



Metropolitan Water Reclamation District of Greater Chicago

A UTILITY OF THE FUTURE

2023

OUR HISTORY

Reversing the Chicago River,
Revitalizing a Community

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ESSENTIAL SERVICES

Treating Wastewater and
Protecting a Region's Health

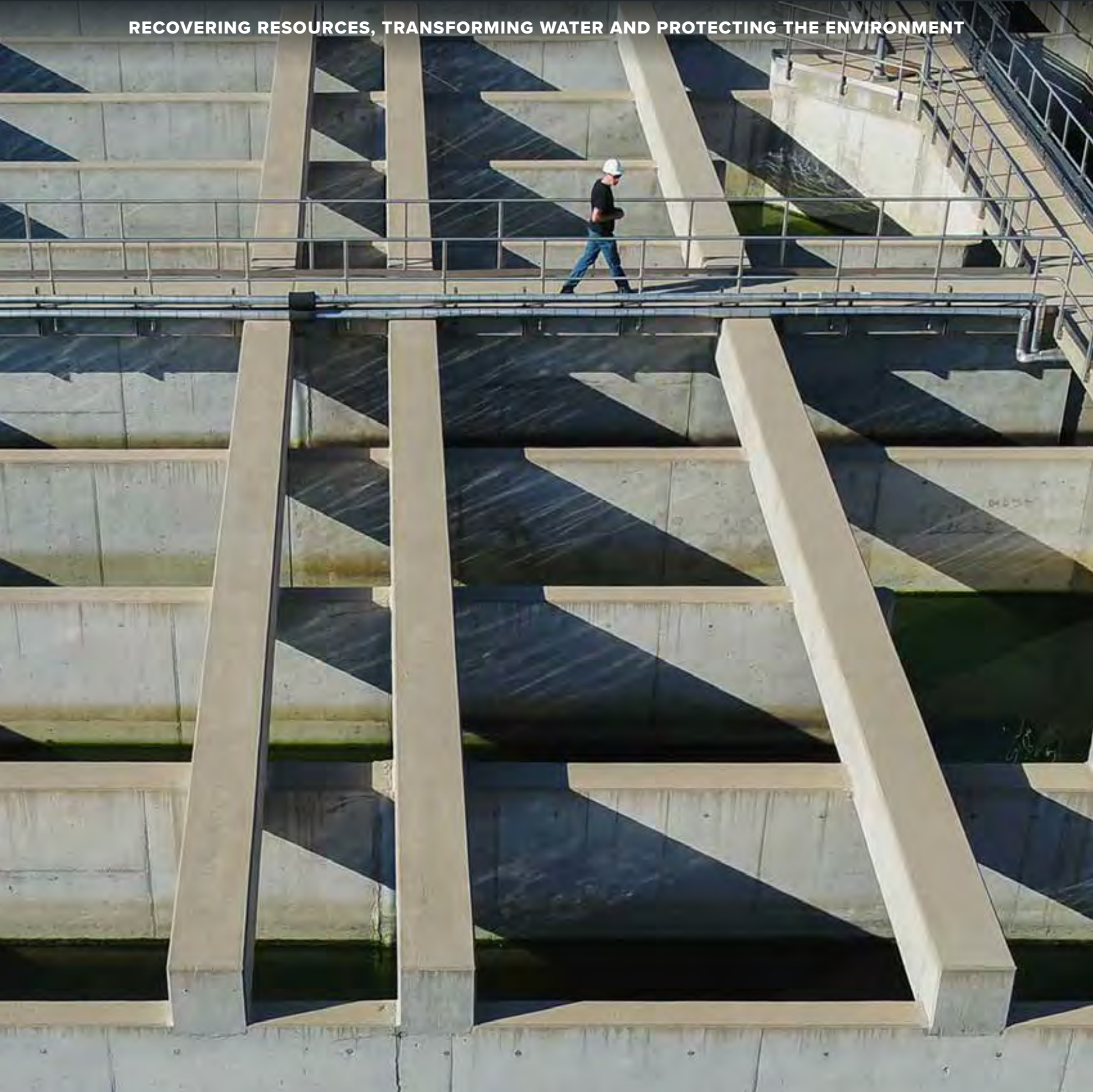
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RECOVERING RESOURCES, TRANSFORMING WATER AND PROTECTING THE ENVIRONMENT



The Utility for the Future You Can Rely On Every Day

Since 1889, the Metropolitan Water Reclamation District of Greater Chicago (MWRD) has established an illustrious record of reliability and ingenuity in protecting public health, area waterways and the planet. That essential work took on new meaning during a global pandemic. Despite obstacles, our staff rose to the occasion to keep the water flowing, our water environment intact and services humming. We even discovered new ways to increase our resourcefulness during these unimagined times.

Throughout its history, the MWRD has made an indelible imprint on the Chicago area and the quality of life for all our residents. The MWRD established this reputation for unfaltering dependability and innovative leadership treating the region's wastewater, managing stormwater and protecting our water resources. While our generations of service are historically significant, there are many more exciting chapters on the horizon. Since undertaking the extraordinary task of reversing the flow of the Chicago River to protect Lake Michigan, the MWRD engaged in more than a century of progress and continuous innovation to care for our water environment. Those early commitments were aimed at protecting the public's health and water resources, and while the MWRD maintains that same level of excellence at an exceptional

value to taxpayers, we also pride ourselves in cleaning water in the face of an evolving system of water treatment. Today, we are met with a changing climate, record rain events and an increased use in impervious pavement across our flat terrain. As a result, we are continuously challenged to find comprehensive solutions to manage stormwater and prevent flooding, all while grasping emerging technologies to improve local water quality and protect a river that is soaring in popularity. To meet this demand, we are developing new systems to reduce nutrients in our water, decreasing greenhouse gas emissions, conserving and reusing water, recovering renewable resources, and maintaining a tradition of reliability and resourcefulness that has become a hallmark for our agency across the region.

As a utility of the future, the MWRD is also educating the communities it serves and working with stakeholders to create awareness for our water environment. By actively forming new partnerships, engaging the public and urging our communities to consider the countless ways we can all contribute to improving our water environment, we are taking a role of leadership, fostering collaboration, broadening our reach and magnifying our impact.

The perseverance of the MWRD is shown in the resiliency of Cook County. The MWRD continues to rise to the challenge to effectively manage stormwater and mitigate flooding, and that commitment is expected to continue for generations to come. This publication will highlight the many ways the MWRD has grown to become the utility of the future you can rely on every day. ★



In its daily role of recovering resources and transforming water, the MWRD is protecting the regional water environment and mitigating flooding through its 110 miles of tunnels serving the Tunnel and Reservoir Plan (above), recovering nutrients from water to be reused as fertilizer (above right) and processing biosolids to be reused as a soil amendment to help grow plant life (bottom right).



The MWRD not only transforms the region's wastewater into clean water, but also protects the surface of the water from pollution. The MWRD's skimmer boats collect nearly 200 yards of debris each year. These debris collection boats improve water quality and the recreational experience for canoers, kayakers, boaters, and others enjoying the waterways.





MWRD staff have stayed on the job throughout the pandemic to test and analyze water quality, ensuring a safe and healthy environment. They also collected samples from all seven water reclamation plants to support studies on sewage surveillance monitoring for COVID-19. Traces of viral RNA in the wastewater can offer retrospective insight to local and national research institutions, universities and public health departments on the spread of the virus.

Financial Summary

The MWRD maintains a strong financial position with a AAA bond rating from Fitch Ratings and an AA+ bond rating from S & P Global.

Strong finances afford the MWRD the opportunity to deliver our essential services and trademark innovation. The MWRD maintains a stable financial outlook despite a global pandemic, market volatility, rising inflation, supply chain disruptions and changing weather patterns. The MWRD Board of Commissioners approved a \$1.4-billion budget for 2023 without increasing the property tax levy (\$679.2 million) from the 2022 budget. Nearly three quarters of the 2023 appropriation (74.1 percent) is supported by property taxes. Other revenue sources include federal and state grants and reimbursements (\$37.9 million) user charge revenues (\$37 million), and land rentals (\$28 million).

The Capital Improvement Program (CIP) is funded through State Revolving Fund loans, federal grants and reimbursements, general obligation or alternative revenue bond sale proceeds and general property tax revenues. A total of 147 capital projects will be under the planning, design, or construction phases in 2023, modernizing aging infrastructure, advancing the MWRD's Tunnel and Reservoir Plan (TARP), and implementing innovative technologies for changing clean water standards.

Rising costs for chemicals, electricity and natural gas influenced budget cost estimates in the MWRD's Corporate Fund (\$475.1 million), but these added dollars have not impeded the MWRD from meeting its mission. Total appropriations in 2023 cover the cost of general support (\$806.8 million); wastewater treatment (\$260.9 million); flood and pollution control (\$246.8 million); collection of wastewater (\$233 million); solids processing (\$93.6 million) and solids utilization (\$40.3 million).

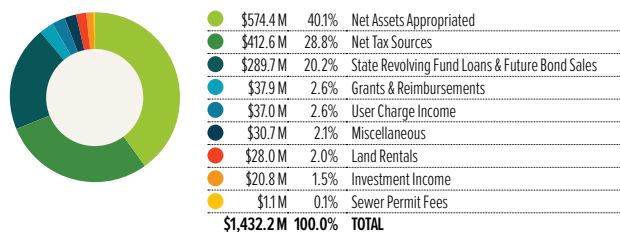
The Stormwater Management Fund budget (\$129 million) will support the MWRD's efforts in reducing flooding throughout Cook County. Major projects include the construction of the Addison Creek Reservoir, Addison Creek Channel Improvements, the 1st Avenue Flood Control Project from Roosevelt Road to Cermak Road, the Crestwood Flood Control Project, the Tinley Creek Streambank Stabilization

Project, and multiple green infrastructure partnership projects with local communities. The MWRD will leverage federal funding from the U.S. Army Corps of Engineers in 2023 to help advance the Robbins Stormwater Park and Midlothian Creek restoration work, increasing a stormwater drainage system that will mitigate flooding for homes and businesses.

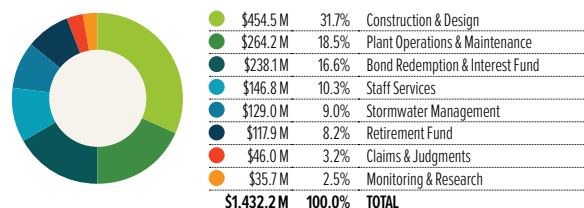
As the MWRD completes year two of a five-year Strategic Plan, we continue focusing on our values of excellence, respect, innovation, safety, equity and diversity, and accountability through a vision of flood mitigation, resource recovery, sustainability, resilience and innovation. We established a community partnership council at our Calumet Water Reclamation Plant, launched a public-facing Strategic Plan hub to share data benchmarks, implemented an employer-funded health reimbursement arrangement account, and received legislative authority to issue up to \$600 million in pension obligation bonds. For 2023, we allocated more than \$12 million to new projects in support of five Strategic Plan goals within the Corporate and Stormwater Management Funds. These projects include stormwater management, resource management, enterprise resilience, community engagement and workforce excellence.

We are making a commitment to strengthen our long-term finances by addressing the outstanding Retirement Fund pension obligation. For the second straight year, the MWRD committed \$30 million in Corporate Fund budgetary reserves to the Retirement Fund to maintain growth in the funded ratio. The MWRD will also contribute advance funding of \$5 million annually to the OPEB (Other Postemployment Benefits) Trust Fund. It is for these strong reserves, proactive financial management, and responsible actions that the MWRD maintains healthy finances and strong credit ratings that allow us to treat wastewater for Chicago and 128 surrounding suburban communities, manage stormwater for Cook County, and protect area waterways and the region's drinking water supply in Lake Michigan. ★

WHERE MWRD MONEY COMES FROM



WHERE MWRD MONEY GOES



2023 ESTIMATED DISTRICT TAX: \$120.78 FOR A \$100,000 HOME.

OUR HISTORY

Reversing the Chicago River, Revitalizing a Community

Although the MWRD's name has changed a few times and the scope of our work has expanded, the quality of service remains the same. Today's projects are as ambitious as they were more than 100 years ago, making profound impacts both locally and across the entire region.

Managing today's water invokes an incredible need for the expertise of the MWRD, but it was the dire conditions of the local water environment in the 19th century that first demanded our services.

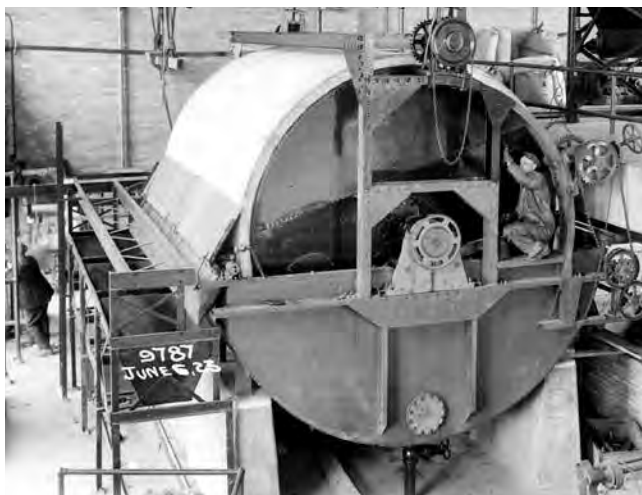
As a response to a public health crisis coupled with the city's exponential growth, the MWRD was originally organized as the Sanitary District of Chicago in 1889 under an act of the Illinois General Assembly. The enabling act was in direct response to contamination of the Lake Michigan water supply and nuisance conditions of the rivers. During that time, a polluted river flowed directly into the lake and caused waterborne illnesses. The Sanitary District's first priority became reversing the flow of the Chicago and Calumet River Systems to prevent the discharge of sewage into Lake Michigan. The water instead discharged into the Des Plaines River, where it could dilute as it flowed into the Illinois River and eventually the Mississippi River. To make this happen, the Sanitary District's dedicated staff constructed a 61.3-mile-system of canals and waterway improvements. The canals cut through the sub-continental dividing ridge, allowing the river to flow by gravity away from the lake and down a steeper slope. Workers blasted, dug and hauled heavy rock and deepened, straightened and widened waterways to convey sewage and stormwater to improve the quality of area waters.

The agency's first projects, reversal of the Chicago and then the Calumet River, were engineering marvels that not only improved environmental conditions but also helped to distinguish the agency around the

world. The monumental achievements set a tone of impressive environmental engineering accomplishments and scientific breakthroughs. From there, the Sanitary District built intercepting sewers, pumping stations and water reclamation plants to clean water. The agency's mission grew from protecting the lake to creating a new flourishing waterway system. These early advancements were followed by a century of innovation in water treatment technology. These early projects were effective and also well documented. The engineers surveying the property and construction activities also photographed their work, leaving behind an archive of 14,000 images.

From 1955 through 1988, the District was called the Metropolitan Sanitary District of Greater Chicago. In order to provide a more accurate perception of functions and responsibilities, the name was changed again in 1989 to the Metropolitan Water Reclamation District of Greater Chicago. Over that time, we went on to construct tunnels and reservoirs, aeration stations, nutrient recovery facilities and green infrastructure projects. We now operate the world's largest water reclamation facility, the world's largest nutrient recovery facility, the world's largest wastewater treatment ultra-violet (UV) installation, and the world's largest combined sewer reservoir.

The MWRD serves an equivalent population of 12.72 million people each day, including 5.19 million residents of Chicago and 128 suburban communities, an equivalent of 5.29 million in the commercial and industrial sector, and a combined sewer overflow equivalent of 2.24 million people. ★



The MWRD marked the centennial anniversary of the MWRD's Calumet Water Reclamation Plant and completion of the Cal-Sag Channel in 2022.

These two manmade systems constructed by the MWRD are intrinsically linked through the MWRD's work to transform wastewater into clean water and return it to the environment to enhance our region. In addition to building the plant and digging the 16-mile Cal-Sag Channel, the MWRD built 560 miles of intercepting sewers to convey water from local sewers to its treatment plants.



Workers load rock for removal during excavation of the Chicago Sanitary and Ship Canal in September 1894. Reversing the flow of the Chicago and Calumet River systems required significant manual labor and digging. There were more than 5,000 workers assigned to this task in September of 1894.

ESSENTIAL SERVICES

Treating Water and Protecting a Region's Health

The MWRD treats about 1.3 billion gallons of water per day, or close to 500 billion gallons per year, after it flows down drains, leaves households and industrial and commercial facilities, and runs off streets and sidewalks.

With a total treatment capacity of more than 2 billion gallons, the MWRD collects, cleans and returns that water to the environment in a matter of hours. The efficient manner in which the MWRD works is a crowning achievement in a rich history that strives to protect public health and the environment. Annually the National Association of Clean Water Agencies (NACWA) honors MWRD water reclamation plants for meeting decades of compliance in National Pollutant Discharge Elimination System (NPDES) permit requirements and federal Clean Water Act standards.

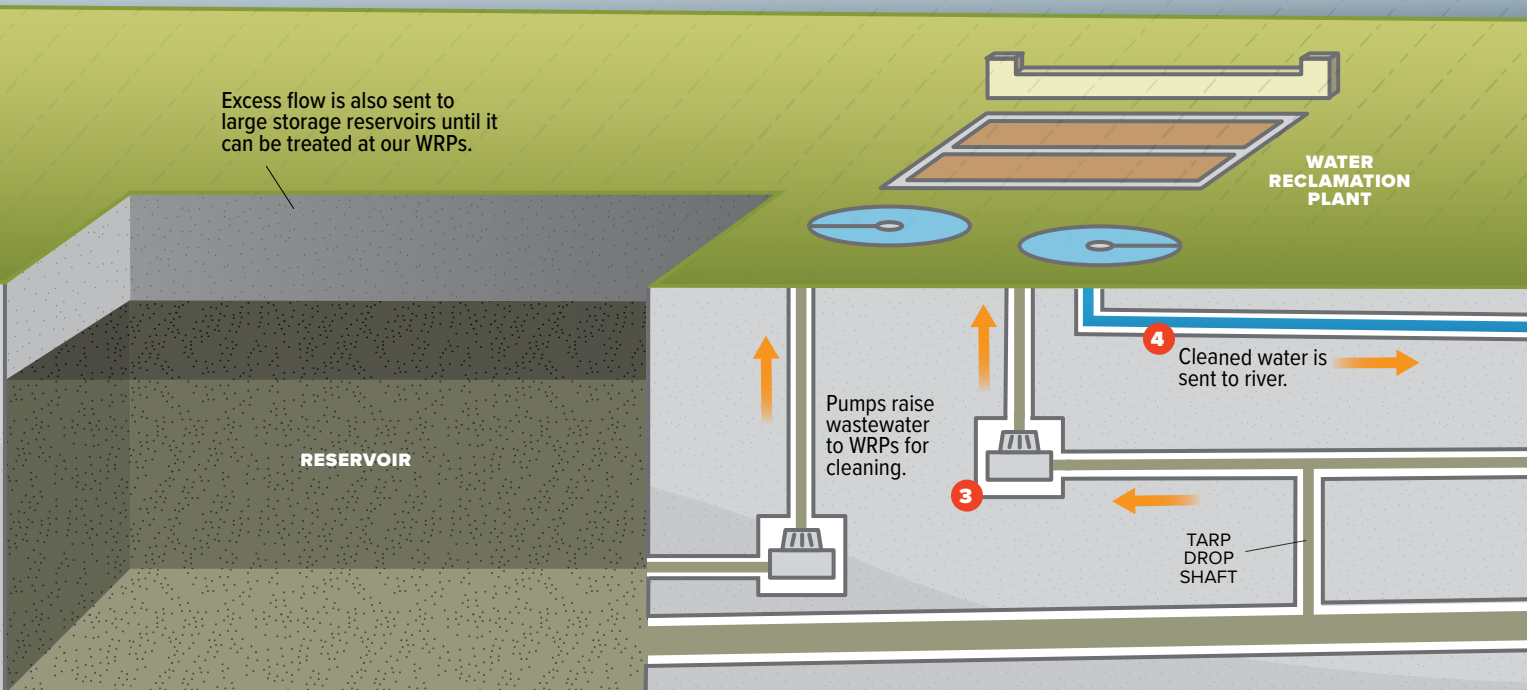
The MWRD owns and operates seven WRPs. One of these is the Stickney WRP, the world's largest for full secondary treatment by volume. The MWRD also owns and operates 560 miles of intercepting sewers, which are larger sewers that receive flow

from approximately 10,000 local sewer system connections, and force mains, which are pipes that move water under pressure by using pumps or compressors. The WRPs mimic the purification process that occurs naturally in rivers, condensing what would take one or two weeks to less than 12 hours. Once considered waste, the discarded water that flows to our plants for treatment is now considered a collection of resources to be recovered and reused beneficially. In addition to cleaning water for reuse and discharge into our waterways, the process works to recover solids and nutrients that are beneficially returned to the environment. The process also strives for energy efficiency, energy generation and recovery to reduce greenhouse gas emissions, promote a more sustainable society, generate savings for taxpayers and enhance our water treatment operation. ★

How Sewers Work

Local municipal sewers carry wastewater to MWRD's larger intercepting sewers, which flows into one of seven WRPs across Cook County. If the intercepting sewers, water reclamation plants and reservoirs reach capacity during heavy rain, the local sewer continues to drain, or "overflow," to a waterway. This is known as combined sewer overflow, which is happening less thanks to TARP expansion.

Illustration is for explanatory purposes only and is not drawn to scale.



CURRENT MAX FLOW TO WATER RECLAMATION PLANTS

Stickney
Cicero
1,440 MGD

Calumet
Chicago
450 MGD

O'Brien
Skokie
430 MGD

Kirie
Des Plaines
110 MGD

Egan
Schaumburg
50 MGD

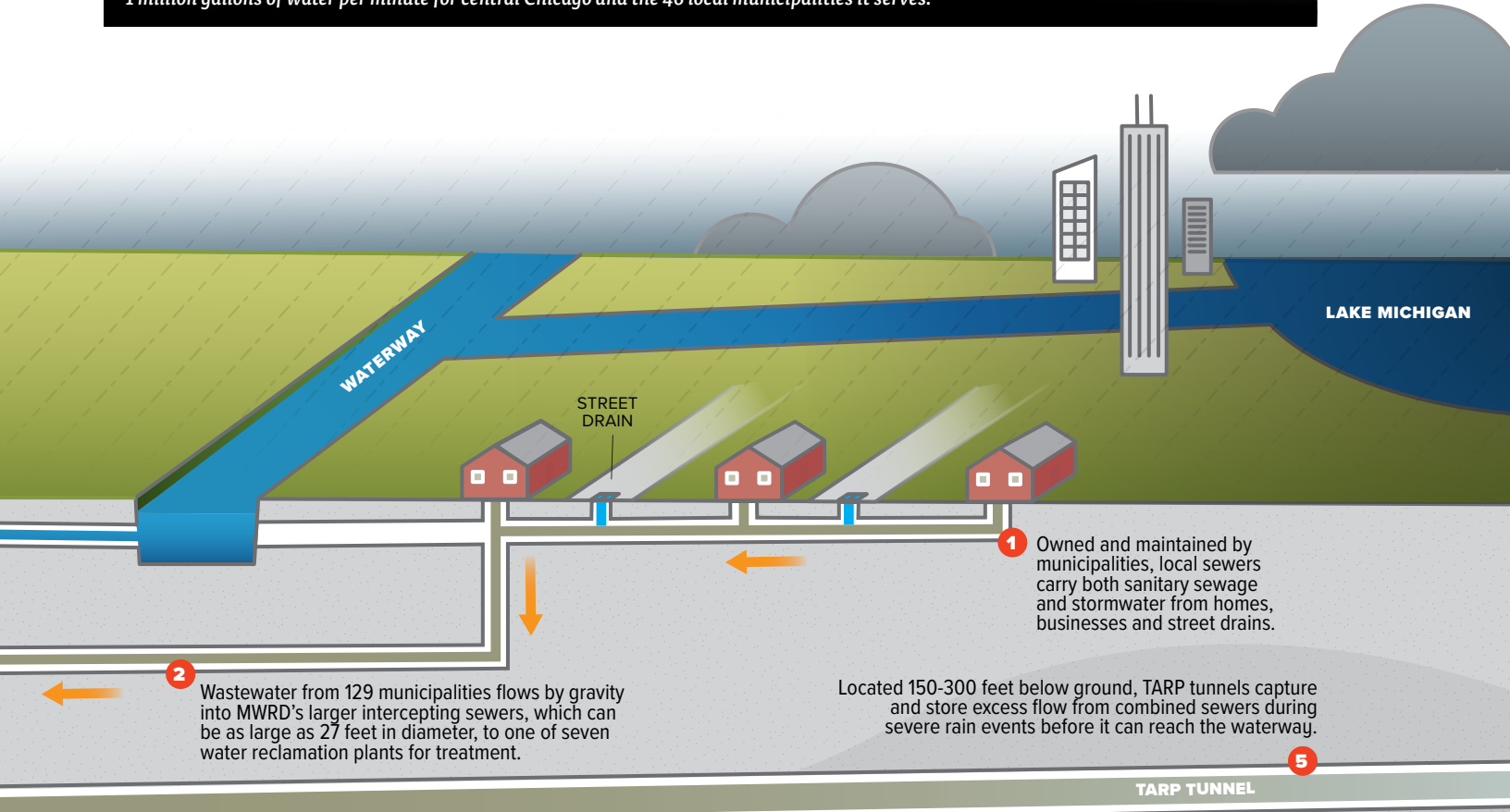
Hanover Park
Hanover Park
22 MGD

Lemont
Lemont
4 MGD



PERMIT COMPLIANCE **100%**

The Stickney Water Reclamation Plant has the capacity to treat 1.44 billion gallons of water per day, or 1 million gallons of water per minute for central Chicago and the 46 local municipalities it serves.



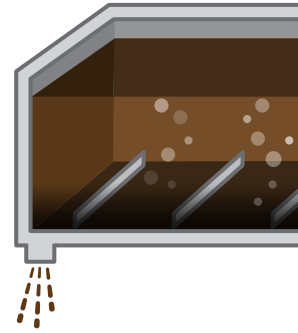
Water Treatment Process

The WRPs mimic the purification process that occurs naturally in rivers, condensing what would take one or two weeks to less than 12 hours.



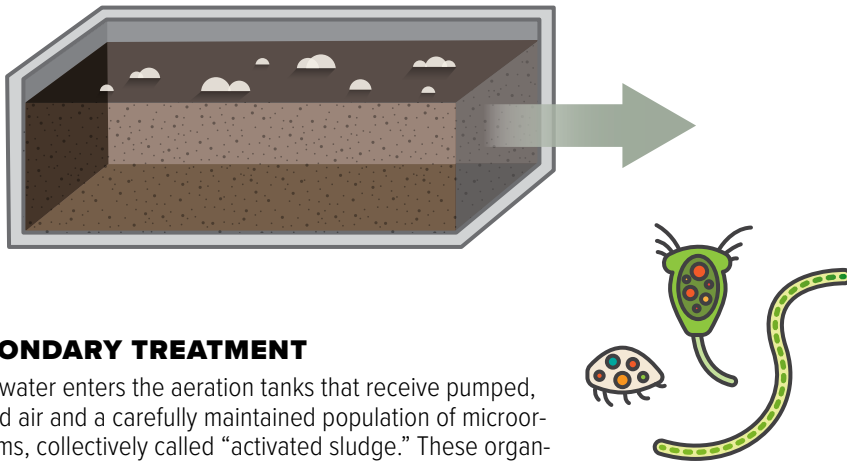
1. PRELIMINARY TREATMENT: COARSE SCREEN

A screening process utilizes large combs that rake through coarse screens to remove large objects which are deposited on conveyor belts and taken to landfills. The screens are a first line of defense to protect pumps from items that range from unwanted trash to huge tree limbs.



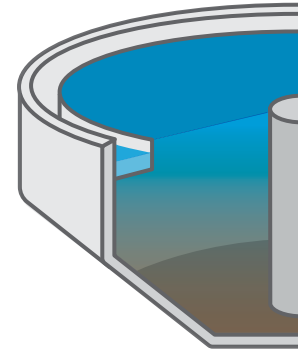
2. AERATED GRIT TANK

Next, pumps move water to aerated grit tanks where suspended materials are kept in motion while grit, sand and other heavy materials settle. A conveyor scrapes the larger material on the bottom and takes it to a landfill.



4. SECONDARY TREATMENT

Next, water enters the aeration tanks that receive pumped, filtered air and a carefully maintained population of microorganisms, collectively called "activated sludge." These organisms break down the remaining suspended solids and remove soluble organics, ammonia, and, at some WRPs, phosphorus, and aggregate themselves to settle in the final settling tank.



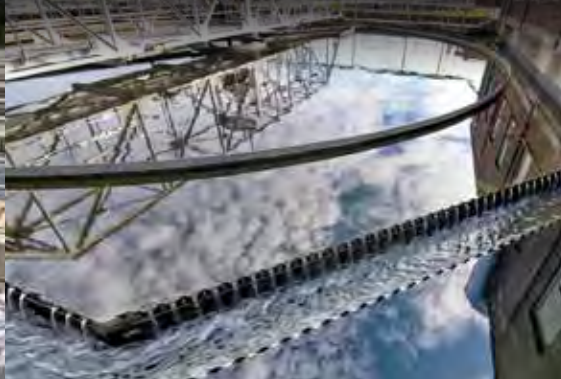
5. FINAL SETTLING TANK

In the final settling tanks, liquid from aeration tanks flows into the center of the tank. Solids sink to the bottom and are collected in a drain. About 97 percent of the solids are removed in these tanks, while the remainder is sent to solidification and dewatering. The top of the tank is now clean and ready for tertiary treatment.

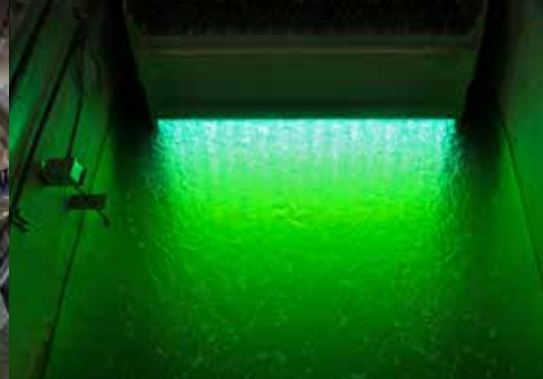
ACTIVATED SLUDGE TANK

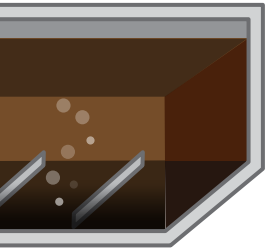


SETTLING TANK

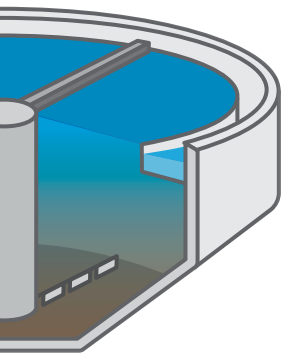


ULTRAVIOLET DISINFECTION

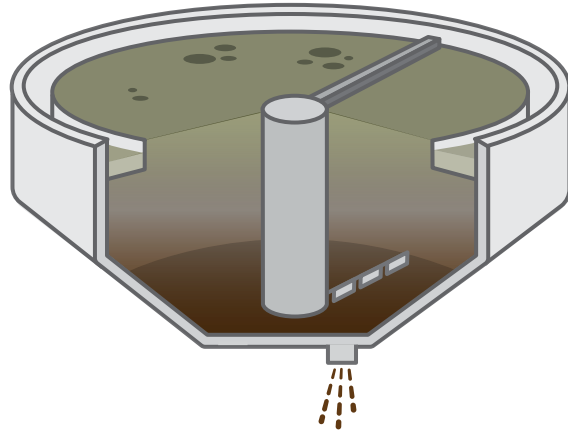




tanks. The air bubbles keep lighter
and gravel sink to the bottom. A
the bottom into a drain. It is then

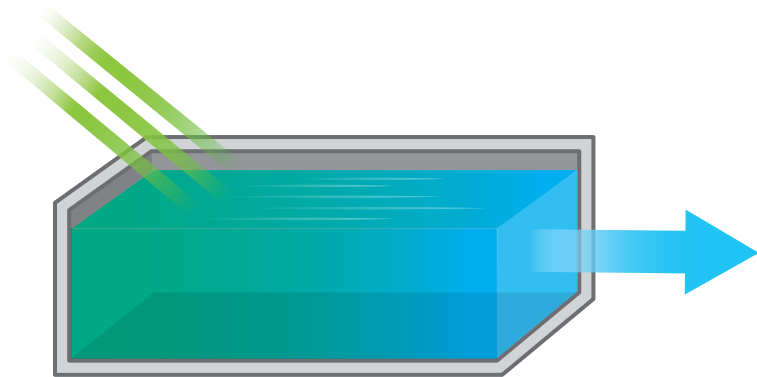


ation tanks flows by gravity through
bottom where revolving blades scrape
e solids are sent back to aeration
ds treatment process. The water at
ly for discharging to the waterway or



3. PRIMARY TREATMENT

The water now flows into primary settling tanks. A revolving conveyor with slats skims off the floating fats and oils while solids settle to bottom. The slats push the solids to a drain so that they can be conveyed to a solids treatment process. The floating fats and oils are moved to a drain and then they are sent to a landfill.



6. TERTIARY TREATMENT

During disinfection, the MWRD uses a variety of measures at different WRPs to add a final layer of treatment before water is released into neighboring waterways. The DNA of microbes are deactivated using a chlorination/de-chlorination application process or an ultraviolet (UV) light disinfection system that prevents them from reproducing or growing. These disinfection processes drastically improve the microbial quality of the water produced by the MWRD.



WEST SIDE PRIMARY SETTLING TANKS

In 2018, the MWRD constructed nine 160-foot diameter primary settling tanks (PST) and six 132-foot long aerated grit tanks, associated support facilities, service tunnels and conduits at the Stickney WRP. These new tanks and treatment equipment replaced labor-intensive tanks that had been in use since 1928. This major upgrade provides a significant increase in digester gas production that will cover energy costs. The new tanks also increase and improve grit removal, protecting downstream piping and equipment, and reduce water recycling as well as odors that will be better captured and removed to support our goal of being a responsive neighbor to the communities we serve.

Recovering Resources, Transforming Water and Protecting the Environment

Since 1889, the MWRD has protected the water environment, but our view of the treatment process has evolved, as new technology and new challenges have emerged.

We now see this transformation as a collection of raw resources that we can sustainably recover and reuse, while reducing our carbon footprint and improving the water environment to protect our communities from climate change. Resource recovery presents a new frontier that provides a return on investment that benefits taxpayers and the environment. To protect future generations, the MWRD also developed a Climate Action Plan that prioritizes carbon reduction in support of the MWRD's Strategic Plan.



WATER

The MWRD returns treated water to the water cycle for reuse in many forms. In the future, changing economics may make it beneficial to distribute treated water for industrial use, cooling, or irrigation. When used appropriately, recycled water can satisfy many water demands. It presents financial savings while promoting water conservation resulting in the decrease of water withdrawals from Lake Michigan. In addition to being harnessed, water itself is also reused directly throughout the MWRD treatment process. Every day, 15.1 million gallons are reused in pipeline flushing, blower motor cooling, post-centrifuge centrate flushing and tank cleaning. The MWRD is producing cleaner water for reuse than previous generations, thanks to MWRD innovation and the MWRD's Industrial Waste Division that controls pollutants, such as metals, that were formerly discharged back into the environment due to industrial uses.

ENERGY

Water is a meaningful source of energy. At our Lockport Powerhouse where the Chicago Sanitary and Ship Canal drops 38 feet into the Des Plaines River, hydroelectric power is generated and converted to clean, renewable electricity. It is one of dozens of measures that the MWRD is taking to control our energy future. For decades, we have been creating clean, renewable energy from organic material removed from the wastewater. Biogas that is produced in anaerobic digesters is used to fuel boilers which produce steam or hot water to heat buildings and processes at the WRPs. This renewable biogas offsets the need to purchase about 6 million therms of natural gas each year. We have been pursuing energy reduction activities, including complete building energy assessments, and optimizing the aeration processes through implementation of new sensor and computerized control technology.

PHOTOS (left to right): Water flows over a weir during treatment; the MWRD's Lockport Powerhouse has been generating hydroelectric power since 1907; MWRD solids are blended with windrow turners to create a premium quality compost product; an MWRD engineer inspects a nutrient recovery reactor at the Stickney Water Reclamation Plant.

FULTON COUNTY

Although the MWRD's daily service area is confined to Cook County, we actively work with the agricultural community and other stakeholders throughout the state to ensure water leaving our communities is not negatively impacting communities downstream. In keeping with our mission, and to be a good neighbor, the MWRD makes land it owns in Fulton County available to the agricultural sector, Illinois Farm Bureau and University of Illinois. The land serves as a live laboratory for conducting research and demonstrations for farmers to see best management practices and strategies to reduce nutrient loss on land that closely resembles actual farming operations. Point sources of nutrient discharge, like WRPs, and non-point sources, like the farming community, must work together to help the state meet national reduction goals for nutrient loss contributing to the hypoxic zone in the Gulf of Mexico, where oxygen levels are being depleted from the excess nutrients. The MWRD initially purchased the 13,500-site in 1970 to convert the former strip-mined land from a brownfield to a fertile farmland, as part of the award winning "Prairie Plan."



BIOSOLIDS

The recovery and use of biosolids can also protect our planet. Biosolids are a sustainable and environmentally beneficial product derived from the water reclamation process. The MWRD produces approximately 150,000 tons of biosolids annually, and 99 percent of all biosolids products are beneficially reused. We have provided our EQ Compost and biosolids to area golf courses, parks and athletic fields for decades. Biosolids improve soil structure, support microbes and sustain plants by adding organic matter and retaining nutrients. Applying these resources to soil can also provide major storage capacity for carbon. The MWRD's biosolids store about 40,000 tons of carbon on average each year. By land applying this soil amendment, we can take the equivalent of 150,000 vehicles off the road. By reusing it locally, we can also cut down on energy costs and carbon emissions to haul the product hundreds of miles away to what were formerly landfills.

NUTRIENTS

Recovering nutrients like phosphorus and nitrogen can make them available for reuse while protecting our waterways from contamination. In 2016, our Stickney WRP opened the world's largest nutrient recovery facility that helps protect waterways by removing phosphorus previously released into the waterways. The facility recovers phosphorus and ammonia in the form of a slow-release, environmentally friendly fertilizer. The MWRD is committed to meeting new phosphorus discharge requirements at our three major plants and developing a phosphorus assessment and reduction plan to identify unnatural plant or algae growth that could be caused by phosphorus in the Chicago Area Waterway System. We are also researching the sustainability of growing algae to recover nutrients and reduce carbon emissions from the treatment process. The resulting algae can be used in products like algae pellets, fertilizer, aviation fuel and bioplastics. ★



A solar-powered aerator floats to the surface of water stored in the Thornton Composite Reservoir. Since becoming operational in 2015, the reservoir has prevented more than 33 billion gallons of combined sewage from entering the waterways. In 2018, there were no overflows in the Calumet River System, thanks to the reservoir.

Tunnel and Reservoir Plan (TARP) Mitigates Flooding and Improves Water Quality

The MWRD makes no small plans. We are building toward the conclusion of the nation's largest public works project in water quality improvement.

TARP reduces pollution in area waterways and Lake Michigan and mitigates street and basement sewage backup flooding. TARP provides billions of gallons of storage for floodwaters that formerly overwhelmed our streets, basements and riverbanks. It is needed now more than ever.

The MWRD and partners devised TARP in the late 1960s to capture pollution that overflowed from local sewers that were previously designed to empty sewage into local waterways. On schedule to be completed by 2029, TARP will provide more than 17.5 billion gallons of storage capacity for combined sewer systems in a 375-square-mile-area covering Chicago and 51 suburbs. As a result of TARP and other water quality enhancements, aquatic life is thriving in Chicago area waterways and area residents now see the river system as a major asset. TARP was the first system of its kind to address pollution and flooding problems and is now being emulated by cities around the world.

The TARP system, commonly known by Chicago area residents as “Deep Tunnel,” is comprised of a network of four tunnel systems and three cavernous reservoirs designed to hold untreated water until it can be cleaned at MWRD WRPs. The 109 miles of tunnels, which were completed in 2006, can be as wide as 33 feet in diameter and 240 to 300 feet below ground. In 2015, the MWRD completed the world's largest combined sewer reservoir at the 7.9-billion-gallon Thornton Composite Reservoir. It will be surpassed in size when the 10-billion-gallon McCook Reservoir is completed.

The Grand Canyon of the south suburbs, the Thornton Composite Reservoir is so large that it could store 144 million rain barrels, enough to circle the earth 3.64 times when laid end to

end. When completed, the McCook Reservoir will be able to hold another 182 million rain barrels, 55 gallons each. McCook Reservoir will be large enough to cover every square foot of the Loop in nearly 10 feet of standing water.

While the sheer size of these reservoirs and tunnels is impressive, so too is the impact of this infrastructure on area water quality and flood prevention. After the tunnels were brought into service, the average number of yearly combined sewer overflows (CSOs) were cut in half. The Thornton Composite Reservoir and the 350-million-gallon Majewski Reservoir in the northwest suburbs have gone a step further and nearly eliminated CSOs. The Calumet TARP system has captured more than 50 billion gallons of CSO volume, more than 99 percent of the volume of water that enters the system since the reservoir was placed into service. Stage I of McCook Reservoir, completed in 2017, is fully operational and can take on 3.5 billion gallons of water that previously overflowed throughout its massive 255-square-mile area. In its first five years of operations, McCook captured nearly 100 billion gallons of water.

Since 1998, the Majewski Reservoir and the related TARP system have yielded more than \$500 million in flood damage reduction benefits to the three communities it serves. The Thornton Reservoir and Calumet TARP system provide an estimated \$40 million per year in benefits to 556,000 people in 14 communities. Stage I of McCook is estimated to provide an average of \$114 million per year in flood reduction benefits to 3.1 million people. Stage II of McCook Reservoir will provide another 6.5 billion gallons of storage, delivering an estimated total of \$143 million per year in flood reduction benefits. ★

MCCOOK RESERVOIR

Stage I of TARP's McCook Reservoir can hold up to 3.5 billion gallons of water during major storms to protect Lake Michigan and local waterways from pollution. The McCook Reservoir protects Chicago and 36 suburban communities from flooding and relieves each municipality of the burden of designing, building and operating its own system to capture and treat combined sewer overflows. Providing an outlet for two tunnel systems known as Mainstream and Des Plaines, the McCook Reservoir covers a wide footprint of protection from Kenilworth on the north and southwest to Bedford Park. The stored water is pumped from the reservoir to the Stickney Water Reclamation Plant to be cleaned and released.





FINDING RELIEF

The MWRD Delivers Solutions for Managing Stormwater and Building a Resilient Cook County

Water can be elusive and destructive. Before the MWRD can clean it, this water must first be collected. In recent years, the Chicago region has experienced historic weather patterns consisting of rain bursts that overwhelm local collection systems, making flooding a priority issue at the MWRD.

Given the region's flat terrain, impervious pavement, large population and history of flooding, our role in stormwater management has intensified. The MWRD's expertise in water pollution control and drainage led us to assume a flood control leadership role in the metropolitan area. After designing and constructing more than 30 flood control storage reservoirs and dozens of stream improvement projects, the MWRD became a natural fit to lead this charge against flooding. In 2004, the Illinois General Assembly enacted legislation formalizing and expanding the MWRD's role as the regional stormwater management agency for Cook County. Through this authority, the MWRD began planning design, construc-

tion, operation and maintenance of flood control facilities and related stormwater management projects. The new countywide authority required the MWRD to form six watershed planning councils and develop the Cook County Stormwater Management Plan. Approved by the MWRD's Board of Commissioners in 2007, this plan identifies the goals of the program, the guidelines for the detailed watershed plans, the parameters of the countywide program, and plan implementation. It also introduces regulatory concepts later addressed in the Watershed Management Ordinance (WMO). Adopted in 2013, the WMO regulates sewer con-

struction within MWRD's service area and development within suburban Cook County. The WMO provides guidelines for improving stormwater drainage and detention conditions for new development. It also ensures protection of wetlands and riparian areas, reduces soil erosion and prevents future development projects from exacerbating flooding.

Stormwater management allows the MWRD to look at projects holistically, like in Robbins where a community partnership has leveraged new opportunities for economic, social, environmental and recreational growth. It has also spawned collaborative efforts

An underground storage facility below Marvin Parkway in Park Ridge stores more water and keeps the community dry. The flood control project, which also included landscaping and sewer infrastructure improvements, is an example of the MWRD's Local Stormwater Partnership Program.

between the MWRD and local partners through major projects, such as the Addison Creek Reservoir and Channel improvements that will benefit Northlake, Melrose Park, Stone Park, Bellwood, Westchester and Broadview by reducing flooding to approximately 2,200 structures along Addison Creek. Other projects such as expansions of Buffalo Creek Reservoir near Buffalo Grove and Melvina Ditch Reservoir in Burbank will benefit hundreds of homes and businesses, much like the impacts experienced from the MWRD's Heritage Park Flood Control Facility in Wheeling. Flood control and streambank stabilization projects at Natalie Creek in Midlothian and Oak Forest, Cherry Creek in Flossmoor and Tinley Creek in Crestwood will improve conveyance and protect communities, while the Albany Park Stormwater Diversion Tunnel will relieve this Chicago neighborhood from the threat of catastrophic 100-year flood events that occur with more regularity.

The MWRD's Stormwater Management Program also expedites smaller conceptual and shovel-ready projects to protect Cook County communities from flooding. Each year we hold a call for projects as part of the Local Stormwater Partnership Program to fund work that address flooding and drainage concerns.



Space To Grow®

These projects utilize a variety of traditional engineered solutions such as localized detention, upsizing critical storm sewers and culverts, pumping stations, and establishing drainage ways, alongside green infrastructure.

In addition, the MWRD is working with local communities to provide partial funding towards the construction of green infrastructure (GI) installations on public property. GI projects are designed to use natural landscaping to manage water and provide environmental and community benefits. Each year we select GI projects to invest in through our call for projects. These projects vary in size and scope and can include roadside bioswales and rain gardens, green roofs, permeable pavement alleys, green street-scapes, and eco-orchards. Design and construction of each installation are monitored by MWRD to optimize benefits.

The MWRD has more than 220 projects in some phase of design or construction aimed at flood reduction and community resilience, and the totality of these projects are protecting or removing more than 17,000 structures. These projects include local and regional stormwater management projects and green infrastructure partnerships among other flooding mitigation initiatives. Other ambitious programs include improving Chicago schoolyards to better manage water through a partnership known as Space to Grow and a flood-prone property acquisition program that removes homes built in the floodplain. We have also distributed more than 140,000 rain barrels and 100,000 tree saplings to offset the regional loss of ash trees and soak up more stormwater. We realize that we each can play a role diminishing our stormwater challenges. ★



The MWRD promotes green infrastructure projects that use natural landscaping to manage water.



Skokie Police Station Headquarters can now retain 33,000 gallons of stormwater thanks to support from the MWRD.



Rain barrels can be ordered on the MWRD website and delivered to your door.

A Neighbor You Can Count On

Protecting our water environment requires commitment, expertise, innovation and a relentless drive to be the best in the industry, but the MWRD cannot accomplish this alone.

That is why we also strive to be a responsive neighbor that engages with the public on several critical water-related issues that improve the quality of life for all. A hallmark of the MWRD's Strategic Plan is to engage with the community to position the MWRD as a critical community asset and to ensure that the MWRD is a responsive and inclusive business partner. In this role, we are expanding partnerships and increasing diverse participation in MWRD contracts. Here are only a few actions we take throughout the year to add value to the daily integral services we provide as a utility of the future.



COMMUNITY OUTREACH

While the pandemic forced a temporary pause on our in-person facility tours, it did not halt our commitment to educate and encourage the public's participation in helping us protect our water environment. Our Strategic Plan highlights community engagement as one of our most important goals. We turned our platform to a virtual experience in the meantime, reaching thousands of new visitors and inquiring minds across the world. Our talented commissioners and staff of scientists, engineers and water experts returned to the

communities to perform outreach, speak in classrooms and take leadership roles in professional organizations. To reach younger audiences and educate them on our roles protecting our water, we completed an award-winning children's book entitled "Where Does IT Go?" We are also out in the community



removing debris from waterways and maintaining small streams. We provide biosolids, tree saplings, discounted rain barrels and milkweed seeds to support endangered monarch butterflies while encouraging native plant growth to absorb more stormwater. We have also planted milkweed throughout our landscaping and earned monarch waystation certification.

UNWANTED MEDICATION AND CONTAMINANTS

Throughout the year, the MWRD collects unwanted medicine to prevent it from entering our water environment. Working with the medical community, government agencies and the general public, the MWRD has sought ways to reduce the release of pharmaceutical waste into the environment and issue reminders not to flush unused medications down the drain, nor toss expired drugs in the garbage. We also

A crew removes a logjam in the North Branch of the Chicago River as part of the MWRD's Small Stream Maintenance Program.



The MWRD is planting and distributing deep-rooted milkweed and other native plants to absorb more stormwater and help restore the monarch butterfly population.



coordinate a stakeholder group to address chloride levels in area waterways and educate the public on the damaging effects of microbeads, pesticides and waste runoff that can harm our water environment.

PARTNERSHIP AND COLLABORATION

We improve public recreation spaces on MWRD-owned land to draw more people closer to the waterfront. We also provide ample open spaces next door to our plants and at the site of stormwater management projects that work to manage excessive stormwater and increase recreational opportunities. We lease large parcels of land to park districts, municipalities and forest preserve districts for a nominal fee to enhance public access to waterways, develop parks, hiking and bicycle trails and passive recreational use along the waterways, including the new 312 RiverRun on the North Side, Cal-Sag Trail in the south suburbs and Centennial



MWRD aquatic biologists and research technicians survey the Chicago Area Waterways to study fish populations.

Trail near Willow Springs. To complete the hilly 11-mile segment of the Centennial Trail, the MWRD contributed 1.8 million cubic yards of overburden (dirt) excavated from the neighboring McCook Reservoir. In total, the MWRD makes more than 8,000 acres of land available for recreation and green space. Our impressive real estate portfolio also ushers in a financial return for taxpayers while addressing our mission of stormwater management and riverfront access.

SERVICE EXCELLENCE

We alert the public to combined sewer overflows and encourage citizens to minimize water use on rainy days to reserve space in the sewers. We are responsive and have a sense of urgency when the public informs us of waterway pollution, dumping, blockages and odors through our online Citizen Incident Reporting (CIR) System and our 1-800-332-3867 CIR hotline that also caters to Spanish speakers at 1-855-323-4801. The MWRD is investing millions of dollars in new odor control technologies and training staff to better address odor control. We are working with environmental partners to establish new goals in reducing nutrients to create cleaner waterways locally and downstream to the Gulf of Mexico. We are also increasing the recovery of valuable nutrients like phosphorus that has

grown scarce throughout the world. We are documenting and analyzing an increasing diversity of fish species in the waterways. We are planting native prairie landscaping to show strong land stewardship, reduce the long-term cost of grounds maintenance, and serve as an example of a best management practice to infiltrate stormwater, increase biodiversity and wildlife habitat, and sequester carbon. We maintain this land through prescribed burns and enlist goats and sheep to trim back overgrowth and reduce our reliance on lawn mowers, herbicides and fuels. We are offering affordable rain barrels that capture rainwater and prevent it from entering and overwhelming our collection systems. We are distributing free oak tree saplings to help restore the canopy of trees that has been threatened in recent years.

Water can be taken for granted. When it is poured down drains, it can be forgotten. But water plays a vital role in all of our lives, so the MWRD works around the clock to make a better environment now and for future generations. Sometimes it is our actions that speak louder than words, and it is these actions that make the MWRD the utility of the future you can rely on every day. ★

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Metropolitan Water Reclamation District of Greater Chicago

100 East Erie Street • Chicago, Illinois 60611-3154



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

Help protect our waterways and sewer systems.

Call our **1 (800) 332-3867** Citizen Incident Reporting hotline to report:

- Waterway blockages
- Illegal or suspicious dumping to waterways or sewers
- Odors

(En Español: **1 (855) 323-4801**)

All calls are logged and routed 24/7.

Submit reports online using our Citizen Incident Reporting (CIR) form at mwrdd.org. From the homepage, select the "Incident Reporting" icon.

Get mobile Download our free CIR app for iOS devices from iTunes to submit an incident from your mobile phone. Search for **MWRD CIR** or visit: <https://apple.co/2LTtEa8>.

Think Inside the Box for unused medication disposal.

Never flush medications down the toilet or a drain. Instead, use one of our safe collection sites:

Main Office Building

100 E. Erie St., Chicago
Open Monday - Friday:
9 a.m. to 6 p.m.

Calumet WRP

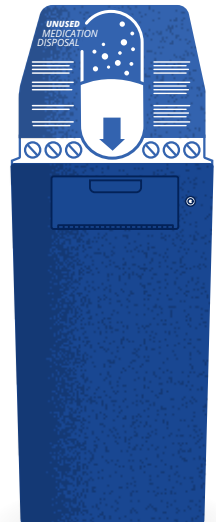
400 E. 130th St., Chicago
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O'Brien WRP

3500 Howard St., Skokie
Open seven days a week:
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Stickney WRP

6001 W. Pershing Rd., Cicero
Open seven days a week:
9 a.m. to 6 p.m.



COOK COUNTY SHERIFF'S PRESCRIPTION
DRUG TAKE BACK NETWORK LOCATIONS.

COVER PHOTO: The MWRD's disinfection facility at the Calumet Water Reclamation Plant adds another layer of treatment to the water reclamation process in one of the latest innovations the plant has created over its now 100 years of service.