

Green Bonds

Project Expenditure Report

as of June 30, 2017



Metropolitan Water Reclamation District of Greater Chicago

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Overview

In December 2014 and June 2016, the Metropolitan Water Reclamation District of Greater Chicago (“MWRD”) issued \$225 million and \$104 million respectively in Green Bonds to fund a variety of sustainability focused projects, including streambank stabilization efforts, construction of a phosphorus recovery facility, and a capital improvements project to improve energy efficiency

and eliminate air pollution at various facilities. The MWRD issued Green Bonds to allow investors to invest directly in bonds which specifically fund, or partially fund, environmentally beneficial capital projects undertaken by the MWRD. Green Bonds are secured by the full faith and credit of the MWRD, and therefore, holders of the bonds do not assume any specific project related risk.

Four Categories of the MWRD’s Green Bonds

1. Tunnel and Reservoir Plan (TARP)

The MWRD’s innovative TARP or “Deep Tunnel” system is designed to reduce flooding and pollution caused by combined sewer overflows. The TARP was adopted in 1972 as a comprehensive pollution and flood control program for its 375 square mile combined sewer area. This area includes part or all of 52 communities, including the City of Chicago, and is one of the country’s largest public works projects for pollution and flood control. The primary goals of TARP are to protect Lake Michigan – the area’s primary source of drinking water – from polluted backflows; clean up the area’s waterways; and provide an outlet for floodwaters in order to reduce basement flooding. Since it went online in 1985, the tunnel portion of TARP has reduced combined sewer overflow pollution in our rivers by about 85%. Since the Thornton Composite Reservoir came into service in late 2015, there have been only three reported CSOs in the Calumet River System. Once McCook Reservoir comes into service, water quality will improve even further.

As a result of these water quality improvements, aquatic life in waterways has thrived. The MWRD conducts fish monitoring periodically throughout its service area, which includes the Chicago, Calumet, and Des Plaines River Systems. The number of fish species found in the Chicago Area Waterway System (CAWS) has drastically increased since the 1970s when monitoring of the fish population first began. From two known species in 1974, that number has ballooned to 76 in 2017, including 59 that have been found in the CAWS since 2000. Thanks in part to advancements at the MWRD’s used water treatment operations, the waterways have experienced decreases in levels of ammonia and biochemical oxygen demand (BOD).

Performance metrics for TARP projects include tracking the reduction in combined sewer overflow pollution discharged into the Chicagoland waterways, total detention and storage volume of the reservoirs during rain events, reduced frequency of diverting polluted river water to Lake Michigan, and the quantity and diversity of fish species in the waterways measured over time.

2. Stormwater Management Program Projects

As the stormwater management authority for Cook County, the MWRD is working throughout the county to address the problems of flooding and drainage. Phase II of the MWRD's Stormwater Management Program seeks to address local drainage problems, develop stormwater master plans across Cook County and establish a program

for purchasing flood prone and flood damage property on a voluntary basis.

Metrics include linear feet of streambank stabilized, number of structures benefiting from flood control projects, and dollar value of flood damages prevented.

3. Resource Recovery Projects

The MWRD is focusing on implementing sustainable and resilient practices in affecting a sustainable economy and financial base through the proper regulation and use of water, phosphorus, biosolids, and energy. The MWRD is pursuing innovative projects with respect to water and stormwater reuse; the MWRD is completing the construction of a phosphorus recovery facility for reuse as a fertilizer and considering food to energy gas

production from anaerobic digestion processes. Improved water reclamation and greater plant efficiency will allow the MWRD to increase production of biosolids, a sustainable alternative to chemical fertilizers including the repackaging and sale of high quality biosolids compost.

Performance metrics include tons of phosphorus recovered and biosolids produced.

4. Water Reclamation Plant Expansions and System Improvements

The MWRD's seven water reclamation plants and 22 pumping stations clean an average of 1.2 billion gallons of water each day. The total treatment capacity is over two billion gallons per day.

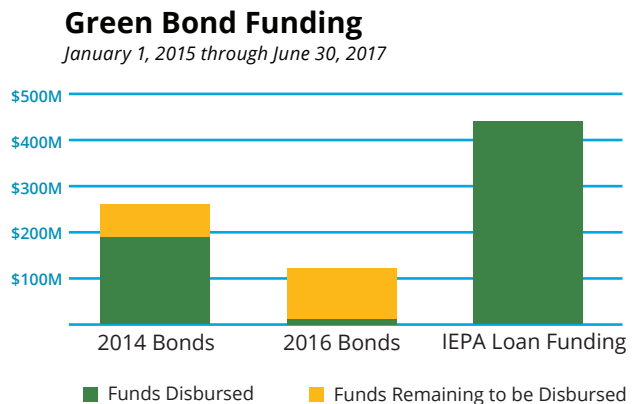
The MWRD's Capital Improvements Program includes replacing, remodeling, completing, altering, constructing and enlarging water reclamation plants, water quality improvement projects or flood control facilities, and constructing pumping stations, tunnels, conduits, intercepting sewers

and outlet sewers. It also includes purchasing air pollution equipment and property as well as covering engineering expenses for the design and construction of these various projects.

Performance metrics include optimization of aeration processes to reduce energy consumption, water reused by converting current use of potable water in plant processes to use of treated effluent, and reduction in greenhouse gas emissions.

Use of proceeds

The following is a summary of the programs and projects funded by the Green Bonds as of June 30, 2017. In some cases, the Green Bonds may only provide partial funding for the specific program and/or project, or proceeds from both bond sales may be utilized to complete the funding of larger scale projects. Additional State Revolving Loan funding may have been, or will be, provided for use in funding the projects. All Green Bond proceeds have been segregated for use of the purposes identified in the overview section of this report. Until the proceeds are expended, specific projects may be added or deleted. Any projects added will comply with the eligible categories described in this report. See the Appendix to this report which details total project spending to date. This report will be updated annually for each series of the bonds until all of the bond proceeds have been disbursed.



Highlighted Projects

The status and description of some of the green bonds projects are provided below. Please see the Appendix for complete project spending by bond sale.

Thornton Reservoir

TARP is the country's largest public works project for pollution and flood control, covering a 375-square mile area that includes Chicago and 51 suburbs relying on a combined collection system. The 109-mile network of tunnel systems, which capture 2.3 billion gallons of water 150 to 300 feet below ground, are ultimately tributary to one of three terminal reservoirs. The tunnels were completed in 2006 followed by the Majewski Reservoir in 1998, and the Thornton Reservoir in 2015. When complete, the McCook Reservoir will replace Thornton as the largest reservoir of its kind in the world. The \$429 million Thornton Reservoir benefits 556,000 people in 14 communities throughout the South Side of Chicago and south suburbs.

The Thornton Reservoir protects 182,000 structures, such as homes, businesses and other facilities, and improves water quality in the Calumet Rivers and Calumet-Sag Channel by collecting combined sewer overflows (CSO) before entering

waterways. The reservoir's capacity (7.9 billion gallons) holds these overflows before pumping the water via the 30-foot tunnel to the Calumet Water Reclamation Plant to be treated.

Major construction features of the project included: a double-row vertical grout curtain around the two-mile perimeter of the reservoir; a 112-ft tall roller-compacted concrete dam; a 1,300-ft long, 30-ft diameter connecting tunnel from the reservoir to the existing Calumet Deep Tunnel; and 1,100-ft long, 20-ft diameter connecting tunnel from the reservoir to Thorn Creek.

The reservoir made an impact in its first months of service by taking on its first water on November 26, 2015. When the rain subsided the next day, the reservoir was filled to a depth of 17 feet and held approximately 400 million gallons of water. There were no CSOs in the reservoir's service area during the rain event, pointing directly to the effectiveness of the reservoir.

Opposite page: On November 26, 2015, the Thornton Composite Reservoir begins to fill for the first time.





McCook Reservoir

The last chapter in the MWRD's historic Tunnel and Reservoir Plan (TARP) is underway as the MWRD, on December 4, 2017, unveiled the first stage of the McCook Reservoir, the last of three reservoirs to be constructed to protect area waterways from pollution and mitigate flooding. The first stage can hold 3.5 billion gallons. When completed, McCook Reservoir will have a total capacity of 10 billion gallons.

The reservoir will provide an average of \$143 million per year in flood damage reduction benefits to 3,100,000 people in Chicago and 36 other communities. The estimated cost of the total project is \$1.032 billion.

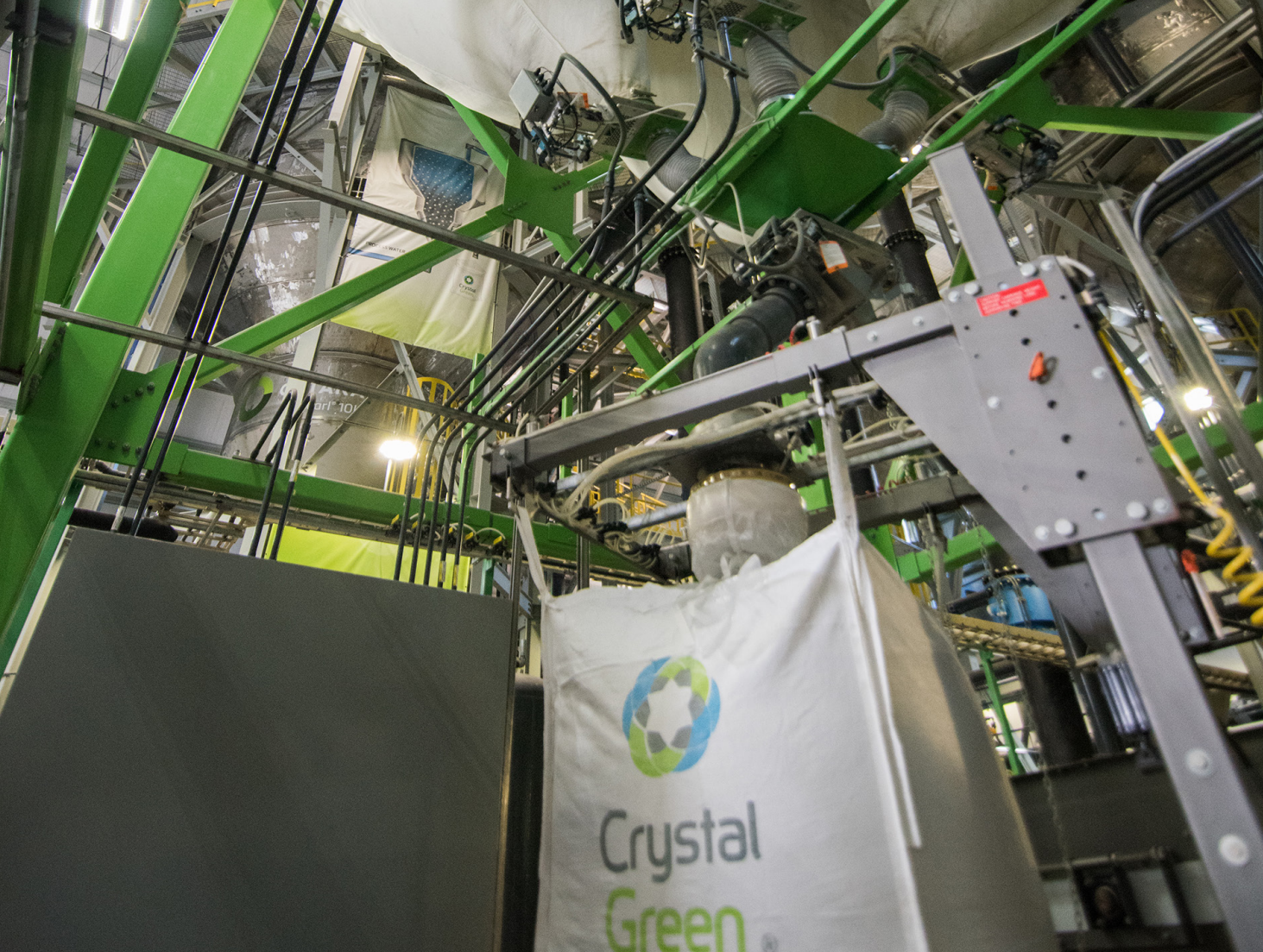


MWRD acquired a 21-acre site in the Village of Bellwood along Addison Creek in 2017, where reservoir construction will commence in 2018 to create approximately 600 acre-feet of floodwater storage.

Addison Creek Reservoir

Addison Creek is a 10.7-mile-long stream that is a tributary of Salt Creek. Addison Creek originates in Bensenville and runs south and east through Northlake, Maywood, Bellwood, and Westchester. Water from the creek flows via Salt Creek, the Des Plaines River, and the Illinois River to the Mississippi River and ultimately the Gulf of Mexico. In addition

to providing flood control benefits on its own, this reservoir will serve as compensatory storage for channel improvements providing additional flood control benefits in downstream communities. The reservoir, in conjunction with the channel improvements, will reduce flooding for approximately 2,200 structures along Addison Creek.



Phosphorus Recovery System at the Stickney WRP

The MWRD, in partnership with Ostara Nutrient Recovery Technologies, opened the world's largest nutrient recovery facility at the Stickney Water Reclamation Plant (WRP) in Cicero, Illinois in 2016. This facility is an example of how progressive technology can be implemented to transform a wastewater treatment facility into a resource recovery center, providing significant environmental benefits to the Chicago Area Waterway System and downstream to the Mississippi River and the Gulf of Mexico. Through Ostara's technology, phosphorus and nitrogen are recovered to create a high value fertilizer with a process that is both economically and environmentally viable. Excess phosphorus in waterways can cause algae to grow and bloom, creating toxic conditions that destroy aquatic life and severely limit recreational enjoyment of lakes and rivers. Phosphorus is considered a major contributor to nutrient pollution by entering bodies of water

from a number of sources including urban water treatment facilities.

By recovering nutrients from the treatment facility's water stream and converting them to continuous release fertilizer, Ostara's technology helps the MWRD increase operational efficiencies by avoiding struvite build up and protecting the local watershed. The Pearl process can recover more than 85 percent of the phosphorus and up to 15 percent of the nitrogen from wastewater streams before they accumulate as struvite in pipes and equipment. As the largest nutrient recovery facility in the world, the MWRD has installed three of Ostara's Pearl 10000 reactors, with an installed production capacity of up to 8,000 tons of Crystal Green per year. The MWRD will receive revenue for every ton of fertilizer it produces. The project was completed in late 2017 and has an estimated construction cost of \$34 million.



West Side Primary Settling Tanks 1-9 and Aerated Grit Facility at the Stickney WRP

Construction of nine 160-foot diameter primary settling tanks and six 132-foot long aerated grit tanks, associated support facilities, service tunnels, and conduits began in 2015 and is estimated to be completed in 2018. The aerated grit facility will include shaftless screw conveyors, centrifugal and airlift pumps for grit removal, grit classifiers, and a dumpster-loading system. The primary settling tanks effluent weirs and troughs will be covered for odor control. The west side Imhoff tanks in

service since 1928 are being decommissioned and replaced with more modern and effective treatment equipment. A significant increase in digester gas production will result from this project, allowing the MWRD to proceed on the path to energy neutrality. Equally important is the environmental benefit of eliminating approximately 500,000 tons of greenhouse gas production each year. The estimated cost of the project is \$226.2 million.



Albany Park Tunnel

A partnership with the city of Chicago, the Albany Park Tunnel project includes an inlet structure on the North Branch of the Chicago River, an 18 foot diameter rock tunnel, and an outlet on the North Shore Channel. This project, which will reduce overbank flooding that impacts 336 structures, will be completed in 2018. The drainage tunnel

starts in Eugene Park and extends for one mile under Foster Ave. to the North Shore Channel. The tunnel will divert water during times of heavy rains and will not affect the river's water level in normal times. The tunnel's estimated construction cost is \$63 million.

The next report will be prepared and posted to the MWRD's website detailing capital expenditures through June 30, 2018.

Appendix

Project Spending Report

**2014 Series A
General Obligation Unlimited Tax Capital Improvement Bonds
January 1, 2015 through June 30, 2017
\$100,000,000 Principal**

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
McCook Reservoir Vulcan Agreement Hard Costs, SSA	73161EH	\$ 94,717,000	\$ 36,724,798	50
<i>Incremental hard costs associated with an agreement between the Metropolitan Water Reclamation District and Vulcan to mine out a rough hole at the site of the McCook CUP Reservoir.</i>				
McCook Reservoir (CUP), Stages 1, 2 & 3	731612H	\$ 657,600,000	\$ 24,115,451	50
<i>This project covers the MWRD's local matching contribution to the Army Corps of Engineers' project costs for constructing the McCook Reservoir. Justification - The McCook Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows (CSO). The expanded Stage 2 portion of the reservoir is required to reach 10 billion gallon capacity included in the District's CSO Long-Term Control Plan for complying with federal and state water quality standards.</i>				
Connecting Tunnels and Gates, Thornton Composite Reservoir, CSA	042024F	\$ 147,084,000	\$ 18,591,647	50
<i>The purpose of this contract is to construct rock tunnels and a control structure to connect the Calumet Tunnel and Reservoir Plan (TARP) System to the Thornton Composite Reservoir. The project includes the construction of 1,300 linear feet of 30-foot diameter concrete lined tunnel, a tunnel portal structure, a diffuser apron, a concrete lined gate shaft, a control building, steel lined tunnel bifurcations, four wheel gates, each approximately 15 feet wide and 29 feet high, a maintenance bulkhead, two jet flow dewatering gates, a live connection to the existing Indiana Avenue TARP tunnel, and all other work collateral thereto. Justification - The Thornton Composite Reservoir project is an essential part of the District's TARP to prevent flooding and pollution from combined sewer overflows. Completion of the reservoir is part of the District's Combined Sewer Overflow Long-Term Control Plan for complying with requirements of the Clean Water Act. The project is estimated to provide an average of \$40 million in benefits annually to over 550,000 people in its service area.</i>				
Tollway Dam, Grout Curtain & Quarry Plugs, Thornton Composite Reservoir, CSA	042014F	\$ 77,801,000	\$ 12,462,874	50
<i>One of several contracts that will convert the north lobe of Thornton Quarry into the Thornton Composite Reservoir. The project consists of the construction of a roller-compacted concrete dam under Interstate 80/294 to prevent water in the reservoir from entering the Material Service Corporation's quarry, two concrete plugs in existing haul tunnels to isolate the reservoir from the quarry, and a double row grout curtain along the perimeter of the reservoir to prevent water from exfiltrating into the quarry. Completed reservoir will provide a storage capacity of 7.9 billion gallons. Justification - Thornton Composite Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows. Completion of reservoir is part of the District's Combined Sewer Overflow Long-Term Control Plan for complying with requirements of Clean Water Act. Estimated to provide an average of \$40 million in benefits annually to over 550,000 people in its service area.</i>				
Final Reservoir Preparation, Thornton Composite Reservoir, CSA	042034F	\$ 63,272,000	\$ 8,619,287	50
<i>Complete all remaining work to make the Thornton Composite Reservoir operational and to decommission the Thornton Transitional Reservoir. Justification - Thornton Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows.</i>				
McCook Reservoir Expanded Stage 2 Overburden Removal, SSA	73161DH	\$ 18,696,000	\$ 6,656,715	50
<i>The expanded Stage 2 portion of the McCook Reservoir replaces the originally planned Stage 3, and it expands the reservoir to include former sludge drying lagoons 21 and 22 at the Lawndale Avenue Solids Management Area. This project will remove the overburden on lagoons 21 and 22 to allow for the underlying rock to be mined. Justification - The McCook Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows (CSO). The expanded Stage 2 portion of the reservoir is required to reach 10 billion gallon capacity included in the District's CSO Long-Term Control Plan for complying with federal and state water quality standards.</i>				
Thornton Composite Reservoir - Army Corps Review	772352F	\$ 63,917,000	\$ 3,944,855	50
<i>An agreement was entered into between the District and MSC for the mining required for the Thornton Composite Reservoir. The terms of the agreement provide for reimbursement of the costs associated with acquisition of the north lobe of the Thornton Quarry and costs associated with the mining operation over a period of approximately 14 years.</i>				

**2014 Series A
General Obligation Unlimited Tax Capital Improvement Bonds
January 1, 2015 through June 30, 2017
\$100,000,000 Principal**

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
McCook Reservoir Des Plaines Inflow Tunnel	131064F	\$ 109,841,000	\$ 1,708,558	50
<i>Construction of an approximately 20-foot diameter tunnel that will connect the DesPlaines tunnel directly to the McCook Reservoir including a gate shaft, primary gate, backup gate, gate control building, temporary construction access shaft, tunnel portal and highway stability measures, and an energy dissipation apron with baffle blocks. Justification - McCook Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows (CSO)</i>				
Thornton Reservoir Surface Aeration	04203AF	\$ 1,896,000	\$ 1,538,807	20
<i>Solar-powered floating mixer/aerators for maintaining toxic conditions in the surface layer of the Thornton Composite Reservoir. Justification - The Thornton Composite Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows (CSO).</i>				
Other Projects			\$ 40,522	

Project Expenditures 12/1/2014 - 6/30/2017 **\$ 114,403,514** **100%**

<i>Principal Amount of Bonds</i>	\$ 100,000,000
<i>Original Issue Premium</i>	\$ 14,440,000
<i>Costs of Issuance</i>	\$ (330,675)
<i>Investment Income</i>	\$ 294,189
Available for Spending	\$ 114,403,514

Remaining Available for Spending **\$ -** **0%**

2014 Series B
General Obligation Unlimited Tax Bonds (Alternate Revenue Source)
January 1, 2015 through June 30, 2017
\$50,000,000 Principal

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015-6/30/2017	Estimated Useful Life of Project (years)
Addison Creek Reservoir	111863F	\$ 109,542,000	\$ 10,428,483	50
<i>Create an approximately 600 acre-ft flood control reservoir in Bellwood just north of Washington Boulevard and east of Addison Creek. This project includes reservoir excavation and installation of necessary appurtenances for operation of facility, such as control structure, inlet structure, spillway, piping and a pump station. Justification - Safety/regulatory. This project, along with Addison Creek Channel Improvements, will help alleviate public health and safety concerns by reducing overbank flooding to approximately 2,200 structures along Addison Creek from Northlake to Broadview. In addition to providing flood control benefits, this reservoir will serve as compensatory storage for channel improvement project.</i>				
Intergovernmental Agreement - Glenview Acquisition of Flood Prone Property	151GA01	\$ 11,735,000	\$ 8,000,000	30
<i>Acquisition of 17 flood prone homes along the West Fork of the North Branch of the Chicago River in Glenview. All structures have been removed from the floodplain and the property is preserved as open space.</i>				
Acquisition, Conversion to, and Maintenance of Open Space of Certain Flood-Prone Parcels of Real Property Located along the Des Plaines River, Riverside Lawn	161GA06	\$ 8,000,000	\$ 5,333,333	30
<i>Purchase 39 flood-prone homes along Des Plaines River. Cost sharing agreement with Riverside Lawn. Justification - Purchase of these homes will reduce flood hazard risk in Riverside Lawn area.</i>				
Melvina Ditch Reservoir Improvements	142633F	\$ 21,452,000	\$ 2,972,965	50
<i>This project consists of expanding the existing Melvina Ditch Reservoir by approximately 195 acre-feet to increase its storage capacity, modifying the pump station to accommodate the reservoir expansion, and installing a new emergency overflow weir to reduce the likelihood of reservoir overtopping. Reservoir expansion will include work within the existing reservoir footprint (District property) and 15 private properties that have been acquired around the perimeter of the reservoir. Justification - The Melvina Ditch Reservoir has exceeded its capacity in recent storm events, resulting in flooding in Burbank and Oak Lawn.</i>				
Intergovernmental Agreement - Franklin Park Silver Creek Channel Improvements	151GA07	\$ 4,175,771	\$ 2,272,731	50
<i>The Village of Franklin Park constructed channel improvements on Silver Creek from Riverside Drive to Scott Street to help to alleviate flooding of approximately 76 residential structures.</i>				
Intergovernmental Agreement - Niles Cleveland Street Relief Sewer	151GA02	\$ 2,000,000	\$ 1,500,000	50
<i>The Village of Niles' Cleveland Street Relief Sewer project consists of approximately 11,200 feet of new storm sewer to provide relief from surface water flooding for the area generally bounded by Main Street to the north, Harlem Avenue to the east, Monroe Street to the south, and Oketo Avenue to the west. The Village performed the design and construction for the project, and is responsible for operations and maintenance. Justification - The new relief sewer provides capacity to convey surface water away from these areas into the North Branch of the Chicago River in order to minimize surface water flood damages and reduce the amount of surface water discharging to the existing combined sewer system in this area.</i>				
Flood Control Upper Salt Creek	10884AF	\$ 1,350,000	\$ 1,267,976	50
<i>The project reduces flood risk by bypassing flow from an inundated area south of Dundee Road to an outfall into Upper Salt Creek, located south of Cherry Brook Village in the Village of Palatine. Justification - Safety/Regulatory; this project helps to alleviate public health and safety concerns by reducing overbank flooding affecting 18 structures within the Village of Palatine.</i>				
Intergovernmental Agreement - Cook County Trunk Storm Sewer Roberts Road	151GA03	\$ 2,385,294	\$ 1,181,713	50
<i>Installation of a new trunk storm sewer along Roberts Road to protect 32 structures from flooding in Hickory Hills and Bridgeview.</i>				
Intergovernmental Agreement - Elk Grove Busse Woods Reservoir Dam Modifications	151GA06	\$ 2,736,750	\$ 1,125,000	50
<i>Elk Grove Village performed modifications to the Busse Woods Dam on Salt Creek to provide increased flood protection for 44 structures, as well as transportation benefits, and benefits to the Forest Preserve.</i>				
New Storm Sewers on Shermer Road and Cherry Lane in Northbrook, Illinois	151GA10	\$ 1,050,000	\$ 1,050,000	50
<i>The Village of Northbrook constructed new storm sewers on Shermer Road and Cherry Lane to provide direct flood reduction benefits to an estimated 18 residential structures and to reduce storm related access impacts for approximately 32 homeowners in the project area.</i>				

2014 Series B
General Obligation Unlimited Tax Bonds (Alternate Revenue Source)
January 1, 2015 through June 30, 2017
\$50,000,000 Principal

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015-6/30/2017	Estimated Useful Life of Project (years)
Kenilworth Green Infrastructure	16GA01	\$ 8,100,000	\$ 900,000	20
<i>The Village of Kenilworth reconstructed Cumberland Avenue, Rosylyn Road, and Melrose Avenue between Abbottsford Road and Sheridan Road using green infrastructure which includes porous asphalt pavements and bioinfiltration parkways. The project provides more than one million gallons of stormwater retention capacity.</i>				
Flood Control Project on Natalie Creek in Oak Forest and Midlothian	142523F	\$ 8,300,000	\$ 801,656	50
<i>Scope of project is to install 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 upsizing of restrictive culverts, improving channel at several locations, and installation of a stormwater detention basin. Project will reduce flood damages for over 230 structures.</i>				
Intergovernmental Agreement - Hoffman Estates Jones/Highland Sewer Improvements	15GA08	\$ 1,088,016	\$ 788,812	50
<i>The Village of Hoffman Estates Jones Road/Highland Boulevard improvements consisted of new storm sewers to provide flood relief to 7 residential structures and reduce storm related access impacts for 50 homeowners in the project area.</i>				
Blue Island Green Infrastructure Project	142543F	\$ 697,030	\$ 663,838	20
<i>Construct Bioswales, Rain Gardens and Permeable Pavement in parkways in a flood prone area of Blue Island, with the boundaries of Western Avenue, 119th Street, Vicennes Avenue and 121st Street. This project will provide for the capture of approximately 100,000 gallons of stormwater per rain event.</i>				
Intergovernmental Agreement - Evanston Civic Center Parking Lot	14GA05	\$ 1,519,000	\$ 608,527	20
<i>The City of Evanston replaced its Civic Center parking lot using green infrastructure. The project will address flooding issues at the Civic Center and the surrounding area, while reducing run-off and pollutant loads to the North Shore Channel.</i>				
Intergovernmental Agreement - Northbrook Rainwater Harvest System Wescott Park	15GA21	\$ 9,650,000	\$ 475,000	50
<i>The Village of Northbrook constructed a 7.5-million-gallon stormwater storage vault and related storm sewer improvements at Wescott Park, at a cost of \$9,650,000. The District funded the electronically controlled rain harvesting system at a cost of \$475,000 to allow the reuse of the stormwater for irrigation as well as to keep it out of the North Branch of the Chicago River.</i>				
Prairie/Washington Pumping Station Improvements, Brookfield	15GA16	\$ 1,000,000	\$ 407,816	50
<i>The Village of Brookfield installed a new pumping station and back-up generator near Washington Avenue/Forest Avenue intersection, a box culvert under Forest Avenue, a new detention pond west of Forest Avenue, and other miscellaneous storm sewer improvements and restorations for public benefit of reducing residential flooding in the project area due to Salt Creek flood levels.</i>				
Streambank Stabilization Project for the West Fork of the North Branch of the Chicago River	110523F	\$ 413,000	\$ 334,260	50
<i>Stabilization of the eastern streambank along West Fork of North Branch of Chicago River through construction of a 155-ft gravity retaining wall. Justification - Safety/Regulatory. Will address public safety and protect 2 residential structures and utilities in imminent danger of failure due to active streambank erosion.</i>				
Other Projects			\$ 1,945,856	

Project Expenditures 12/1/2014 - 6/30/2017 **\$ 42,057,966** **73%**

Principal Amount of Bonds	\$ 50,000,000
Original Issue Premium	\$ 7,720,129
Costs of Issuance	\$ (165,813)
Investment Income	\$ 333,526
Available for Spending	\$ 57,887,842

Remaining Available for Spending **\$ 15,829,876** **27%**

2014 Series C
General Obligation Limited Tax Capital Improvement Bonds
January 1, 2015 through June 30, 2017
\$75,000,000 Principal

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
West Side Primary Settling Tanks 1-9 and Aerated Grit Facility, SWRP	041283P	\$ 226,208,000	\$ 6,293,479	70
<i>Construction of nine 160-foot diameter primary settling tanks (PST) and six 132-foot long aerated grit tanks. Justification - West Side Imhoff tanks are being decommissioned and replaced with more modern and effective treatment equipment.</i>				
Rehabilitation of the A/B & C/D Service Tunnels - Phase One, SWRP	041312D	\$ 14,047,000	\$ 3,923,350	50
<i>Rehabilitate approximately 240 feet of the C/D service tunnel and 130 feet of the A/B service tunnel. Rehabilitation of pump discharge conduits 1 through 7 will also be performed at the West Side Pumping Station. Justification - Rehabilitating the tunnels will restore structural capacity, extend their service life, and prevent further damage to the utilities inside the tunnels.</i>				
Disinfection Final Design & Post Award, NSWRP	110543P	\$ 61,724,000	\$ 2,794,374	50
<i>Construction of UV light disinfection facilities and improvements to existing infrastructure at the O'Brien WRP. Justification - The project will provide disinfection to the effluent at the O'Brien WRP before it is discharged into the waterway, in order to protect health and in recognition of the recreational uses of the Chicago Area Waterway System.</i>				
Centrifuge Building and Sludge Loading System Upgrades, EWRP and HPWRP	064943P	\$ 10,600,000	\$ 2,673,896	20
<i>Remove the existing Serpentix belt conveyor system, and replace it with one horizontal shafted screw conveyor and two solids pumps. Remove two sludge storage silos and replace with four silos. Remove and replace two ferric chloride tanks, piping, and pumps. Reline two aged polymer tanks. Remove and replace a centrifugal pump in Pump House No. 1. Remove and replace piping, valves, and flow meters in Pump House No. 2. Remove and replace a 60-inch butterfly valve on the raw sewage conduit in Pump House No. 1. Modify aeration tank A-1 at the Hanover Park WRP as part of the energy conservation study pilot test. Justification - The expansion of the sludge storage capacity is necessary to eliminate a bottleneck in the sludge dewatering operations and permit a more efficient biosolids hauling operation. The existing sludge conveyor system has odor and spill problems and requires continuous cleaning of the area. Installing an enclosed conveyor system will reduce odors from the transfer of biosolids, improve system performance, and reduce maintenance costs and operator attention.</i>				
Calumet TARP Pumping Station Improvements, CWRP	062123M	\$ 35,288,000	\$ 2,541,249	35
<i>Replace existing East 1 and West 1 Tunnel and Reservoir Plan (TARP) pumps with larger capacity pumps. Justification - Project will increase the firm pumping capacity of each pump room to 150 MGD while restoring the dependability of the equipment at the Calumet TARP Station.</i>				
Aeration Tanks Auto in Batt ABCD, SWRP	151223P	\$ 6,566,307	\$ 1,823,818	50
<i>This project will replace the existing manually operated angle globe valves with automated valves on the first seven drop locations of pass one in each aeration tank. The associated air drop piping will also be modified as necessary. The work includes aeration tanks in batteries A, B, C, and D. The District has implemented enhanced biological phosphorus removal at the Stickney WRP. Better process control is needed in the first pass, which will include an anaerobic zone and a swing zone. Periodic mixing of the anaerobic zone is necessary for volatile fatty acid release from in-line fermentation. Automation of these air valves will allow for periodic mixing as well as adjusting the length of the anaerobic zone based on flow and other operating conditions.</i>				
Distributed Control System for WSPS & RAPS, SSA	91177DE	\$ 9,789,000	\$ 1,732,303	20
<i>This project will provide a Distributed Control System to interface with and replace critical components of the plant's existing computer monitoring and control system for solids processes at the Stickney WRP, Mainstream Pumping Station, and Stickney Service Area remote sites. Justification - Improved monitoring and control. Both WSPS and RAPS are unmanned facilities. The control system at RAPS is being replaced due to equipment damage from station flooding in 2008.</i>				
Covered Composting System, CWRP	162703P	\$ 23,635,000	\$ 1,538,426	50
<i>Construction of a new covered composting system at the Calumet Water Reclamation Plant (WRP) to compost 62,500 wet tons/year of biosolids with woodchips and/or yard waste according to USEPA 40 CFR Part 503 Process to Further Reduce Pathogens protocol to achieve Class A pathogens standards. The system will produce an exceptional quality Class A Bio-solids product and nuisance odors will be contained by the process.</i>				

**2014 Series C
General Obligation Limited Tax Capital Improvement Bonds
January 1, 2015 through June 30, 2017
\$75,000,000 Principal**

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
Distributed Control System for MSPS and Other Remote Stations, SSA	91177CE	\$ 33,115,000	\$ 1,522,097	20
<i>This project will provide a Distributed Control System to interface with and replace critical components of the plant's existing computer monitoring and control system for solids processes at the Stickney WRP, Mainstream Pumping Station, and Stickney Service Area remote sites. Justification - This project will improve the efficiency of all aspects of plant operations by providing enhanced monitoring of plant operations, improved control functionality, and remote control and monitoring of all plant processes.</i>				
Nitrogen Removal in Centrate, EWRP	134093P	\$ 2,675,000	\$ 1,475,026	35
<i>Partial nitrification-denitrification of centrate at the Egan WRP using ANITA Mox Moving Bed Biofilm Reactors. Process uses significantly less energy compared to conventional nitrogen removal. Justification - Current operational strategy is inefficient, causes considerable odors and corrosion in the conduit that conveys the flow, and increases the load on the O'Brien WRP.</i>				
Civil, Structural & Architectural Engineering Consulting Services	098723D	\$ 2,990,195	\$ 1,414,813	20
<i>The purpose of these services is to augment District staff at a time when such services are required for a specialized design or inspection, or when a specific schedule calls for additional staffing</i>				
Thornton Reservoir Surface Aeration	04203AF	\$ 1,896,000	\$ 1,194,549	20
<i>Solar-powered floating mixer/aerators for maintaining toxic conditions in the surface layer of the Thornton Composite Reservoir. Justification - The Thornton Composite Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows (CSO).</i>				
Addison Creek Channel Improvements	111873F	\$ 48,133,000	\$ 1,168,580	50
<i>This project will stabilize Addison Creek and alleviate public safety risks by protecting infrastructure from the danger of failure due to active streambank erosion. The project is currently in the design stage.</i>				
Rehabilitation of Bridges, NSA	148243D	\$ 2,093,000	\$ 1,105,573	50
<i>This project provides for the replacement of sidewalks on the Linden and Maple Avenue bridges, removal of encasing concrete from the bottom flanges of steel girders and beams of the Sheridan Road bridge, strengthening of steel members, and painting of steel members. In addition, the Maple Avenue and Linden Avenue bridges will be modified to make them bicycle friendly. The sidewalks of the Maple Avenue and Linden Avenue bridges are severely cracked and out of alignment. They need to be replaced for the safety of pedestrians. The concrete encasement on the steel girders and beams of the Sheridan Road bridge is cracked and loose. This concrete needs to be removed to protect the equipment inside the Wilmette Pumping Station (under the bridge) and for the safety of pedestrians walking under the bridge to the Wilmette Harbor. In addition, several steel members of the Maple Avenue and Linden Avenue bridges have section loss due to corrosion and need strengthening. All steel members will be painted for protection from further corrosion.</i>				
Wet Weather Treatment Facility and Reservoir, LWRP	107163P	\$ 29,154,000	\$ 1,062,543	70
<i>This project includes increasing the size of the 18-inch interceptor sewer entering the plant site from the Village of Lemont's combined sewer area, constructing a new wet-weather treatment facility to provide primary treatment followed by disinfection, which is sized to treat up to 10 times the volume of dry weather flow (approximately 6.8 million gallons per day), and construction of a five-million gallon equalization reservoir to buffer the peak wet-weather flows from the Village's separate sewer area. Justification - During storm events, the Lemont WRP currently receives high flows from the tributary sewer systems, which result in bypasses to the Chicago Sanitary & Ship Canal. In the fall of 2009, the District received a violation notice from the Illinois Environmental Protection Agency (IEPA) that alleged failure to provide adequate treatment of excess flows during wet-weather periods at the Lemont WRP. A long-term control plan was developed and approved by the IEPA on March 16, 2011, which included this new facility.</i>				

**2014 Series C
General Obligation Limited Tax Capital Improvement Bonds
January 1, 2015 through June 30, 2017
\$75,000,000 Principal**

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
Demolition of Westside Imhoff Battery A and Skimming Tanks, SWRP	081713P	\$ 41,267,000	\$ 990,925	5
<p><i>The project consists of the demolition and removal of Imhoff Battery A tanks and support buildings and Skimming Tanks 1-8. This project clears the site to prepare for a follow-up contract 04-128-3P that will install the new West Side primary settling tanks and aerated grit facilities. Justification - The Imhoff Batteries are over 80 years old and the treatment technology is inefficient, labor intensive, odorous, and wastes valuable methane gas. Due to the condition of the tanks, the increased risk of failure necessitates its replacement to ensure safety of personnel and appropriate level of service. Replacement of the Imhoff tanks with modern primary settling tanks will increase solids capture, increase digester gas production, increase on-site energy production, lower labor, maintenance, and operation costs, and reduce odors. Replacement of the skimming tanks with modern aerated grit tanks will increase process efficiency, thus reducing the wear and subsequent maintenance of downstream equipment.</i></p>				
North Shore 3 Manhole at Station 276+80	16076AS	\$ 1,000,000	\$ 792,346	
<p><i>Emergency contract to repair a manhole on the District's Northshore 3 Intercepting Sewer in Glencoe after deterioration of the manhole caused a sinkhole in the street pavement adjacent.</i></p>				
Stop Logs and Diversion Pumps at Wilmette Pumping Station and Evanston Pumping Station Rehabilitation, NSA	060233P	\$ 17,486,000	\$ 677,290	35
<p><i>The project consists of the following: repairing deteriorated concrete beams and walls of the Evanston Pumping Station, replacing the pumping station roof, abandoning unused storage rooms, and replacing the bar screen assembly in the influent chamber; rehabilitating deteriorated concrete channel walls at the Wilmette Pumping Station, replacing the motor on existing pump No. 1, replacing existing pump No. 2 with a new pump, removing existing pumps No. 3 and No. 4 and converting these two pump tunnels to gravity flow diversion tunnels; removing the diversion/reversal gate at the Wilmette Pumping Station and replacing it with a triple-gate system; and rehabilitating the West bank sanitary ejection station at the Wilmette Pumping Station. Justification - The purpose of the project is to rehabilitate deteriorated areas of the Evanston Pumping Station to permit continued service. The purpose is also to rehabilitate and modify areas of the Wilmette Pumping Station and gate areas to eliminate operational problems with the existing pumps and gates, to ensure better control for lake water diversions and flow reversals.</i></p>				
Civil, Structural, Architectural Support	098753D	\$ 3,000,000	\$ 639,182	20
<p><i>The Project undertaken by the District and for which Services may be provided for, or that otherwise may impact directly or indirectly upon, is Civil, Structural and Architectural Engineering Consulting Services. The services to be undertaken by the Consultant for the District are to provide miscellaneous Civil, Structural and Architectural Design and Inspection Services for the next three years on as need basis.</i></p>				
Sludge Thickening Facilities, SWRP	091763P	\$ 164,544,000	\$ 635,835	35
<p><i>Construction of a gravity thickening facility for primary settling tank sludge from both the southwest and future west side primary settling tanks. Justification - Improve the sludge thickening processes at the Stickney WRP by separating the three sludge streams within the plant and thickening each by the most effective and efficient method.</i></p>				
Addison Creek Reservoir	111863F	\$ 109,542,000	\$ 546,328	50
<p><i>Create an approximately 600 acre-ft flood control reservoir in Bellwood just north of Washington Boulevard and east of Addison Creek. This project includes reservoir excavation and installation of necessary appurtenances for operation of facility, such as control structure, inlet structure, spillway, piping and a pump station. Justification - Safety/regulatory. This project, along with Addison Creek Channel Improvements, will help alleviate public health and safety concerns by reducing overbank flooding to approximately 2,200 structures along Addison Creek from Northlake to Broadview. In addition to providing flood control benefits, this reservoir will serve as compensatory storage for channel improvement project.</i></p>				
Computer Models to Analyze TARP Performance	158283C	\$ 558,376	\$ 530,601	10
<p><i>Professional engineering services which included updating the TARP computer model, running the model to evaluate the benefits and impacts of various flood control measures to the Chicago area, evaluating alternatives that include proposed flood control measures being developed by the City of Chicago, and evaluating different potential operational changes to the District's TARP system.</i></p>				

**2014 Series C
General Obligation Limited Tax Capital Improvement Bonds
January 1, 2015 through June 30, 2017
\$75,000,000 Principal**

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
North Branch of Chicago River Restoration Between Montrose and Berteau Avenues, NSA	070303D	\$ 4,300,000	\$ 483,742	20
<i>The purpose of the project is to restore approximately 1,330 feet of the East bank of the North Branch of the Chicago River, between Montrose Avenue and Berteau Avenue, in the City of Chicago. The scope of project work includes installing a new sheet pile wall along the river bank, installing riprap and articulated concrete block mats for erosion control and slope stabilization, and some landscaping. Justification - The river bank slope has deteriorated over the years due to hydraulic erosion, slope failures, and sloughing of the original river channel bank, thus potentially compromising the slopes and impacting residential structures that are in the vicinity.</i>				
Geotechnical Analysis 2013-2015	128003C	\$ 720,000	\$ 449,083	20
<i>Various geotechnical design and analysis for tunnel and reservoir engineering plans. Geotechnical engineering uses principles of soil mechanics and rock mechanics to investigate subsurface conditions and materials; determine the relevant physical/mechanical and chemical properties of these materials; evaluate stability of natural slopes and man-made soil deposits; assess risks posed by site conditions; design earthworks and structure foundations; and monitor site conditions, earthwork and foundation construction.</i>				
Electrical Upgrade; Pumps, Motors and Drives Replacement; and Elevator Upgrades, EWRP	994672E	\$ 9,211,000	\$ 388,369	20
<i>Replacement of 4160V switchgear, 4160/480V substations PC-2 and PC-3, and two 480 V Motor Control Centers MCC-3 and MCC-4. Provide four variable frequency drives and two reduced voltage starters for raw sewage pumps. Replacement of two raw sewage pumps and six raw sewage pump motors. Replacement of reduced voltage starters for four blowers. Elevator 1, 2, and 3 improvements. Justification - Equipment is over 35 years old. Due to its condition, increased risk of failure necessitates its replacement to ensure appropriate level of service. Elevator improvements are required by code and forgoing project may jeopardize safety of plant personnel.</i>				
Phosphorus Recovery System, SWRP - Professional Services	111953P	\$ 27,000,000	\$ 284,927	35
<i>The purpose of this project is to construct a facility to recover phosphorus from the pre- and post-centrifuge centrates. The scope of work will include construction of a building to house the recovery process and product storage, installation of the Pearl® reactors, installation of pumping equipment and appurtenances to transfer the centrates to this facility. As a result of 12-RFP-20, the Black & Veatch Construction Inc./Ostara USA, LLC team was selected to design and construct this facility. The District will operate the facility and Ostara USA, LLC will continue to market the product for the term of the agreement. Justification - The District is voluntarily looking at means to reduce phosphorus concentrates in Stickney WRP effluent.</i>				
Other Projects			\$ 1,744,738	

Project Expenditures 12/1/2014 - 6/30/2017 **\$ 40,427,442** **45%**

Principal Amount of Bonds	\$ 75,000,000
Original Issue Premium	\$ 14,022,875
Costs of Issuance	\$ (248,244)
Investment Income	\$ 497,572
Available for Spending	\$ 89,272,203

Remaining Available for Spending **\$ 48,844,762** **55%**

**2016 Series C
General Obligation Unlimited Tax Capital Improvement Bonds
July 1, 2016 through June 30, 2017
\$30,000,000 Principal**

Project Name	Project Number	Estimated Total Cost for Project	Spending 7/1/2016 - 6/30/2017	Estimated Useful Life of Project (years)
McCook Reservoir (CUP), Stages 1, 2 & 3	731612H	\$ 657,600,000	\$ 2,527,496	50
<i>This project covers the MWRD's local matching contribution to the Army Corps of Engineers' project costs for constructing the McCook Reservoir. Justification - The McCook Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows (CSO). The expanded Stage 2 portion of the reservoir is required to reach 10 billion gallon capacity included in the District's CSO Long-Term Control Plan for complying with federal and state water quality standards.</i>				
McCook Reservoir Vulcan Agreement Hard Costs, SSA	73161EH	\$ 94,717,000	\$ 391,285	50
<i>Incremental hard costs associated with an agreement between the Metropolitan Water Reclamation District and Vulcan to mine out a rough hole at the site of the McCook CUP Reservoir.</i>				
McCook Reservoir Des Plaines Inflow Tunnel	131064F	\$ 109,841,000	\$ 134,725	50
<i>Construction of an approximately 20-foot diameter tunnel that will connect the DesPlaines tunnel directly to the McCook Reservoir including a gate shaft, primary gate, backup gate, gate control building, temporary construction access shaft, tunnel portal and highway stability measures, and an energy dissipation apron with baffle blocks. Justification - McCook Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows (CSO)</i>				
Thornton Reservoir Surface Aeration	04203AF	\$ 1,896,000	\$ 87,233	20
<i>Solar-powered floating mixer/aerators for maintaining toxic conditions in the surface layer of the Thornton Composite Reservoir. Justification - The Thornton Composite Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows (CSO).</i>				
Connecting Tunnels and Gates, Thornton Composite Reservoir, CSA	042024F	\$ 147,084,000	\$ 45,450	50
<i>The purpose of this contract is to construct rock tunnels and a control structure to connect the Calumet Tunnel and Reservoir Plan (TARP) System to the Thornton Composite Reservoir. The project includes the construction of 1,300 linear feet of 30-foot diameter concrete lined tunnel, a tunnel portal structure, a diffuser apron, a concrete lined gate shaft, a control building, steel lined tunnel bifurcations, four wheel gates, each approximately 15 feet wide and 29 feet high, a maintenance bulkhead, two jet flow dewatering gates, a live connection to the existing Indiana Avenue TARP tunnel, and all other work collateral thereto. Justification - The Thornton Composite Reservoir project is an essential part of the District's TARP to prevent flooding and pollution from combined sewer overflows. Completion of the reservoir is part of the District's Combined Sewer Overflow Long-Term Control Plan for complying with requirements of the Clean Water Act. The project is estimated to provide an average of \$40 million in benefits annually to over 550,000 people in its service area.</i>				
Tollway Dam, Grout Curtain & Quarry Plugs, Thornton Composite Reservoir, CSA	042014F	\$ 77,801,000	\$ 42,487	50
<i>One of several contracts that will convert the north lobe of Thornton Quarry into the Thornton Composite Reservoir. The project consists of the construction of a roller-compacted concrete dam under Interstate 80/294 to prevent water in the reservoir from entering the Material Service Corporation's quarry, two concrete plugs in existing haul tunnels to isolate the reservoir from the quarry, and a double row grout curtain along the perimeter of the reservoir to prevent water from exfiltrating into the quarry. Completed reservoir will provide a storage capacity of 7.9 billion gallons. Justification - Thornton Composite Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows. Completion of reservoir is part of the District's Combined Sewer Overflow Long-Term Control Plan for complying with requirements of Clean Water Act. Estimated to provide an average of \$40 million in benefits annually to over 550,000 people in its service area.</i>				

Project Expenditures 7/1/2016 - 6/30/2017 **\$ 3,228,676** **9%**

Principal Amount of Bonds	\$ 30,000,000
Original Issue Premium	\$ 5,739,300
Costs of Issuance	\$ (79,534)
Investment Income	\$ 164,398
Available for Spending	\$ 35,824,164

Remaining Available for Spending **\$ 32,595,488** **91%**

2016 Series F
General Obligation Limited Tax Capital Improvement Bonds
Qualified Energy Conservation Bonds
July 1, 2016 through June 30, 2017
\$4,000,000 Principal

Project Name	Project Number	Estimated Total Cost for Project	Spending 7/1/2016 - 6/30/2017	Estimated Useful Life of Project (years)
2016 Public Building Commission Projects	16PBCMO	\$ 4,250,000	\$ 1,207,993	20
<i>Various tasks for the acquisition and installation of energy conservation projects consisting of the installation of steam blanket insulation, control upgrades, LED interior lighting upgrades, and storeroom improvements.</i>				

Project Expenditures 7/1/2016 - 6/30/2017 \$ 1,207,993 **30%**

<i>Principal Amount of Bonds</i>	\$ 4,000,000
<i>Costs of Issuance</i>	\$ (17,646)
<i>Investment Income</i>	\$ 39,916
<i>Available for Spending</i>	<u>\$ 4,022,270</u>

Remaining Available for Spending \$ 2,814,277 **70%**

**Illinois Environmental Protection Agency Funding
State Revolving Funds Series General Obligation Bonds
January 1, 2015 through June 30, 2017**

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
West Side Primary Settling Tanks 1-9 and Aerated Grit Facility, SWRP	041283P	\$ 226,208,000	\$ 162,414,347	70
<i>Construction of nine 160-foot diameter primary settling tanks (PST) and six 132-foot long aerated grit tanks. Justification - West Side Imhoff tanks are being decommissioned and replaced with more modern and effective treatment equipment.</i>				
Disinfection Facilities, OWRP	110543P	61,724,000	\$ 43,930,358	50
<i>Construction of ultraviolet (UV) light disinfection facilities and improvements to existing infrastructure at the O'Brien WRP. Construction consists of new flow conduits to intercept the flow from the existing effluent discharge conduit and reroute it to the new UV light disinfection facility, then back again to the discharge conduit. The UV disinfection facilities include disinfection channels and equipment, control gates, power distribution, instrumentation and controls, connection to the plant distributed control system, and a new building. Justification - This project will provide disinfection to the effluent at the O'Brien WRP before it is discharged into the waterway, in order to protect public health and in recognition of the recreational uses of the Chicago Area Waterway System.</i>				
McCook Reservoir Des Plaines Inflow Tunnel	131064F	109,841,000	\$ 35,891,694	50
<i>Construction of approximately 20-foot diameter tunnel that will connect the DesPlaines tunnel directly to the McCook Reservoir including a gate shaft, primary gate, backup gate, gate control building, temporary construction access shaft, tunnel portal and highway stability measures, and an energy dissipation apron with baffle blocks. Justification - McCook Reservoir project is an essential part of the District's Tunnel and Reservoir Plan to prevent flooding and pollution from combined sewer overflows (CSO).</i>				
Phosphorus Recovery System, SWRP	11195AP	31,914,000	\$ 29,029,330	70
<i>Project purpose is to construct a facility to recover phosphorus from pre- and post-centrifuge centrates. Scope of work will include construction of a building to house recovery process and product storage, installation of Ostara Pearl reactors, and installation of pumping equipment and appurtenances to transfer centrates to this facility. As a result of Proposal 12-RFP-20, Phosphorus Recovery Plan at Stickney WRP, Black & Veatch Corp, Inc./Ostara USA, LLC team was selected to design and construct this facility. District will operate facility and Ostara USA, LLC will continue to market product for term of agreement. Justification - The District is voluntarily looking at means to reduce phosphorus concentrates in Stickney WRP effluent.</i>				
Salt Creek Intercepting Sewer 2 Rehabilitation, SSA	061553S	43,878,000	\$ 23,266,715	50
<i>Project consists of rehabilitating approximately 32,800 feet of intercepting sewer with sizes ranging from 10" diameter to 7' x 7' semi-elliptic concrete pipe by using the cured-in-place pipe lining method, the channeline lining method, and/or the spray-on geopolymer lining system. This project also includes rehabilitating 81 manholes and two junction chambers by the spray-on lining system and/or the fiber wrap system, rebuilding and raising 11 manholes, constructing one manhole, and making control structure modifications. Justification - The sewers were inspected by the Maintenance & Operations Department in 2003 with a closed-circuit television inspection system. The video inspection tapes show cracks (circular and longitudinal), sewage solids deposits, sags, offset joints, root intrusion, infiltration, and concrete corrosion due to the action of hydrogen sulfide generated by the decomposition of settled solids. Physical inspection of the manholes revealed cracks and holes in the walls and on the bases of the manholes.</i>				

**Illinois Environmental Protection Agency Funding
State Revolving Funds Series General Obligation Bonds
January 1, 2015 through June 30, 2017**

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
Sludge Thickening Facilities, SWRP	091763P	167,275,000	\$ 22,872,720	35
<i>This project consists of the construction of a gravity thickening facility for primary settling tank sludge from both the southwest and future west side primary settling tanks, consisting of eight 80-foot diameter tanks, replacement of 12 of the existing 16 thickening centrifuges in the pre-digestion centrifuge building with new centrifuges to thicken waste activated sludge (WAS), replacement of four of the existing 16 thickening centrifuge frames, controls and motors in the predigestion centrifuge building with new units to thicken the O'Brien WRP sludge, construction of new pumping stations and underground pipes for the southwest preliminary tank sludge, WAS, and the O'Brien WRP, construction of a new 13.2kV/480V electrical substation to replace the existing substation at the southwest aerated grit facilities, replacement of corroded and undersized city water and effluent water piping throughout the plant, replacement of the Laramie Avenue Gate House, and reconfiguring the entrance road to accommodate increased construction traffic. Justification - The purpose of this project is to improve the sludge thickening processes at the Stickney WRP by separating the three sludge streams within the plant and thickening each by the most effective and efficient method. Currently, the southwest preliminary tank sludge, WAS, and the O'Brien WRP sludge are blended together in the existing concentration building and partially thickened by gravity prior to additional centrifuge thickening. The existing gravity concentration tanks are undersized and maintenance intensive, and the present blend of sludge does not thicken well by gravity. This results in large volumes of sludge recycled back to the head end of the treatment plant. The large recycle flow adds an unnecessary biological oxygen demand loading to the aeration tanks and a higher suspended solids loading to the final settling tanks.</i>				
Calumet TARP Pumping Station Improvements, CWRP	062123M	35,288,000	\$ 21,701,858	35
<i>Project purpose is to replace existing East 1 and West 1 Tunnel and Reservoir Plan (TARP) pumps with larger capacity pumps, replace their motors, and install new 4.6 kilovolt variable frequency drives (VFDs) for pumps. Suction and discharge piping will be modified to accommodate new pumps. Also, remaining four pumps, East 2 and 3 and West 2 and 3, will be replaced with new 72 million gallons per day pumps, along with new motors and four 4.6 kilovolt VFDs. Drives will be located on an elevated platform in each pump room. Low pressure steam line will be constructed from high-level influent pumping station to TARP for heating needs. Grading, roads, and site work disturbed during construction will be completed and restored. Justification - Will increase firm pumping capacity of each pump room to 150 million gallons per day while restoring dependability of equipment at Calumet TARP Station. There will be some increase in maintenance costs due to addition of VFDs in place of constant speed motors for existing small pumps. However, VFDs will allow better control of pumping and reduce energy costs by matching pump speed with flow needs.</i>				
Wet Weather Treatment Facility and Reservoir, LWRP	107163P	29,154,000	\$ 17,046,318	70
<i>This project includes increasing the size of the 18-inch interceptor sewer entering the plant site from the Village of Lemont's combined sewer area, constructing a new wet-weather treatment facility to provide primary treatment followed by disinfection, which is sized to treat up to 10 times the volume of dry weather flow (approximately 6.8 million gallons per day), and construction of a five-million gallon equalization reservoir to buffer the peak wet-weather flows from the Village's separate sewer area. Justification - During storm events, the Lemont WRP currently receives high flows from the tributary sewer systems, which result in bypasses to the Chicago Sanitary & Ship Canal. In the fall of 2009, the District received a violation notice from the Illinois Environmental Protection Agency (IEPA) that alleged failure to provide adequate treatment of excess flows during wet-weather periods at the Lemont WRP. A long-term control plan was developed and approved by the IEPA on March 16, 2011, which included this new facility.</i>				
Disinfection Facilities, CWRP	112413P	32,466,000	\$ 13,371,193	70
<i>The installation of the chlorination/dechlorination disinfection facilities includes furnishing and installing sodium hypochlorite storage tanks with a chemical feed system, sodium bisulfate storage tanks with a chemical feed system, instrumentation and control, and site work modifications to permit frequent chemical delivery. Justification - This project will provide disinfection of the effluent at the Calumet WRP, before it is discharged into the waterway, in order to protect public health and in recognition of the recreational uses of the Chicago Area Waterway System.</i>				

**Illinois Environmental Protection Agency Funding
State Revolving Funds Series General Obligation Bonds
January 1, 2015 through June 30, 2017**

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
Des Plaines River Intercepting Sewer Rehabilitation, SSA	061583S	13,694,000	\$ 11,802,402	70
<i>Project includes rehabilitation of 18,569 feet of sewer, ranging in size from 10" diameter to 8' x 46" box sewer, by the cured-in-place pipe lining method and spray-on lining system, rehabilitation of an inverted siphon, rehabilitation of 63 structures by the spray-on lining system, raising of two manholes, abandoning 290 feet of 20" pipe, cleaning 500 feet of 8' x 46" box sewer, and construction of an access manhole. Justification - Sewers were inspected by the Maintenance & Operations Department with a closed-circuit television inspection system. The video inspection tapes show cracks (circular and longitudinal), sewage solids deposits, sags, offset joints, root intrusion, infiltration, and concrete erosion. Physical inspection of manholes revealed cracks and holes in the walls and bases of the manholes.</i>				
Calumet TARP Screens, CWRP	132463M	12,754,000	\$ 9,755,254	50
<i>Project purpose is to replace the existing bar screens, which are located upstream of the Tunnel and Reservoir Plan (TARP) pumping station approximately 350 feet below ground, with new screens which will be mechanically cleaned. Cleaning mechanism will be rail mounted at ground level and have a gripper, which will travel down the shaft and remove the screenings from the bar screens, returning them to the surface for disposal. The work will be performed in conjunction with Contract 06-212-3M, Calumet TARP Pumping Station Improvements, CWRP. Justification - This project will restore the dependability of the equipment at Calumet TARP pumping station. With the addition of the screen cleaning mechanism, there will be a decrease in maintenance costs for the screens due to the elimination of the manual cleaning operation. However, there will be an increase in energy costs. The mechanism will provide more frequent cleanings and a safer operation, as workers will no longer need to be lowered into the wet shaft via a man basket in order to manually clean the screens.</i>				
TARP Control Structure Rehabilitation, NSA, SSA, and CSA	108803H	14,767,000	\$ 8,772,853	35
<i>This project consists of the rehabilitation and/or replacement of sluice gate actuators, equipment platforms, dehumidifiers, and other miscellaneous equipment, as well as the installation of new equipment including additional sump pumps, dehumidifiers, and gas detectors at the various Tunnel and Reservoir Plan (TARP) control structures. Justification - The purpose of this project is to rehabilitate and/or replace various components of the control structures throughout the TARP system in order to ensure reliable operations and eliminate hydraulic communication between the tunnels and the structures.</i>				
A/B and C/D Service Tunnel and Connecting Tunnel Rehabilitation - Phase II, SWRP	041323D	20,519,000	\$ 7,139,291	50
<i>This project will rehabilitate approximately 200 feet of the A/B service tunnel and 135 feet of the C/D service tunnel, and it will replace 150 feet of connecting tunnel between the A/B and C/D service tunnels. Justification - The A/B and C/D service tunnels are approximately 70 to 80 years old, and significant deterioration has occurred since they were placed into service. Rehabilitating the tunnels will restore structural capacity, extend their service life, and prevent further damage to the utilities inside the tunnels.</i>				
Battery C Airlift and Air Main Rehabilitation and Aeration Tanks No. 6, 7, 8 Diffuser Plate Replacement, SWRP	091813P	4,906,000	\$ 4,698,999	50
<i>The purpose of this project is to replace airlift umbrellas, rehabilitate sludge boxes, and install slide gates and workways for the sludge box outlets to the return activated sludge (RAS) channel. Work also includes replacing all Dresser couplings and pipe spool pieces for air mains in manholes at the Y-walls of the aeration tanks and the channels around the aeration tanks and replacing the fine bubble diffuser plates in aeration tank Nos. 6, 7, and 8. All work under this project is located in aeration battery C. Justification - The sludge box airlift umbrellas and concrete covers are deteriorating and need to be replaced. In order to facilitate an easier and safer means of isolating the sludge boxes from the RAS channel, new walkways and slide gates are required to be installed at the outlets. Improvements to the venting of the sludge boxes will eliminate the current spraying of a significant amount of sludge through existing vents onto walkways. The fine bubble diffuser plates in aeration tank Nos. 6, 7, and 8 are cracked and/or clogged and inefficient. The concrete plate holders are spalled and/or cracked, contributing to leaking air. The Dresser couplings on the air mains within the Y-walls and the vaults on the battery perimeter are severely corroded and leaking air. Repair and/or replacement of these items will save energy and provide a proper level of service and treatment.</i>				

**Illinois Environmental Protection Agency Funding
State Revolving Funds Series General Obligation Bonds
January 1, 2015 through June 30, 2017**

Project Name	Project Number	Estimated Total Cost for Project	Spending 1/1/2015 - 6/30/2017	Estimated Useful Life of Project (years)
North Shore Intercepting Sewer No. 2 Rehabilitation, NSA	120573S	4,934,000	\$ 3,278,217	50
<i>The rehabilitation of 6,590 feet of 40"x62" egg-shaped sewer by the cured-in-place lining method and/or the channel lining process and the rehabilitation of eight manholes by spray-on products and the spot repair of 20 feet of 27-inch diameter sewer and the rehabilitation of 347 feet of 27-inch sewer pipe. Justification - The sewer and manholes were inspected by the Maintenance & Operations Department by closed-circuit television. The video shows infiltration and concrete/metal deterioration. In order to restore the structural and hydraulic integrity of the sewers, they need to be rehabilitated. A blockage was found in the 27-inch sewer that requires the sewer to be removed and replaced to restore hydraulic integrity.</i>				
Safety Railing Around Tanks, SWRP	151233D	5,239,000	\$ 3,228,379	50
<i>This project will install safety railings at Battery A, B, and C aeration tanks along both sides of the walkways for worker safety and to meet Occupational Safety and Health Administration regulations.</i>				
TARP Pump #8 Rehabilitation, MSPS	021113M	4,533,000	\$ 2,863,002	70
<i>Project purpose is to completely overhaul the pump and motor of main sewage pump #8 in the north pump house of the Mainstream Pumping Station. Also, the new inflatable seal design utilized on pumps #2 and #6 will be installed on pump #8. Contract will serve as the model for the overhaul of the other five original installations. Justification - Complete overhaul of pump and motor involves the installation of new parts and current technology components, which will reduce the maintenance labor required for both pieces of equipment and improve reliability. The new inflatable seal design will increase the life of the mechanical seal and decrease leakage. The pump and motor will operate more efficiently by pumping more liquid in less time, leading to reduced electricity usage. The overhaul will extend useful life of the pump and motor which have been in service since May 1985.</i>				
Nitrogen Removal in Centrate, EWRP	134093P	2,675,000	\$ 2,738,974	35
<i>Partial nitrification-deammonification of centrate at the Egan WRP using ANITA Mox Moving Bed Biofilm Reactors. Process uses significantly less energy compared to conventional nitrogen removal. Justification - Current operational strategy is inefficient, causes considerable odors and corrosion in the conduit that conveys the flow, and increases Load on O'Brien WRP.</i>				
Coarse Screens and Raw Sewage Pump Slide Gates Replacement, EWRP	114053M	2,842,000	\$ 2,711,145	50
<i>Includes replacement of three coarse bar screens and associated controls, installation of new stop logs for coarse bar screens, removal of grit from the coarse bar screen channel, replacement of five slide gates with stainless steel motor actuated slide gates for raw sewage pumps, replacement of six drain valves for raw sewage pumps, isolation of electrical rooms and motor control center Nos. 1 and 2 from the adjacent classified areas and installation of a new air handling unit for Operating Engineer's office in dewatering building. Justification - Existing coarse screen is a climber type screen and the drive assembly, rake, motor, gearbox, and drive train travel to remove debris from screen. Motor assembly gets submerged during major storm events and requires emergency maintenance to repair the gearboxes in order to place screen back in service. Stop logs are necessary to isolate coarse screen channels during replacement of coarse screens and perform routine maintenance. While operating a cast iron slide gate to isolate a raw sewage pump, it was observed that the gate was cracked in the middle and required immediate replacement. Existing gates are underdesigned for current operating head conditions. The six drain valves for raw sewage pumps are leaking and will be replaced. Motor control center Nos. 1 and 2 are currently situated adjacent to classified areas. Personnel located in control room in dewatering building have complained of foul odors emanating from centrifuge area. Existing window air conditioning units will be removed, and an air handling unit will be installed.</i>				
D799 Switchgear Replacement, SWRP	091823E	12,645,300	\$ 2,153,309	30
<i>Replacement of the medium voltage (13.2kV) switchgear and medium voltage feeder cables in D799 at the Stickney WRP. The medium voltage switchgear and cables are over 30 years old. Failure of a tie breaker in 2009 caused the Stickney WRP facility to be out of service. Replacement of the switchgear would improve reliability, reduce the risk of failure, provide enhanced safety features, and provide for future expansion (proposed new Monitoring & Research laboratory and disinfection facility). Due to the switchgear's condition, the increased risk of failure necessitates its replacement to ensure the appropriate level of service. Recent inspection and testing revealed the potential of an incipient failure of the cables.</i>				
Other Projects			\$ 5,095,548	

Project Expenditures 01/01/2015 - 6/30/2017 \$ 433,761,906



MWRD Commissioners display a commemorative plaque that was installed on a large fragment of 400-million-year-old dolomite limestone that was mined from the newly-completed McCook Reservoir Stage I. (L-R): Commissioner Kari K. Steele, President Mariyana T. Spyropoulos, Commissioner David J. Walsh, Commissioner Martin J. Durkan, Chairman of Finance Frank Avila, Commissioner Debra Shore, Vice President Barbara J. McGowan and Commissioner Josina Morita.

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