storage capacity (up to a 118 percent increase), modifying the pumping station to accommodate the reservoir expansion, and installing a new emergency overflow weir to reduce the likelihood of reservoir overtopping.

**Estimated Construction Cost:** \$14,245,000

MWRD secured a \$10 million Build Illinois Grant from IEPA.

**Status:** Project under construction.

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### PILOT STUDY FOR INVESTIGATING TECHNOLOGY TO ADDRESS BASEMENT BACKUPS

**ID:** N/A **Contract:** 16-IGA-20 **Watershed:** Chicago **Location:** Chicago, IL

**Description:** Intergovernmental agreement with the City of Chicago to share the cost of a research pilot study on the south side of Chicago to gain insight into the effectiveness of various technologies aimed at reducing basement backups.

**MWRD Contribution:** \$400,000 **Status:** Study ongoing.

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### GROVELAND AVENUE LEVEE IMPROVEMENTS

**ID:** Riverside 11 **Contract:** 18-IGA-20 **Watershed:** Lower Des Plaines **Location:** Riverside, IL  
**Description:** The Groveland Avenue levee will be improved by raising the levee with a sheet pile floodwall. A pumping station will be built to drain the land side of the levee. An adjacent street will be raised or protected by additional flood walls. The village will enter a project partnership agreement with the Army Corps of Engineers as its local sponsor. MWRD will enter into an intergovernmental agreement with the Village to provide the non-federal share of the design and construction costs.  
**Estimated Construction Cost:** \$7,200,000 **MWRD Contribution:** \$2,500,000  
**Status:** Currently under design.

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### SOUTH AREA SEWER SEPARATION 18-IGA-21

**ID:** Forest Park **Contract:** 18-IGA-21 **Watershed:** Lower Des Plaines **Location:** Forest Park, IL  
**Description:** New storm sewers and connection to existing Des Plaines River outfall.  
**Estimated Construction Cost:** \$2,800,000 **MWRD Contribution:** \$1,955,206.00  
**Status:** Drafting intergovernmental agreement.

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### HIBBARD ROAD FOREST PRESERVE WETLAND AND DUKE CHILDS STORAGE PROJECT 18-IGA-24

**ID:** Winnetka **Contract:** 18-IGA-24 **Watershed:** North Branch **Location:** Winnetka, IL  
**Description:** Wetland enhancement facility on Forest Preserve District property and an underground storage and water quality facility on Duke Childs Field.  
**Estimated Construction Cost:** \$25,903,340 **MWRD Contribution:** TBD  
**Status:** Finalizing intergovernmental agreement with Village.

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### VAN BUREN & 5TH AREA STORM RELIEF PROJECT 20-IGA-29

**ID:** Maywood SP **Contract:** 20-IGA-29 **Watershed:** Lower Des Plaines **Location:** Maywood, IL  
**Description:** Installation of separate storm sewers in a combined sewer area.  
**Estimated Construction Cost:** \$3,750,000 **MWRD Contribution:** TBD  
**Status:** Finalizing intergovernmental agreement with Village.

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### ORIOLE AVENUE FLOOD MITIGATION PROJECT 20-IGA-30

**ID:** Harwood Hts SP **Contract:** 20-IGA-30 **Watershed:** Lower Des Plaines **Location:** Harwood Heights, IL  
**Description:** Construction of two underground box culverts for stormwater storage.  
**Estimated Construction Cost:** \$1,500,000 **MWRD Contribution:** \$400,000  
**Status:** Finalizing intergovernmental agreement with Village.

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### ASPEN TRAILS PARK STORMWATER STORAGE & RELIEF SEWERS PROJECT 20-IGA-31

**ID:** Mt Prospect SP **Contract:** 20-IGA-31 **Watershed:** Lower Des Plaines **Location:** Mount Prospect, IL  
**Description:** Construction of approximately 17 acre-feet of underground storage and associated relief sewers.  
**Estimated Construction Cost:** \$8,700,000 **MWRD Contribution:** \$3,100,000  
**Status:** Finalizing intergovernmental agreement with Village.

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### SOUTH THROOP FLOOD RELIEF PROJECT 20-IGA-32

**ID:** Calumet Park SP **Contract:** 20-IGA-32 **Watershed:** Cal-Sag Channel **Location:** Calumet Park, IL  
**Description:** Redesign of existing storm sewers, installation of new storm sewer and construction of a stormwater basin in a park setting.  
**Estimated Construction Cost:** \$750,000 **MWRD Contribution:** \$750,000  
**Status:** Finalizing intergovernmental agreement with Village.

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### **133RD STREET DRAINAGE IMPROVEMENTS PROJECT 20-IGA-33**

**ID:** Palos Twp SP **Contract:** 20-IGA-33 **Watershed:** Cal-Sag Channel **Location:** Orland Park, IL  
**Description:** Drainage improvements to convey runoff from right-of-way via existing storm sewer.  
**Estimated Construction Cost:** \$100,000 **MWRD Contribution:** \$100,000  
**Status:** Finalizing intergovernmental agreement with Village.

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### **LEMOYNE PARKWAY RELIEF SEWER PROJECT 20-IGA-34**

**ID:** Oak Park SP **Contract:** 20-IGA-34 **Watershed:** Lower Des Plaines **Location:** Orland Park, IL  
**Description:** Drainage improvements to convey runoff from right-of-way via existing storm sewer.  
**Estimated Construction Cost:** \$1,400,000 **MWRD Contribution:** \$500,000  
**Status:** Finalizing intergovernmental agreement with Village.

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### **MARVIN PARKWAY FLOOD CONTROL PROJECT 20-IGA-35**

**ID:** Park Ridge SP **Contract:** 20-IGA-35 **Watershed:** Lower Des Plaines **Location:** Park Ridge, IL  
**Description:** Construction of an underground storage facility.  
**Estimated Construction Cost:** \$1,900,000 **MWRD Contribution:** \$950,000  
**Status:** Finalizing intergovernmental agreement with Village.

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### **DRAINAGE IMPROVEMENTS AT HAGEN LANE AND DOUGLAS AVENUE PROJECT 20-IGA-36**

**ID:** Flossmoor SP **Contract:** 20-IGA-36 **Watershed:** Little Cal River **Location:** Flossmoor, IL  
**Description:** Drainage and conveyance improvements to new and upsized sewers.  
**Estimated Construction Cost:** \$790,000 **MWRD Contribution:** \$750,000  
**Status:** Finalizing intergovernmental agreement with Village.

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### **FLANAGIN SUBDIVISION: NORTH CREEK FLOOD RELIEF PROJECT 20-IGA-37**

**ID:** Lansing SP **Contract:** 20-IGA-37 **Watershed:** Little Cal River **Location:** Lansing, IL  
**Description:** Construction of a new culvert to prevent backflow into a subdivision.  
**Estimated Construction Cost:** \$1,600,000 **MWRD Contribution:** \$1,600,000  
**Status:** Finalizing intergovernmental agreement with Village.

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### **TOWN CENTER STORMWATER IMPROVEMENTS PROJECT 20-IGA-38**






**ID:** Richton Park SP **Contract:** 20-IGA-38 **Watershed:** Little Cal River **Location:** Richton Park, IL  
**Description:** Construction of a regional detention basin.  
**Estimated Construction Cost:** \$19,595,300 **MWRD Contribution:** \$2,000,000  
**Status:** Finalizing intergovernmental agreement with Village.

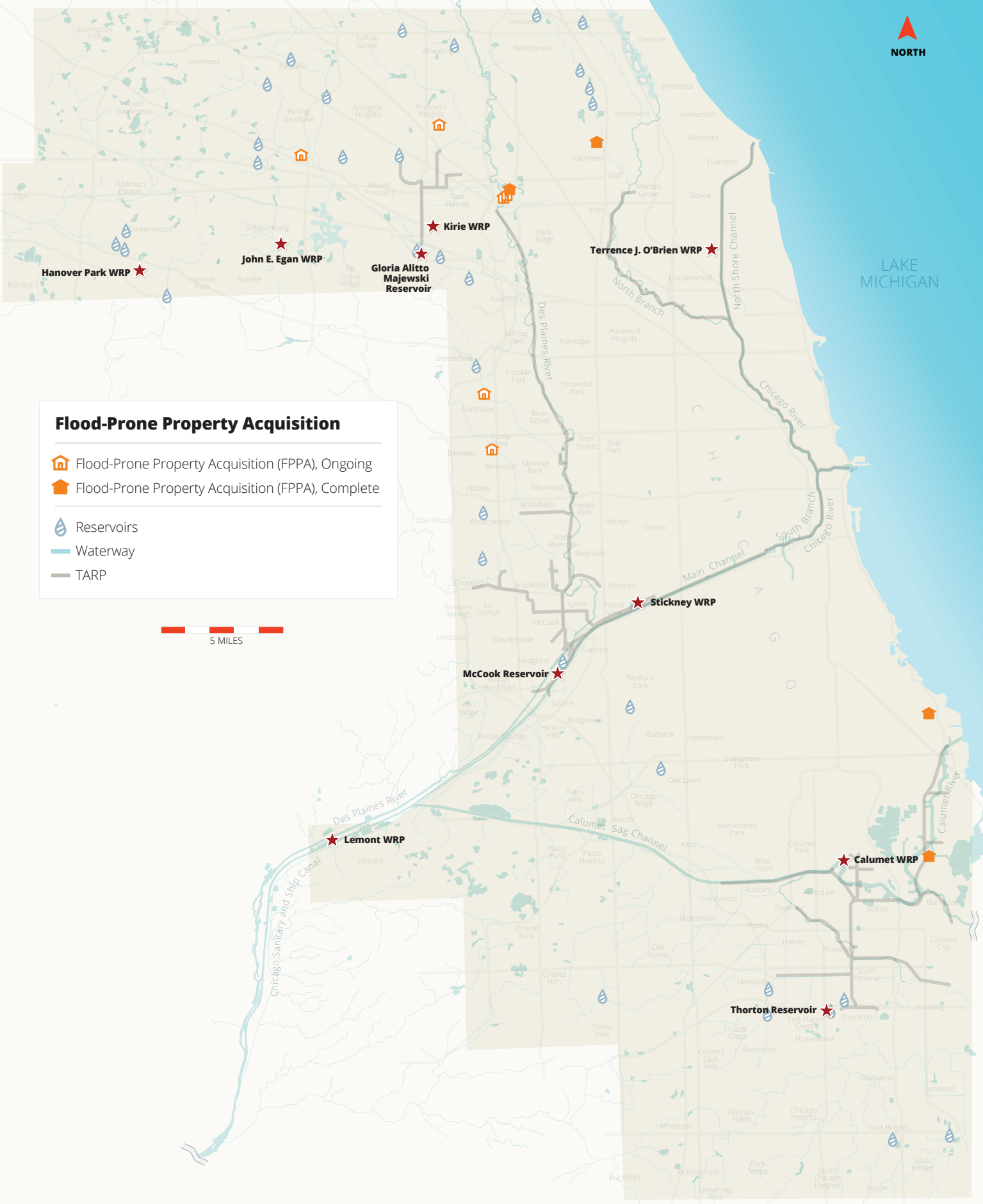
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LAKE MICHIGAN

**Flood-Prone Property Acquisition**

-  Flood-Prone Property Acquisition (FPPA), Ongoing
-  Flood-Prone Property Acquisition (FPPA), Complete
-  Reservoirs
-  Waterway
-  TARP





▲ Flooding caused by record-setting rainfall in May 2020.

## FLOOD-PRONE PROPERTY ACQUISITION

On August 7, 2014, the Board of Commissioners adopted a policy on the selection and prioritization of projects for acquiring flood-prone property. This program is comprised of three distinct components:

- **Local Sponsor Assistance Program** - MWRD's top priority will be to facilitate the Illinois Emergency Management Agency's federally funded program by assisting Local Sponsor communities in providing their share of the cost for property acquisition.
- **MWRD Initiated Program** - in communities where MWRD's Board of Commissioners approved capital projects from MWRD's Detailed Watershed Plans, should the cost of a property acquisition alternative be less than the capital project and provide equivalent benefits, the acquisition alternative will be pursued.
- **Local Government Application Program** - MWRD will consider applications directly from local governments requesting property acquisition of specific flood-prone structures.

In 2017, MWRD solicited applications from municipalities and townships for assistance with the acquisition of flood-prone structures located throughout Cook County. MWRD previously entered into intergovernmental agreements with several municipalities and the Cook County Land Bank Authority to acquire 58 flood-prone properties to date. Upon acquisition, the structures are removed and deed restrictions are placed on the acquired properties requiring them to remain as open spaces in perpetuity.

## FLOOD-PRONE PROPERTY ACQUISITION PROJECTS

The following is a detailed list of ongoing flood-prone property acquisition projects. For 2020 completed projects, refer to page 6. Locations of both ongoing and completed flood prone property acquisition projects can be found on page 19.

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### FRANKLIN PARK FLOOD-PRONE PROPERTY ACQUISITIONS

**ID:** Franklin Park FPPA **Contract:** 16-IGA-13 **Watershed:** Lower Des Plaines **Location:** Franklin Park, IL  
**Description:** Purchase 32 flood-prone homes along Silver Creek.  
**Estimated Construction Cost:** \$6,400,000 **MWRD Contribution:** \$4,681,000  
**Status:** Intergovernmental agreement executed. Appraisals are being performed.

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### DES PLAINES III FLOOD-PRONE PROPERTY ACQUISITIONS

**ID:** Des Plaines 3 FPPA **Contract:** 20-IGA-22 **Watershed:** Lower Des Plaines **Location:** Des Plaines, IL  
**Description:** Purchase 13 flood-prone homes.  
**Estimated Construction Cost:** \$3,115,890 **MWRD Contribution:** \$800,000  
**Status:** Intergovernmental agreement executed. Appraisals are being performed.

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### FORD HEIGHTS FLOOD-PRONE PROPERTY ACQUISITIONS

**ID:** DRCR-G1 **Contract:** 10-884-BF **Watershed:** Little Cal River **Location:** Ford Heights, IL  
**Description:** Purchase 121 residential properties and 53 vacant parcels along Deer Creek.  
**Estimated Construction Cost:** \$6,226,128  
**Status:** Working with Ford Heights, Cook County and other agencies to determine feasibility.

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### DES PLAINES IV FLOOD-PRONE PROPERTY ACQUISITIONS

**ID:** Des Plaines 4 FPPA **Contract:** 20-IGA-24 **Watershed:** Lower Des Plaines **Location:** Des Plaines, IL  
**Description:** Purchase 37 flood-prone homes.  
**Estimated Construction Cost:** \$11,500,000 **MWRD Contribution:** \$10,000,000  
**Status:** Intergovernmental agreement executed. Appraisals are being performed.

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### PALOS HILLS FLOOD-PRONE PROPERTY ACQUISITIONS

**ID:** Palos Hills BO **Contract:** 20-IGA-25 **Watershed:** Cal-Sag Channel **Location:** Palos Hills, IL  
**Description:** Purchase 4 flood-prone homes.  
**Estimated Construction Cost:** \$855,394 **MWRD Contribution:** \$800,000  
**Status:** Drafting intergovernmental agreement.

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### PALATINE TOWNSHIP FLOOD-PRONE PROPERTY ACQUISITIONS

**ID:** Palatine Twp BO **Contract:** 20-IGA-26 **Watershed:** Lower Des Plaines **Location:** Palatine, IL  
**Description:** Purchase 9 flood-prone homes along Salt Creek.  
**Estimated Construction Cost:** \$3,700,000 **MWRD Contribution:** \$3,300,000  
**Status:** Drafting intergovernmental agreement.

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### NORTHLAKE FLOOD-PRONE PROPERTY ACQUISITIONS

**ID:** Northlake 2 BO **Contract:** 20-IGA-27 **Watershed:** Lower Des Plaines **Location:** Palatine, IL  
**Description:** Purchase 2 flood-prone homes.  
**Estimated Construction Cost:** \$450,000 **MWRD Contribution:** \$450,000  
**Status:** Drafting intergovernmental agreement.

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### PROSPECT HEIGHTS FLOOD-PRONE PROPERTY ACQUISITIONS

**ID:** Prospect Hts BO **Contract:** 20-IGA-28 **Watershed:** Lower Des Plaines **Location:** Palatine, IL  
**Description:** Purchase 1 flood-prone home.  
**Estimated Construction Cost:** \$375,000 **MWRD Contribution:** \$375,000  
**Status:** Drafting intergovernmental agreement.

## **STORMWATER MASTER PLAN PILOT STUDIES**

Under Phase II of the MWRD's Stormwater Management Program initiated in 2014 to plan, implement, and finance local stormwater projects, five master plan pilot studies were performed (Little Calumet River/ Calumet-Sag Channel drainage areas, Northbrook, Roberts Road drainage area, Village of Harwood Heights, and the City of Chicago's 8th Ward and surrounding area). Upon completion of these studies in 2017, a standard approach using lessons learned from the pilot studies for performing additional master plans was developed, and six additional study areas were identified and prioritized in 2019 (Butterfield Creek, North Creek and Deer Creek, Weller Creek and Willow Creek, South Suburbs, Chicago West and Chicago South). The scope of these studies includes analysis of existing flooding issues, development of concept-level alternative solutions, and review of potential funding opportunities for implementing stormwater improvements. While these ongoing studies are expected to provide meaningful recommendations for reducing the impact of flooding issues in the identified priority study areas, the MWRD realized that expanding this approach for master planning countywide could take several decades.

### **A New Approach**

Because master plans developed through a traditional approach can have a limited shelf-life due to changing conditions such as climate change, evolving development trends, and ever-changing community priorities, there is a narrow window of time they will remain relevant. This approach to stormwater planning can result in static solutions being developed for dynamic conditions. In order for the MWRD to develop a long-term vision for master planning that is flexible and dynamic, an innovative approach has been developed to be more compatible with each community's needs and timeline for addressing their evolving stormwater issues. The MWRD found the basic principle of our Watershed Management Ordinance (WMO) to ensure volume is created for new development to abate the negative impacts of stormwater runoff, could serve as a useful planning tool to apply across the entire county. By adopting this principle of the WMO, an estimate of volume needed throughout subwatersheds and sewersheds across the county can be established and serve as the foundation of a planning tool that places each community's stormwater needs on common ground.

This Volumetric Approach will provide a set of dynamic tools that can be used to provide focus for areas where flooding is more likely, and can be developed countywide in a much shorter timeframe. It includes building an online platform to allow communities and other agencies to easily access information from a Geographic Information System (GIS) database, which will also be easily adaptable to climate change and development trends to ensure it remains relevant and compatible with each community's changing priorities and timelines. Initially, this approach will allow the MWRD to answer two key questions about Urban Flooding: where is it most likely to occur, and what size is the issue. Development of this tool includes a series of countywide maps and data metrics that are being created to identify: 1) where potential flood problem areas are located, 2) opportunities for mitigation projects, and 3) priority areas for actionable next steps.

The Volumetric Approach for Stormwater Master Planning is expected to achieve more results in a shorter timeframe than traditional planning approaches. Based on the foundation of the GIS data, additional tools could be incorporated to further reduce efforts and investment in studies and planning and to be even more prepared to conceptualize and implement projects. Examples of additional data that could be incorporated to make this tool even more powerful include local storm and combined sewer conveyance information, flooding data collected by past studies, and location of planned infrastructure projects, amongst other relevant community data that align with the goals and objectives of the MWRD's Stormwater Management program.



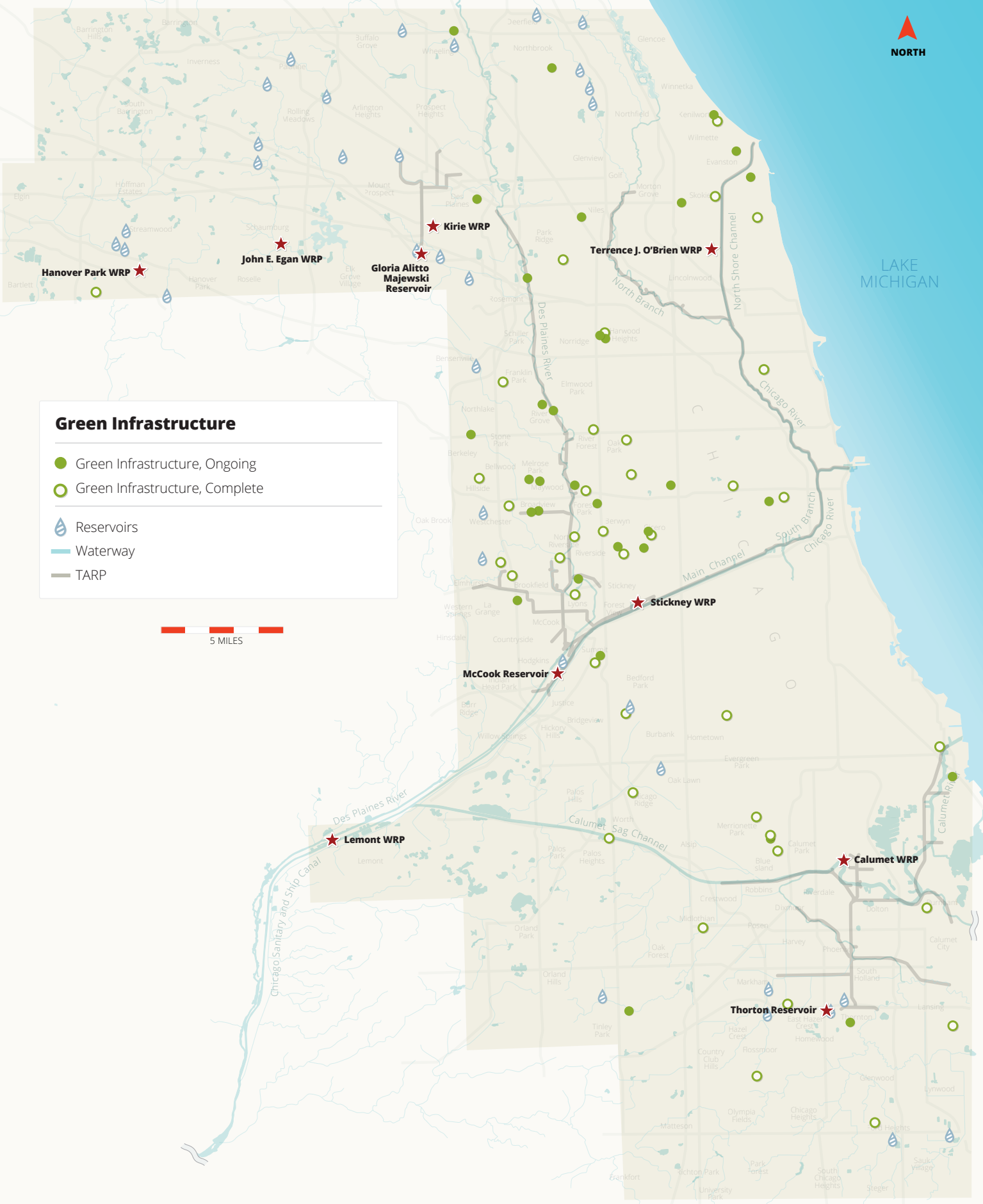
LAKE MICHIGAN

**Green Infrastructure**

- Green Infrastructure, Ongoing
- Green Infrastructure, Complete

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- 💧 Reservoirs
- Waterway
- TARP



# GREEN INFRASTRUCTURE

The Green Infrastructure Program focuses on engineered systems that capture and manage precipitation where it falls rather than it traveling through conventional stormwater systems. By addressing the increase of impervious area due to land development, Green infrastructure can reduce combined sewer discharges, localized flooding and stormwater impacts in an area. Green infrastructure includes natural systems which use vegetation, such as bioswales and rain gardens, to manage rainfall. Green infrastructure also includes manufactured solutions such as rain barrels, permeable pavement and rain water harvesting. Established in 2014, the Green Infrastructure Program seeks to increase the acceptance and investment of Green infrastructure throughout Cook County through numerous partnerships.

## Inaugural IGA Feedback Survey

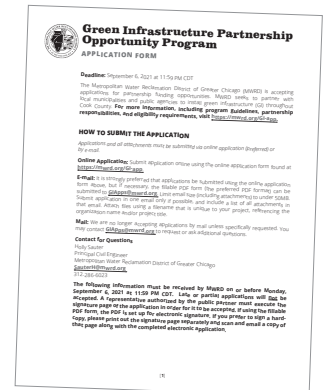
In late 2020, a questionnaire was developed to solicit feedback from our partner agencies who have completed a project through our Green Infrastructure (GI) Partnership Program. The partners were asked to assess the MWRD's Green Infrastructure Partnership Program from the partner's perspective, with opportunities to provide input on each step of the process, including project implementation and maintenance, community response, administration of Intergovernmental Agreements (IGA), the MWRD's reimbursement, and use of MWRD biosolids. In 2020, the survey was open from November 10th to December 31st, 2020, and 15 responses were received. All respondents reported that they have observed a reduction in flooding in the project area, and 87 percent of respondents reported no issues with maintenance of the GI installation. The average annual cost reported for maintenance is \$3,833. While 47 percent of respondents had any public engagement with their community before construction of the GI installation, 93 percent of respondents have received feedback from their community on the GI installations and all the reported feedback was positive. The overall opinion of the IGA process on a scale of one to five was four-point-two (4.2). Sixty-seven percent of respondents reported applying PCE goals only to the MWRD-funded portion of the contract. Waivers were requested for some portions of the Diversity requirements by 40 percent of the partners, and 47 percent left a comment to communicate the difficulties of meeting the Diversity requirements. Of the respondents, five had a bioretention area suitable for using MWRD biosolids, and four of these utilized biosolids.

To address several of the respondents' comments a checklist was developed that details the documentation to be submitted to MWRD including for the reimbursement process and associated verification for meeting the MWRD's Diversity goals. A design review checklist is also being developed in an effort to streamline the plan review process for both the partner agency and the MWRD. Additional coordination with the partner agencies to ensure they fully understand the Diversity requirements will be performed. Based on the valuable feedback received, a similar survey will be issued in the future and sent to each partner that has completed a green infrastructure project with the MWRD in the previous year. This annual data will be used to further improve the GI partnership program.

## Green Infrastructure 'Call For Projects'

MWRD introduced the Green Infrastructure Call for Projects to scale its investment into green infrastructure. The program seeks to partner with local communities and public agencies throughout Cook County to fund and build green infrastructure projects. These projects vary in size and scope and can include roadside bioswales and rain gardens, green roofs, permeable pavement alleys, green streetscapes, and eco-orchards.

The program is available to government organizations within MWRD's corporate boundaries. Projects are prioritized on their ability to capture and store water (measured as design retention capacity), flood risk, and structures benefitted by the GI amongst other criteria. MWRD and a partnering agency execute an intergovernmental agreement to facilitate the project, with long term maintenance responsibilities assigned to the partnering agency. Design and construction of each installation are monitored by MWRD to optimize benefits. After completion, MWRD inspects the installation, ensuring maintenance is in line with the project's operation and maintenance plan.





In 2017 and 2018, 40 projects were selected. In June of 2019, a third “Call for Projects’ was held. 41 applications were evaluated, with an additional 20 more projects selected. The projects selected over the last three years will provide a total of approximately 6 million gallons of design retention capacity.

The Arlington Heights, River Forest, Skokie, and Wheeling Park District projects were completed in 2018, providing 205,453 gallons of design retention capacity for an investment of \$694,000.

In 2019, the MWRD worked with the City of Des Plaines, and the Villages of Forest Park, Harwood Heights, La Grange, Maywood, Riverside and Tinley Park to develop GI projects consisting of permeable pavement parking, green alleys, and bioretention facilities. The MWRD will contribute up to \$2,935,034 to these projects which provided a combined DRC of 1,109,170 gallons.



▲ Permeable pavement in Riverside Metra parking lot (L) and Tinley Park (R).

In June of 2020, another call for projects was issued. 32 applications were reviewed and 16 were selected.

### **Green Infrastructure Partnerships ‘Call for Projects’**

The following is a list of Green Infrastructure Partnerships scheduled for construction in 2021. For completed projects, refer to page 6. Locations of both ongoing and completed Green Infrastructure Partnerships can be found on page 23.

### **Green Infrastructure Partnership Selections—2020 ‘Call for Projects’**






The following is a list of agencies and associated projects selected during the 2020 Green Infrastructure ‘Call For Projects’. Intergovernmental Agreements are currently being drafted between the MWRD and listed agencies.

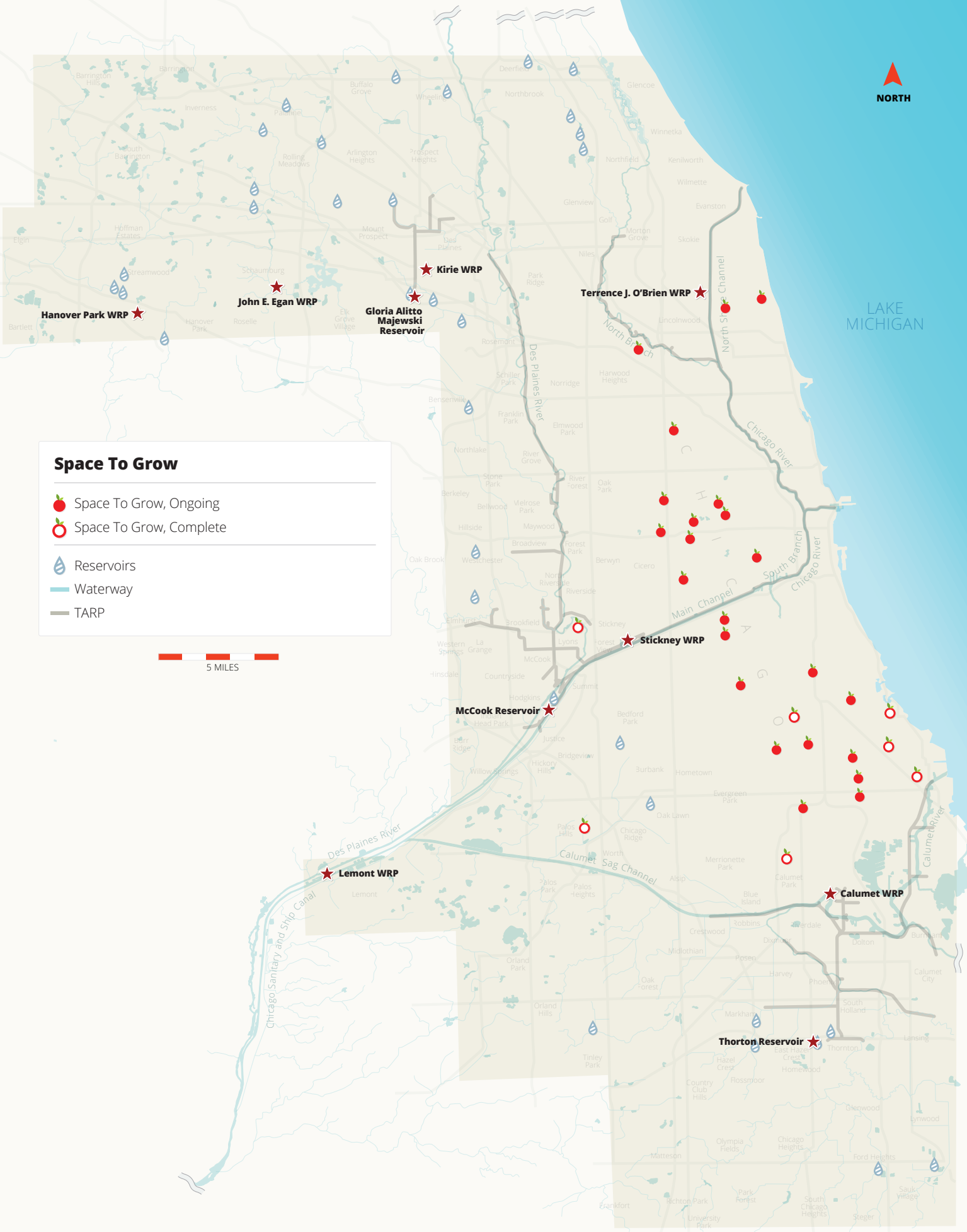
<b>ID/CONTRACT</b>	<b>PARTNERING AGENCY</b>	<b>PROJECT TITLE</b>
21-IGA-01	Bellwood	West Bellwood Parkway Bioretention Project
21-IGA-02	Berwyn	Berwyn Green Alleys Project
21-IGA-03	Burbank	City Hall Parking Lot Paving Improvements
21-IGA-04	Cicero	Parking Lot and Alley Paving Improvements
21-IGA-05	Elmwood Park	Elmwood Park Stormwater Treatment Train
21-IGA-06	Evanston	Main Street Improvements Project
21-IGA-07	Flossmoor	Berry Lane Stormwater Improvements
21-IGA-08	Forest Park	Forest Park Permeable Paver Parking Lot Project
21-IGA-09	FPDCC-Brookfield Zoo	North Parking Lot Green Infrastructure Renovation
21-IGA-10	FPDCC-Possum Hollow	Possum Hollow Woods GI Parking Lot Retrofit
21-IGA-11	Franklin Park	Pacific Avenue Industrial Corridor GI
21-IGA-12	Hazel Crest	Hazel Crest Proper GI Alley Improvements
21-IGA-13	Kenilworth	Kenilworth Green Streets Phase II
21-IGA-14	La Grange Park	Reconstruct Intersection with Permeable Pavers
21-IGA-15	Summit	Green Infrastructure Alley Program
21-IGA-16	Westchester	Green Alley Reconstruction Project



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### Space To Grow

-  Space To Grow, Ongoing
-  Space To Grow, Complete
-  Reservoirs
-  Waterway
-  TARP





▲ Construction of the Space to Grow schoolyard at Boone Elementary School.

## SPACE TO GROW

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 schoolyards typically feature expanded and safer playground equipment, track and field areas, multi-purpose courts, turf fields, outdoor classrooms and vegetable gardens. The schoolyards also incorporate many green infrastructure design elements to reduce water pollution and neighborhood flooding. These features include permeable play surfaces, native plantings and rain gardens.

The program is co-managed by the Healthy Schools Campaign and Openlands with capital funding, leadership and expertise from MWRD, Chicago Public Schools and the City of Chicago Department of Water Management. MWRD also provides technical support for green infrastructure elements to ensure that the new schoolyards provide optimal stormwater capture benefits.

Space to Grow schools are prioritized based on flood risk, site suitability and socioeconomic factors. Numerous community meetings were held to describe project details and benefits. MWRD and Chicago Public Schools executed an intergovernmental agreement to facilitate the projects whereby long term maintenance responsibilities are assigned to Chicago Public Schools. MWRD maintains the right to inspect the green infrastructure to ensure it is being properly maintained in accordance with the operations and maintenance plan developed for each school.

Since 2014, MWRD has invested in 20 schools providing 3.65 million gallons of design retention capacity. The program was amended to continue through 2022, funding green infrastructure at up to thirty-four schools for a total investment of approximately \$18 million. Construction was completed at 5 schools in 2020. Another 5 projects have been designed with construction anticipated in early 2021.



**CLOCKWISE FROM TOP LEFT:** Space to Grow schoolyards at Wolcott, Melody, Webster, and Westcott Elementary Schools.



### Space To Grow Partnered Schools

The following is a list of Space to Grow Projects scheduled for construction in 2020. For 2019 completed projects, refer to page 6. Locations of both ongoing and completed Space to Grow Projects can be found on page 26.

**ID:** Multiple Locations    **Contract:** 14-IGA-06 and 15-IGA-20    **Watershed:** Chicago

**Location:** Multiple Locations

**Description:** MWRD, the Chicago Department of Water Management, and the Chicago Public Schools are partnering to design and install playgrounds at various Chicago Elementary Schools utilizing green infrastructure. The projects will reduce flooding, reduce the load on the combined sewer system, and educate students and neighbors about green Infrastructure techniques and purpose.

MWRD Max Contribution: \$18,000,000

**Status:** 25 of a total up to 34 schools have been completed through 2020. Five playgrounds were transformed in 2020. An additional 5 schools have been designed and are planned for construction in 2021. They are as follows:

Horace Mann Elementary School	8050 S Chappel Avenue
Arnold Mireles Elementary Academy	9000 S Exchange Avenue
Isabel C. O’Keeffe Elementary School	6940 S. Merrill Avenue
Daniel S. Wentworth Elementary School	1340 W. 71st Street
John Whistler Elementary School	11533 S. Ada Street

The existing intergovernmental agreement between MWRD and Chicago Public Schools was amended to extend the timeline for the remaining projects through 2022. MWRD plans to invest \$1 million to fund ten school designs, with the remaining school designs to be funded by Chicago Public Schools and the City of Chicago Department of Water Management.

### Suburban Green Schoolyard Feasibility Analysis

In 2020, MWRD conducted a feasibility study for a green infrastructure program for Suburban Cook County schools. The program would be similar to the Space to Grow Program. An online questionnaire was emailed to school district contacts in Suburban Cook County. MWRD is currently analyzing the results of the survey. Next steps for the program include identifying entities to assist in managing the program and developing a pilot program to assess how to best move forward with a potential program for suburban schools.

# STORMWATER MAINTENANCE AND OPERATION

## Capital Project Maintenance & Intergovernmental Agreements

Regular upkeep and maintenance are necessary for the new installations to function properly and provide the expected stormwater benefit. For that reason, routine maintenance is required as dictated by an operation and maintenance plan developed for each project.

Agencies that receive financial assistance from MWRD enter into an intergovernmental agreement, which includes an operation and maintenance plan defining the partner agencies responsibilities for inspection, operation, and maintenance of the project. MWRD reviews inspection reports generated to assess the operation of the final project and to ensure proper maintenance is being performed. MWRD may also conduct their own inspections of the project on an as needed basis.

## Small Streams Maintenance Program

Through the management of the Small Streams Maintenance Program, the Maintenance & Operations Department works to reduce flooding in urbanized areas. Cook County has little elevation change; therefore, its streams tend to move slowly and are naturally prone to flooding. Many developed areas were originally uninhabited muddy marshes with meandering streams that often overtopped their banks. The streams that flow through the neighborhoods of Cook County are more than just a scenic part of the landscape or a habitat for wildlife. They serve the vital function of draining stormwater and preventing flooding. Minor blockages can build up quickly in heavy rains, restricting flow and creating a potential for urban flooding. In order to function properly, the streams must be maintained.

The Small Streams Maintenance Program, established in 2006, has successfully concluded its fifteenth year of operation. The program follows MWRD's stormwater management mission to relieve flooding in urbanized areas through immediate and relatively simple remedies. The program's top priorities are to maintain creeks, streams, and waterways by removing blockages, obstructions, and debris. The program also prevents future blockages by removing dead and unhealthy trees, which can fall into streams. Maintenance crews also remove harmful invasive species, such as buckthorn and honeysuckle, which can choke out native plants and leave the ground vulnerable to erosion.

▼ MWRD debris boat works to remove an old boat on the North Branch of the Chicago River.



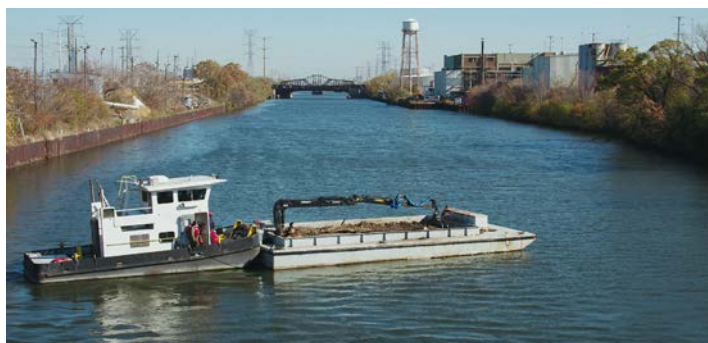


▲ Small Streams Maintenance crew removes debris on the Des Plaines River in Wheeling

MWRD and contractor crews removed approximately 18,934 cubic yards of debris in 2019. In addition, 3,189 cubic yards of river and canal debris was removed by MWRD’s debris and skimmer boat crews along the Chicago Area Waterways. In 2019, MWRD continued to utilize a two-year stream maintenance contract, paying a total of \$2,472,936 to contractors to provide stream maintenance. Listed in the table below are the debris amounts removed in each watershed for the past two years.

**TOTAL DEBRIS REMOVED BY WATERSHED (CUBIC YARD)**

<b>Watershed</b>	<b>2019</b>	<b>2020</b>
Little Cal	5,522	4,611
Cal-Sag	5,064	3,397
Lower Des Plaines	3,123	4,033
North Branch	3,652	1,813
Upper Salt Creek	628	673
Poplar Creek	945	315
<b>Total</b>	<b>18,934</b>	<b>14,842</b>



MWRD debris boat on the Chicago Sanitary and Ship Canal near the Stickney Water Reclamation Plant.

The 2020 expenditure for the Small Streams Maintenance Program was . \$2,332,884 The average cost per cubic yard of debris removed was \$157.18. In 2020, 1540 cubic yards of river and canal debris was removed by MWRD’s debris and skimmer boats.

The Small Streams Maintenance Program will continue in 2021 and is anticipating removal of approximately 25,000 cubic yards of debris. Major goals include standardizing procedures, identifying critical stream areas, scheduling critical inspections and continuing to introduce MWRD’s small stream crews to local governments to increase the public’s awareness of MWRD’s presence and execution of the program.

Citizens are encouraged to report waterway blockages and request removal of debris from small creeks or waterways in Cook County, IL, by either visiting <https://gispub.mwrdd.org/incidentreporting/> or downloading the Citizen Incident Reporting iPhone app (search for MWRD Citizen Incident Reporting on the iPhone App store or visit: <https://apple.co/2LTtEa8>).

## Watershed Management Ordinance

MWRD began requiring stormwater detention in 1972 under the Sewer Permit Ordinance for development projects greater than five acres. In 2007, MWRD 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 MWRD'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 replaced the MWRD's Sewer Permit Ordinance with more comprehensive permit requirements. Components regulated under the WMO include drainage and detention, volume control, floodplain management, isolated wetland protection, riparian environment protection and soil erosion and sediment control. The MWRD has included a green infrastructure component in the ordinance 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.

The WMO was amended by MWRD's Board of Commissioners on July 10, 2014 to incorporate the Infiltration/Inflow Control Program (Article 8). It was amended again on May 16, 2019 to include watershed specific release rates. The WMO was also amended on May 7, 2020, to allow the regional stormwater detention and volume control trading program pilot study in the Lower Des Plaines River and Little Calumet River watershed planning areas to commence. References to current rainfall data were also updated. The MWRD issued the Technical Guidance Manual (TGM), which serves as a technical reference to the WMO, and updates the TGM as needed. The WMO webpage, [mwrdd.org/wmo](http://mwrdd.org/wmo) contains more information on both the WMO and the Technical Guidance Manual.

Regulation of the WMO is administered by issuing permits for development within Cook County. Permits are reviewed by MWRD Engineering Department staff to ensure the project design is in compliance with the WMO. Additionally, construction sites are inspected to enforce the provisions approved under the permit. In 2020, 341 permits were issued, requiring a total of 153,449,800 gallons of detention volume and 19,610,000 gallons of green infrastructure retention volume. The following table illustrates the number of permits issued and inspected in 2020 and since the inception of the WMO. Volumes of water captured onsite in the form of detention and volume control (green infrastructure) are also included.

### Watershed Management Ordinance Program

YEAR	# PERMITS ISSUED	# SITE INSPECTIONS	TOTAL DETENTION VOLUME	TOTAL GREEN INFRASTRUCTURE VOLUME
2020	341	3,995	153,449,800 gallons	19,610,000 gallons
<b>Total</b>	<b>2,402</b>	<b>33,585</b>	<b>760,280,000 gallons</b>	<b>90,822,600 gallons</b>

### GIS/GPS Assistance

In 2017, MWRD purchased six Global Positioning System (GPS) units to provide sewer system owners with resources to begin mapping their sewer systems in a Geographic Information System (GIS) or to improve their existing sewer system maps. In return, sewer system owners provide MWRD with their sanitary, storm and combined sewer data. To obtain GPS equipment and related software at no cost, sewer system owners must enter into an intergovernmental agreement with MWRD. Since 2017, ten municipalities have entered into an intergovernmental agreement with MWRD to utilize the GPS units. Sewer system owners that wish to be added to the list for the next available GPS unit should submit a letter of intent to the MWRD Director of Engineering. A template intergovernmental agreement and modifiable letter of intent can be found at <https://mwrdd.org/watershed-management-ordinance-and-infiltrationinflow-control-program>.

## **Infiltration / Inflow Control Program Administration**

MWRD's Infiltration/Inflow Control Program provides a framework for asset management of separate sewer systems to meet the following goals:

- Maintain infrastructure to prevent sanitary sewer overflows and basement backups due to sewer surcharging and other adverse sewer system conditions;
- Comply with MWRD's National Pollution Discharge Elimination System permits and all other applicable federal, state, and local laws and regulations;
- Minimize extraneous flows transported to MWRD's facilities due to defective system components or illegal connections.

The Infiltration/Inflow Control Program is implemented due to special conditions imposed within the National Pollutant Discharge Elimination System permits issued by the Illinois Environmental Protection Agency for MWRD's Water Reclamation Plants. In addition to adopting a Capacity, Management, Operation and Maintenance Program for the conveyance and treatment facilities, MWRD is required to take action to reduce excessive Infiltration/Inflow within the local sanitary sewer systems.

All satellite entities (sewer system owners) within MWRD's separate sewer area that discharge directly or indirectly into MWRD facilities are required to identify and address infiltration and inflow sources within the public and private sewer systems. This will be accomplished by the individual satellite entities performing ongoing inspections and conducting maintenance and rehabilitation work on the sewer system. All satellite entities must annually report work completed to meet the goals of the Infiltration/Inflow Control Program to MWRD.



## Infiltration / Inflow Control Program Satellite Entities

Alsip	Hickory Hills	Orland Park
Aqua Illinois	Hillside	Palatine
Arlington Heights	Hinsdale	Palatine Township
Bartlett	Hodgkins	Palos Heights
Bedford Park	Hoffman Estates	Palos Hills
Bellwood	Homewood	Palos Park
Berkeley	Illinois American Water	Park Ridge
Bridgeview	Indian Head Park	Plum Grove Estates SD
Broadview	Inverness	Plum Grove Woodlands SD
Brookfield	Justice	Prospect Heights
Buffalo Grove	Kenilworth	Richton Park
Burr Ridge	Kimberly Heights SD	River Grove
Calumet City	La Grange	Riverdale
Chicago Ridge	La Grange Highlands SD	Robbins
Country Club Hills	La Grange Park	Rolling Meadows
Countryside	Lansing	Roselle
Crestwood	Lemont	Rosemont
Deer Park	Leyden Township	Sauk Village
Des Plaines	Lynwood	Schaumburg
Dolton	Markham	Schiller Park
East Hazel Crest	Matteson	South Barrington
Elk Grove Township	McCook	South Holland
Elgin	Melrose Park	South Lyons Township SD
Elk Grove Village	Merrionette Park	South Palos Township SD
Evergreen Park	Midlothian	South Stickney SD
Flagg Creek WRD	Mission Brook SD	Stone Park
Flossmoor	Morton Grove	Streamwood
Ford Heights	Mount Prospect	Thornton
Forest River SD	Niles	Tinley Park
Franklin Park	Norridge	Westchester
Garden Homes SD	Northbrook	Western Springs
Glenbrook SD	Northfield	Wheeling
Glencoe	Northfield Township	Willow Springs
Glenview	Northfield Woods SD	Wilmette
Glenwood	Northlake	Winnetka
Hanover Park	Oak Forest	Woodley Road SD
Harvey	Oak Lawn	Worth
Harwood Heights	Oak Meadow SD	
Hazel Crest	Olympia Fields	

## PARTNERSHIPS AND PUBLIC OUTREACH

### Joint Funding Agreement with the United States Geological Survey for Stream Gaging Station in Cook County

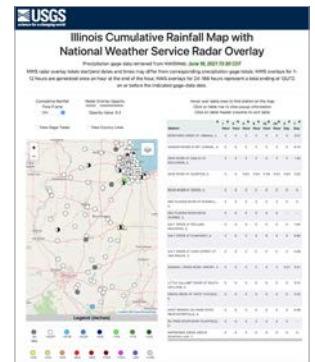
MWRD entered into a Joint Funding Agreement with the United States Geological Survey beginning in 2006 and has since renewed the agreement annually to fund the continued maintenance and operation of various stream gages and rain gages within Cook County. Under the 2019–2021 agreement, MWRD is funding the following seven stream gages:

- Salt Creek at Rolling Meadows
- Salt Creek near Elk Grove Village
- Salt Creek at Western Springs
- Des Plaines River at Lyons
- North Branch of the Chicago River at Deerfield
- Calumet Union Drainage Ditch at Markham
- Tinley Creek near Palos Park

MWRD is also funding two rain gages located on Salt Creek near Rolling Meadows and on Natalie Creek at Midlothian. The data from the streamflow gaging stations has proven useful for MWRD with calibration of the hydrologic and hydraulic models in the Detailed Watershed Plan development, and MWRD will continue to use data from these stations in ongoing and future planning and design of stormwater improvements.

Real time data from the stream gages are available on the United States Geological Survey's website at <https://waterdata.usgs.gov/nwis>.

Precipitation data is available at <https://il.water.usgs.gov/gmaps/precip/index.php>.



### Watershed Planning Councils

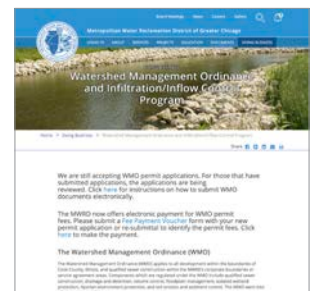
The Watershed Planning Councils were formed in 2005 to serve as advisory bodies to MWRD for its stormwater management program. Municipalities and townships are represented in the councils by their chief elected officials or designees. Unincorporated areas are represented by the Cook County Board President or his or her designee. Councils meet at least quarterly for the watersheds of the North Branch of the Chicago River, the Lower Des Plaines River, the Calumet-Sag Channel, the Little Calumet River, Poplar Creek, and Upper Salt Creek. Watershed Planning Council meetings serve as a mechanism for representatives of municipalities and townships to be updated on MWRD's stormwater management program as well as to communicate concerns of the public to MWRD.

The following Councils of Government are responsible for coordination of the WPCs:

- Northwest Municipal Conference
- West Central Municipal Conference
- South Suburban Mayors and Managers Association
- Southwest Conference of Mayors.

MWRD negotiated agreements with each of the Councils of Government to provide administrative assistance related to coordination of the Watershed Planning Councils; the current agreement was renewed for 2020 and 2021. The Councils of Government assist MWRD by arranging meeting schedules, drafting and distributing meeting agendas, distributing information from MWRD to council members, assembling contact information for council representatives, and forwarding information about stormwater management concerns from the council members to MWRD.

Visit <https://mwrdd.org/irj/portal/anonymous/meetingschedule> to view the current Watershed Planning Council meeting schedule.



## Public Affairs

In 2020, MWRD staff provided information about MWRD and the Stormwater Management Program at various virtual events for communities throughout the region and at various virtual technical conferences. MWRD attends all Watershed Planning Council meetings to provide updates on watershed planning efforts, changes to the WMO, and stream maintenance activities. These meetings are open to the public and provide an opportunity for concerns of the public to be communicated to MWRD. The Space to Grow projects in partnership with Chicago Public Schools and Department of Water Management also have a large public affairs component, including community meetings to recommend design elements, community planting days and ribbon cutting ceremonies, where the value of green infrastructure is demonstrated.

MWRD Staff will continue to participate in community outreach events in 2021, virtually and in person when possible. MWRD will also continue to participate in Watershed Planning Council meetings, and continue to promote MWRD stormwater management efforts using press releases and other media outlets.

## Cook County Hazard Mitigation Plan

The Cook County Hazard Mitigation Plan is the use of long-term and short-term policies, programs, projects, and other activities to alleviate the death, injury and property damage that can result from a disaster. Cook County, MWRD, and a coalition of planning partners prepared the Cook County Multi-Jurisdictional Hazard Mitigation Plan in order to identify the risks posed by hazards and find ways to reduce their impacts. The plan reduces risk for those who live in, work in, and visit the County. MWRD continues to work closely with Cook County and our other planning partners to mitigate against flooding through projects identified in our annual report.

A list of stormwater management press releases issued in 2020 can be found below.

## 2020 Stormwater Management Press Releases

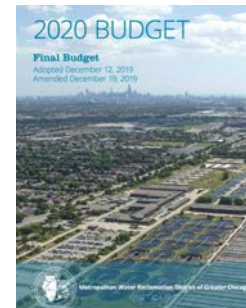
October 14, 2020	MWRD selects 10 local stormwater partnership projects
July 9, 2020	MWRD's stormwater detention trading pilot study underway
July 8, 2020	MWRD to study suburban schoolyard stormwater management opportunities
June 10, 2020	Have a green infrastructure project in mind? MWRD seeks government partners to apply for assistance by Aug. 30
March 12, 2020	MWRD to release Green Neighbor Guide to prepare homeowners, landscapers for managing stormwater
February 11, 2020	Reminder: MWRD's voluntary flood-prone property acquisition program can provide relief for homeowners; Local governments should apply for support by Feb. 14
January 16, 2020	Local governments urged to apply for MWRD stormwater management assistance; applications due February 14, 2020

## 2020 STORMWATER MANAGEMENT COMMITTED EXPENDITURES

CATEGORY	DESCRIPTION	COMMITTED EXPENDITURES*
Personal Services: Consultants	Fees paid to consultants for professional services rendered:	\$ 3,493,631
	Preliminary Engineering	\$ 1,551,670
	Final Engineering and Post Award	\$ 1,941,961
Personal Services: In-House	Salaries and associated costs related to MWRD personnel (84 Full time Employee Positions):	\$ 9,910,444
Contractual Services	Fees paid for services provided by Councils of Governments, agencies or companies:	\$ 41,780,932
	Small Streams Maintenance Program	\$ 2,389,272
	Small Streams Maintenance Program Waste Disposal	\$ 25,011
	Court Reporting Services	\$ 7,559
	Contractual Services, N.O.C	\$ 502,094
	Land Acquisition and Appraisals	\$ 3,203,926
	Waterways Facilities Structures (Construction)	\$ 20,110,607
	Army Corps of Engineers Services	\$ 49,999
	Permit Review	\$ 856,967
	IGAs	\$ 13,453,015
	Payments for Easements	\$ 1,171,283
	Debt Service for Alternate Revenue Bonds	\$ 5,961,600
	Miscellaneous Contractual Services	\$ 11,200
Administrative Expenses	Materials, equipment, supplies:	\$ 8,871
<b>Total 2020 Committed Expenditures</b>		<b>\$ 55,193,879</b>

\* These figures do not include stormwater bond funds used to finance larger capital projects. Refer to the MWRD's 2020 Annual Budget Report for more detailed information available here:

<https://mwrdd.org/sites/default/files/documents/2020%20FINAL%20Budget%20Book%20Web%20Version%20After%20Optimizing.pdf>



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## Metropolitan Water Reclamation District of Greater Chicago

100 East Erie Street • Chicago, Illinois 60611-3154



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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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