GO TO TABLE OF CONTENTS

SECTION V
CAPITAL BUDGET

The Capital Improvement Program is the District's plan for the construction, rehabilitation, and modernization of District-owned and operated infrastructure. It includes plans to protect Lake Michigan from pollution, to clean up approximately 532 miles of rivers and streams within the District's jurisdiction to meet federal and state standards, and to reduce the level of flooding which has persistently plagued many municipalities within the District's jurisdiction.

The Capital Budget includes the Construction Fund and the Capital Improvements Bond Fund. To understand the Capital Budget, it is necessary to visualize existing facilities as well as the program for the next year and the long-term plan.

The type of funding for each fund corresponds to the estimated useful life of the project and statutory restrictions on bond sales. The Tax Cap Law imposes restrictions on the non-referendum bonding authority of the District. There are exceptions in the Tax Cap Law to allow non-referendum bonds to be sold to finance certain District projects. Bonds or long-term debt are only utilized to finance projects with useful lives beyond 20 years. Capital projects not eligible for bond financing, or with shorter useful lives, are funded on a "pay as you go" basis and financed primarily by property taxes. The Capital Improvements Bond Fund receives most of its resources from bond sales, State Revolving Fund loans, and federal and state grants. It provides for major plant and sewer construction, flood control facilities, and land acquisition. The Construction Fund is financed primarily through a property tax levy and provides for much of the District's infrastructure rehabilitation and modernization.

The narrative discussion of the District's 2019 Capital Improvement Program places the 2019 program within the context of our long-range plan. Information is provided on the levels of funding in 2019 and in the future. The graphs, charts, figures, and descriptions of the Construction Fund and Capital Improvements Bond Fund Program within this section aid the reader in understanding this component of the Budget. The impact on operating costs associated with capital projects scheduled for award in 2019 is presented in the Capital Improvement Program narrative.

Metropolitan Water Reclamation District of Greater Chicago
100 EAST ERIE STREET CHICAGO, ILLINOIS 60611-3154 312.751.5600

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September 11, 2018

Mr. John P. Murray
Acting Executive Director
O F F I C E

Dear Sir:

Subject: 2019 Program for the Capital Funds

The Capital Funds' program for 2019, as prepared in detail, is transmitted herewith. The budget presentation supports the request for funding of the District's 2019 Capital Plan initiatives in alignment with and in support of the Strategic Business Plan. The budget requests include all amendments as directed by you during the Executive Director Budget Hearings in August of this year.

The narrative by fund provides a summary of the 2019 major initiatives and challenges and 2018 accomplishments. Supporting schedules of objectives and performance present three years of detailed budgetary information.

Thank you for the opportunity to present the proposed Capital Funds budget for 2019.

Respectfully submitted,

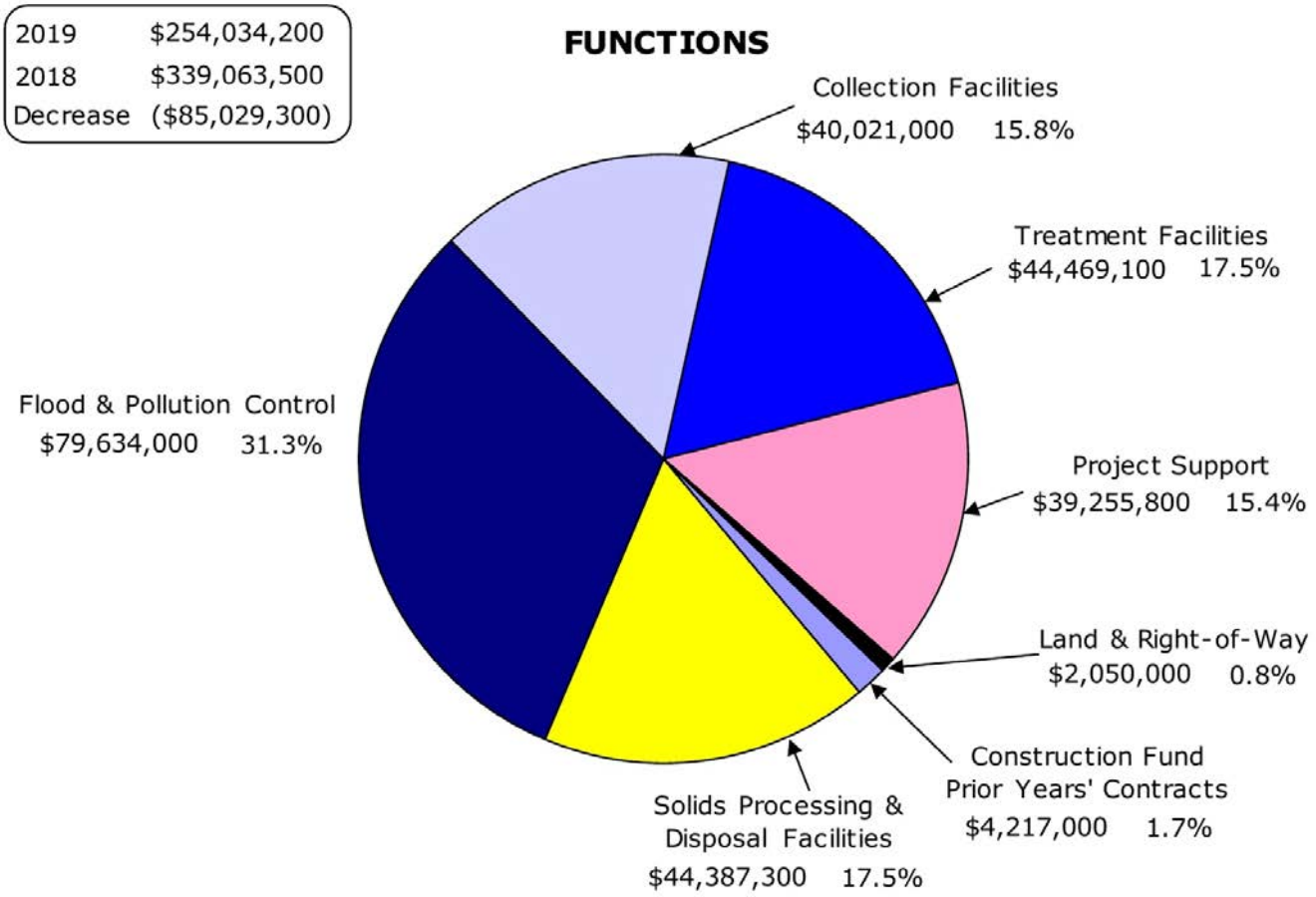
Catherine A. O'Connor
Director of Engineering

Thomas M. Conway
Acting Director of Maintenance & Operations

Edward W. Podczerwinski
Director of Monitoring & Research

CAPITAL IMPROVEMENT PROGRAM
CONSTRUCTION AND CAPITAL IMPROVEMENTS BOND FUNDS

2019	$254,034,200
2018	$339,063,500
Decrease	($85,029,300)



A comprehensive Capital Improvement Program narrative appears on the following pages. The District utilizes the Construction and Capital Improvements Bond Funds for the Capital Improvement Program. Capital improvements comprise all new facilities and projects that preserve the useful life of District facilities or increase the capacity or efficiency of these facilities. The project support activities of the Construction and Capital Improvements Bond Funds consist of planning, designing, and constructing District infrastructure, acting as a liaison to the United States Environmental Protection Agency and the Illinois Environmental Protection Agency, and pursuing funding for capital projects from the Army Corps of Engineers.

Budget Highlights

The 2019 appropriation for the Capital Improvement Program (Construction and Capital Improvements Bond Funds) is $254,034,200, a decrease of $85,029,300, or 25.1 percent, from 2018. The decrease is primarily due to the decrease in the total value of capital projects budgeted in 2019. A total of 112 projects funded by the Construction or Capital Improvements Bond Funds will be under planning, design, or construction in 2019. There are three streambank stabilization projects, one flood control project, and one channel improvement project that are planned for award in 2019 under the Stormwater Management Program. There are no staff positions budgeted in the Construction and Capital Improvements Bond Funds.

The mission of the Capital Improvement Program is to plan, develop, and implement projects for new facilities, preserve the useful life of facilities, or increase the capacity or efficiency of facilities to ensure that the District complies with our statutory responsibilities in the areas of sewage treatment and pollution control.

Capital Improvement Program Policy

The District's Capital Improvement Program consists of those projects identified as necessary to ensure safe and uninterrupted operation of our facilities, meet existing and new statutory and regulatory requirements, and maintain efficiency in a cost-effective manner. Projects are identified based on asset management audits, Governmental Accounting Standards Board Statement 34 inspections, and need, such as regulatory requirements or long-term strategic planning. Following identification, projects must be justified and vetted by an interdepartmental review panel. Projects are prioritized using an evaluation and scoring system. Projects are then added to the Capital Improvement Program and scheduled for award according to priority and resource availability.

Governmental Accounting Standards Board Statement 34 became effective in 2003. By adopting the modified approach for reporting infrastructure assets, the District agrees to perform condition assessments of our facilities, establish service levels for our infrastructure, and appropriate funds to maintain these high standards, thus protecting the environment and avoiding the detrimental impacts of deferred maintenance. The results of these assessments are reported in the Comprehensive Annual Financial Report.

Beneficial Impacts of Capital Projects

Through proper operation, maintenance, repair, and replacement of equipment and facilities, the District ensures continued efficient and reliable service, protects our investment and infrastructure, and meets National Pollutant Discharge Elimination System permit requirements. The Capital Improvement Program identifies and prioritizes projects to upgrade and modernize obsolete equipment and facilities.

Program Funding

Sources of funding for the Capital Improvement Program consist of capital improvement bond sales, general property tax revenues, State Revolving Fund loans, and federal and state grants.

Construction Fund

Section 12 of "An ACT to create sanitary districts and to remove obstructions in the Des Plaines and Illinois Rivers," approved May 29, 1889, as amended, provides that the Board of Commissioners of the District can levy and collect taxes for construction purposes (which means the replacement, remodeling, completion, alteration, construction, and enlargement, which will add appreciably to the value, utility, or useful life of sewage treatment works or flood control facilities, and additions thereto, pumping stations, tunnels, conduits, and intercepting sewers connecting therewith, and outlet sewers together with the equipment and appurtenances necessary thereto, and for the acquisition of the sites and rights of way necessary thereto, and for engineering expenses of designing and supervising construction of the work above described) for the year 1985 and each year thereafter, which shall be at a rate not to exceed 0.10 percent of the assessed valuation of all taxable property within the District as equalized and determined for state and local taxes.

Capital Improvements Bond Fund

Section 9.6(a) of "An ACT to create sanitary districts and to remove obstructions in the Des Plaines and Illinois Rivers," approved May 29, 1889, as amended, provides that the Board of Commissioners of the District is authorized to issue bonds for District purposes. The District issues bonds to provide funds to replace, remodel, complete, alter, construct, and enlarge sewage treatment or flood control facilities, to acquire air pollution control equipment, and to build or acquire sewers. The total allowable bond debt at any given time cannot exceed 3.35 percent of the last known equalized assessed valuation of all taxable property within the District. The ordinance authorizing the issuance of the bonds provides for the levy of a tax on all taxable property within the District adequate to pay principal and interest on the bonds when due, including a provision for loss in the collection of taxes.

Tax Cap laws enacted in Illinois have a significant impact on the funding of the District's Capital Improvement Program through bond sales. Under Public Act 89-1, the District's non-referendum bond authority is restricted to fund only projects initiated prior to October 1, 1991, which generally covers only Tunnel and Reservoir Plan (TARP) projects. However, Public Act 89-385 provided additional non-referendum authority to the District by authorizing the issuance of "limited bonds." These "limited bonds" allow the District to issue non-referendum debt for projects initiated after October 1, 1991. "Limited bonds" can be issued up to the debt service extension base established by the Act. This "limited bond" authority was expanded for the District by passage of Public Act 90-485 in the 1997 legislative session. This Act excludes debt associated with the TARP program from the "limited bond" limitation. The use of "limited bonds," in conjunction with the "unlimited bonds" authorized for TARP-related projects, positions the District's capital funding on firm ground.

State Revolving Fund

The United States Environmental Protection Agency implemented the State Revolving Fund (SRF) to ensure that each state's program is designed and operated to continue to provide capital funding assistance for water pollution control activities in perpetuity, but preserves a high degree of flexibility for operating revolving funds in accordance with each state's unique needs and circumstances.

Funds in the SRF shall not be used to provide grants. SRF balances must be available in perpetuity and must be used solely to provide loans and other authorized forms of financial assistance:

a. For municipalities, intermunicipal, interstate, or state agencies for the construction of publicly owned wastewater treatment works;
b. For implementation of a new point source pollution control management program;
c. For development and implementation of a conservation and management plan.

For many years, the major sources of funding for District projects were federal grants and the Build Illinois Compliance Grants, both of which were discontinued. Under the grant program, the District received approximately $1.9 billion between 1973 and 1993, leaving 25 percent of the project cost to be borne by the District. The District continues to aggressively pursue federal and state funding to minimize the impact on our constituency. Low-interest SRF loans are an integral part of the District's capital improvements financing. SRF revenues are based on the award and construction schedule of specific projects. It is estimated the District will receive between $50 to $200 million annually in SRF loans through 2022.

Operating Cost Impacts of Capital Improvement Projects

The annual maintenance and/or operating costs associated with new capital projects are an important part of the decision-making process for the selection of capital projects. In many cases, the District must build new or modify existing facilities to meet regulatory requirements, and increases in operating costs cannot be avoided. In other cases, operating costs can be significantly reduced based on the replacement of aging infrastructure or equipment. In all cases, the operating cost impacts of proposed capital projects are analyzed by design personnel, as well as operating staff, in order to implement a Capital Improvement Program that meets operating needs in the most cost-effective manner. For example, the aeration tanks air valves automation in batteries at the Stickney Water Reclamation Plant (WRP) are cost effective improvements. Finer tune automation is required to enhance the biological phosphorus removal process. Implementation of finer tune automation also reduces air demand by five to seven percent, saving approximately $600,000 in electrical energy annually.

An example of increased energy efficiency would be the implementation of the Digester Sludge Heating System Upgrades and Boiler Removal, CWRP (Project 18-277-3M). This includes the removal of six boilers from the Calumet WRP digester complex and installation of six steam-to-hot water heat exchangers. These boilers are old and inefficient and have required extensive maintenance. The boilers in the Central Boiler Facility (CBF) will provide steam to the steam-to-hot water heat exchangers. This change will allow more reliable operation of the CBF boilers throughout the year. Furthermore, the CBF boilers are capable of co-firing both digester gas and natural gas simultaneously. Depending on the digester gas availability, the boilers will use the digester gas primarily and the natural gas will be supplemented, as necessary. This will result in better utilization of digester gas and higher energy efficiency.

The West Side Primary Settling Tanks 1-9 and Aerated Grit Facility, SWRP (Project 04-128-3P) will improve energy efficiency. The installation of primary settling tanks and the elimination of the Imhoff process will nearly double digester gas production. Digester gas is utilized in process and space heating throughout the Stickney WRP and is considered a renewable resource. Increased gas production will result in the reduced purchase of natural gas. Electrical demands will also decrease with the elimination of pumping up to 100 millions of gallons per day of recycle flow from the old grit removal process and the low-pressure compressors necessary for the removal of sludge from the Imhoff tanks. This project will be completed in late 2018.

Overall Capital Improvement Program Costs

The District's 2019 overall Capital Improvement Program includes 2019 project awards, program support, and projects under construction, with a total estimated construction cost of approximately $779.5 million. A breakdown of these projects (in millions of dollars) is as follows:

2019 project awards	$ 212.7
2019 program support (project support and land)	41.3
Projects currently under construction (award value)	525.5
Total	$ 779.5

- A breakdown of projects scheduled for 2019 award by fund is as follows:

Construction Fund projects	$ 10.3
Capital Improvements Bond Fund projects	202.4
Total	$ 212.7

- A breakdown of projects under construction (award value) by fund is as follows:

Construction Fund projects	$ 11.4
Capital Improvements Bond Fund projects	514.1
Total	$ 525.5

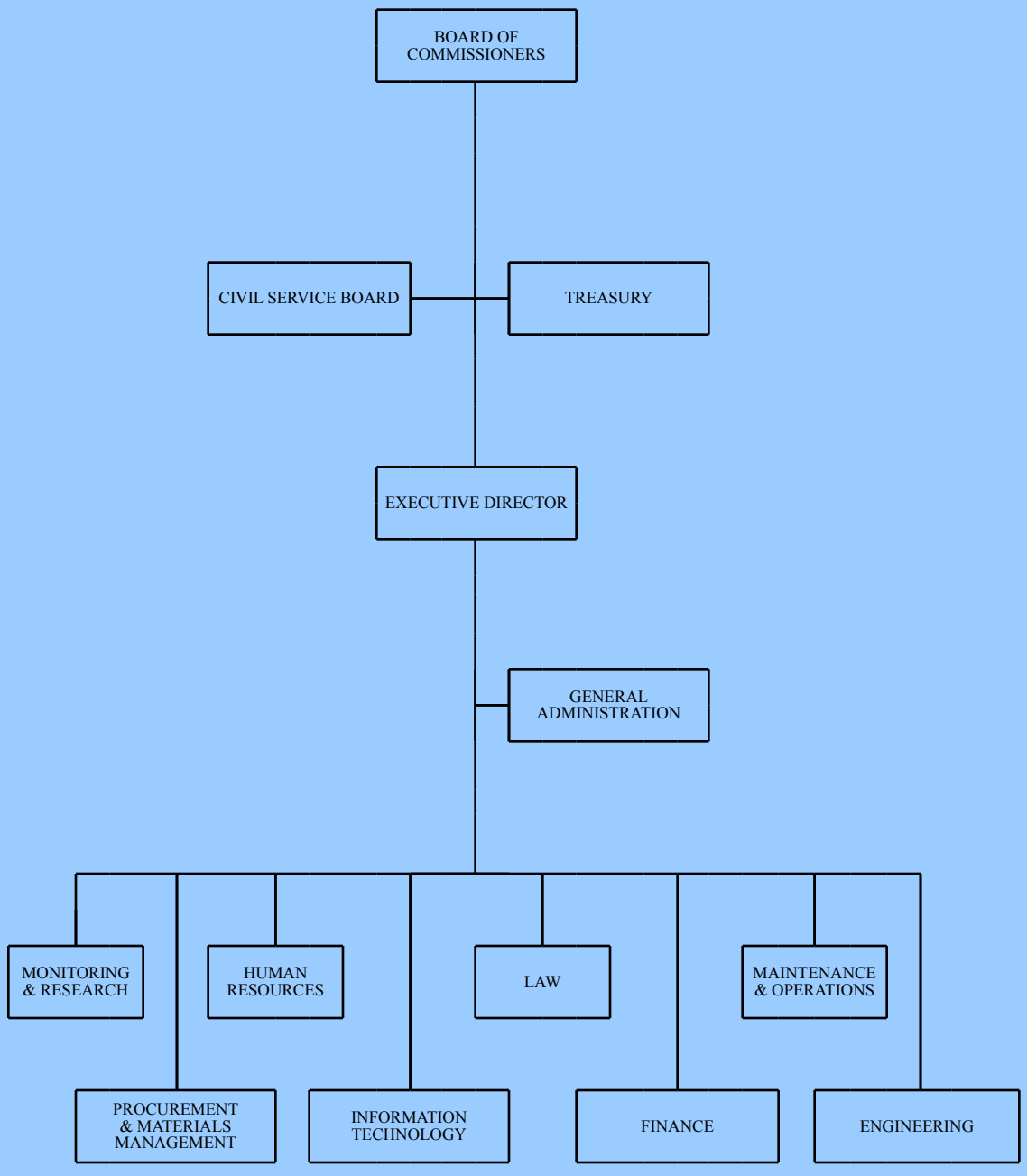
10-YEAR CAPITAL IMPROVEMENT PROGRAM SUMMARY
2014 - 2023 CAPITAL PROJECT CONSTRUCTION COST

	ACTUAL CASH DISBURSEMENTS					ESTIMATED CASH DISBURSEMENTS					TOTAL
	2014	2015	2016	2017	2018*	2019	2020	2021	2022	2023	2014-2023
BY CATEGORY											
Water Reclamation Plants and Solids Management	$65.99	$144.40	$107.01	$104.26	$45.52	$23.95	$45.32	$34.68	$57.48	$40.36	$668.97
Replacement of Facilities	40.17	26.65	36.98	43.22	15.90	18.69	40.21	24.88	24.77	24.58	$296.06
Collection Facilities	44.66	14.94	25.51	10.52	13.86	7.23	11.37	46.88	13.89	19.84	$208.72
Stormwater Management	5.27	5.85	7.49	5.69	21.86	75.79	106.32	96.00	71.42	77.38	$473.07
Tunnel and Reservoir Plan	37.49	75.18	47.68	55.79	47.10	19.02	26.66	14.14	1.60	0.99	$325.65
TOTAL	$193.58	$267.02	$224.67	$219.48	$144.25	$144.68	$229.88	$216.59	$169.16	$163.16	$1,972.47
BY FUND											
Stormwater Management Fund	$5.27	$5.00	$6.34	$0.96	$7.73	$30.93	$50.74	$43.24	$24.95	$37.46	$212.61
Construction Fund	16.57	13.34	13.47	8.83	8.91	7.47	8.21	5.27	6.98	6.98	$96.04
Capital Improvements Bond Fund	171.74	248.68	204.86	209.69	127.61	106.27	170.94	168.08	137.23	118.71	$1,663.82
TOTAL	$193.58	$267.02	$224.67	$219.48	$144.25	$144.68	$229.88	$216.59	$169.16	$163.16	$1,972.47

Notes: 1. All project costs are in millions of dollars.
2. Information regarding the distribution of funds between the sub-items in the Construction and Capital Improvements Bond Funds can be found in the Five-Year Financial Forecast.
3. Amounts are rounded.

* PROJECTED CASH DISBURSEMENTS

GO TO TABLE OF CONTENTS



CONSTRUCTION FUND

Fund Summary

The Construction Fund provides for the acquisition of infrastructure assets or the rehabilitation of existing structures that increase the efficiency or extend the useful life of the structure. The useful life of the asset generally will be less than five years and the cost of the project typically does not exceed $500,000. The Construction Fund is a pay-as-you-go capital fund and is funded primarily by property taxes.

Summary of 2018 Accomplishments

These projects and initiatives are consistent with the Strategic Business Plan (SBP) values of innovation and excellence, which urge resourcefulness, process improvement, and a mindset that sees challenges as opportunities:

- Continued to pilot test mainstream shortcut biological nitrogen removal approaches for low-energy nitrogen removal at the O'Brien Water Reclamation Plant (WRP);
- Completed a research study on a flow-through photobioreactor with floating media for phosphorus removal using algae treatment;
- Completed phosphorus removal feasibility studies at the Kirie, Egan, Hanover Park, and Lemont WRPs;
- Awarded projects to perform phosphorus removal feasibility studies at the Stickney, O'Brien, and Calumet WRPs;
- Installed two drainage water management systems and three denitrifying bioreactor systems in Fulton County to reduce nitrogen runoff into surface waters, a best management practice. The project was a direct outgrowth of the SBP, which specifies the use of Fulton County property to explore opportunities to revitalize the environment;
- Completed the rehabilitation of the digester gas turbine at Stickney WRP. Digester gas will be consumed in the combustor of a three-megawatt electric generator, and the generated electricity will be delivered back to the grid and distributed throughout the plant, resulting in reduced electrical demand. This project also supports the SBP strategy to maximize the use of digester capacity at the Stickney WRP.

Guided by the SBP, these projects and initiatives were undertaken with the purpose of minimizing future maintenance costs, increasing system reliability, and achieving excellence:

- Procured a Global Positioning System (GPS) robotic station, two GPS controllers, and two GPS rover units, resulting in more efficient operations for the Survey Unit of the Engineering Department;
- Installed a hot water boiler system in the heavy equipment garage at the Calumet WRP. It is a cost-effective system that provides a temperature regulated environment conducive to the preservation of valuable District assets;
- Upgraded a coarse screen conveyor system at the North Branch Pumping Station, which will restore the operation of the coarse screens to full functionality;
- Installed six grit pumps in six of the eight aerated grit tanks at the Calumet WRP. The pumps were purchased in this quantity only after their performance was proved in the remaining two tanks;
- Rehabilitated a raw sewerage pump rotating assembly at the O'Brien WRP, which reestablished a critical redundancy. Having a spare assembly on hand significantly reduces the downtime required to replace a sewage pump rotating assembly in the event of a failure;
- Began work to modernize two elevators in the Main Office Building by replacing direct current motors with alternating current motors with variable frequency drives to ensure more reliable performance while achieving energy efficiency;
- Replaced obsolete life-safety equipment with new programmable fire alarm panels and network components at the Calumet WRP, Mainstream Pumping Station, and Lockport Powerhouse. This project is consistent with the SBP, which underscores the need to integrate safety in all planning, operations, and activities;
- Began work to install two debris baskets at the Kirie WRP. The debris baskets, which capture large objects before they can damage critical equipment, are 38 years old and have attained their full equipment life;
- Installed two proprietary distributed control system workstations for the control rooms at the Mainstream and Racine Avenue Pumping Stations. The workstations will enable interoperable control between the pumping stations and the Stickney WRP in the event of a failure at a remote control room.

Budget Highlights

The 2019 appropriation for the Construction Fund is $17,602,300, a decrease of $8,478,300, or 32.5 percent, from 2018. There are no staff positions budgeted in the Construction Fund. The 2019 value of the Construction Fund Program includes $7,232,000 for projects under construction and $7,953,000 for projects scheduled for award in 2019. An additional $2,417,300 is appropriated for purposes not specifically associated with listed project costs, including $1,824,900 for professional engineering services in connection with initiatives sponsored by the Engineering and Monitoring & Research Departments, $392,400 for contract contingencies, $150,000 for the purchase of capital machinery and equipment, and $50,000 for service fees associated with pilot test programs for odor monitoring.

2019 Initiatives in Support of the Strategic Business Plan Include the Following:

- **Add Value**
  - Implement the SBP strategy of adhering to project timeframes by taking maximum advantage of the skills and talents of the District's in-house trades;
  - Satisfy customer expectations, a core principle of the SBP, by using the Construction Fund to rehabilitate and improve facilities to ensure the long-term viability of assets;
  - Award a contract for the preliminary design of odor control facilities at the Stickney WRP's southwest preliminary tank and aerated grit facilities;
  - Continue to implement the District's Odor Reduction Strategy through the evaluation of the various technologies available for wastewater odor control and through the purchase of odor monitoring equipment.

- **Excellence**
  - Adhere to an asset maintenance schedule with the goal of reducing emergency sewer collapses and sludge line breaks and the high costs associated with them;
  - Continue to prioritize projects to ensure the best use of available resources. In 2019, 21 new projects have been added to the Construction Fund project schedule based on their alignment with the SBP. The projects are vetted and approved using criteria specified in the SBP, including the ability to produce results, deliver services, and demonstrate financial soundness;
  - Operate with the sense of urgency described in the SBP by establishing excellence in maintenance and operations. The Maintenance & Operations Department's Asset Management Section will be overseeing seven new and 16 existing Construction Fund projects in 2019 related to collection, treatment, flood and pollution control, and solids disposal, which are the core programs and functions of the department;
  - Continue to pursue research programs focused on addressing impending or anticipated future regulatory actions, achieving energy neutrality and resource recovery, or generating cost savings;
  - Allocate resources to ensure the required productive or operating capacity of the District's assets is met and maintained.

- **Resource Recovery**

  The Capital Improvement Program is essential to achieving the goals of the SBP. This is especially true for Resource Recovery with its broad vision and reliance, in many cases, on new processes and equipment. In 2019, a variety of projects related to resource recovery - water, energy, phosphorus, and biosolids - are included in the Construction Fund.
  - Continue research projects utilizing algae technology for the recovery of phosphorus and nitrogen from wastewater;
  - Continue phosphorus removal feasibility studies for the Calumet, Stickney, and O'Brien WRPs;
  - Improve and expand the biosolids beneficial reuse operation by acquiring capital equipment, including one screener, one paddle aerator, and four lagoon pumps. Initiatives like these are aligned with the SBP strategy of establishing a sustainable commercial biosolids market within the District's service area.

- **Leading Partnerships**
  - Under an Intergovernmental Agreement with the United States Geological Survey, operate a "multi-parameter, water-quality superstation" for real-time monitoring and data transmission of water conditions at Route 53 in the Des Plaines River, near Joliet. The data will be used by the Chicago Area Waterway System Nutrient Oversight Committee to develop and inform nutrient implementation plans, as described in the National Pollutant Discharge Elimination System permits for the Calumet, O'Brien, and Calumet WRPs. The station will be operated and maintained through federal fiscal year 2021. Agreements like this one support the SBP, which encourages the development of strategic relationships and the promotion of the District as an influential leader in the water industry.

- **Technology**

  The technology projects that appear in the 2019 Construction Fund budget support the SBP goal of delivering data and information that is reliable and useful and that can be used to make sound decisions and navigate toward successful outcomes.
  - Install and operate a pilot unit of the MicroNiche™ technology, which is a suite of products that target specific pollutants for removal by way of biocatalysts that are self-contained stable communities of mature organisms. The unit will be located at the O'Brien WRP, where the operating conditions can provide a rigorous test of the technology. The project will be undertaken with the goals of achieving effluent standards with respect to the future O'Brien WRP's National Pollutant Discharge Elimination System permit, quantifying anticipated reductions in operating costs and solids production, and establishing parameters to assess the feasibility and economics of a full-scale application. This project reflects the SBP concept of embracing new technology as a means of advancing the District's mission;
  - Implement a solution to upgrade the programmable logic controller human machine interface at the Calumet WRP. The integration of a human machine interface and programmable logic controller provides an automation solution designed to boost process efficiencies.

Construction Fund Program

Projects Under Construction

Project Name	Project Number	Est. Construction Cost	MWRD 2019 Appropriation	Duration (days)	Award / Est. Award Date
Television Inspection and Recording of Sewers and Manholes, District-wide	13-806-2S	$ 1,944	$ 921	1,080	Oct 2017
Furnish and Deliver Screens, Conveyors, and Grit Classifier, Various Locations	18-608-21	300	300	303	May 2018
Rehabilitation of Blower No. 9, CWRP	18-803-21	169	38	593	May 2018
Furnish, Deliver, and Install Fire Detection Systems, Various Locations	18-604-21	535	209	572	Jun 2018
Furnish and Deliver Station Battery Equipment, Various Locations	18-605-21	275	275	224	Jun 2018
Pavement Rehabilitation, Various Locations	18-614-21	881	500	578	Jun 2018
Furnish and Deliver Reconditioned Circuit Breakers, SSA	18-914-21	164	100	558	Jun 2018
Furnish and Deliver Sludge Pumps, SWRP	18-917-21	215	215	238	Jun 2018
Elevator Rehabilitation, MOB	J15090-054	529	411	375	Jun 2018
Furnish and Deliver HVAC Coils, CWRP	18-613-21	132	132	236	Sep 2018
Recondition Pump Motors No. 1 and No. 2, KWRP	18-704-21	280	200	481	Sep 2018
Furnish, Deliver, and Install Influent Gate Actuators, OWRP	18-708-21	293	293	180	Sep 2018
HVAC Improvements, Various Locations	18-611-21	1,851	975	540	Oct 2018
Furnish, Deliver, and Install Underground Steam and Utility Piping, CWRP	18-805-21	93	93	180	Oct 2018
Rehabilitate Raw Sewage Pump Rotating Assemblies, Various Locations	18-610-21	825	595	731	Nov 2018
Furnish, Deliver, and Install Grit Screw Conveyor, CWRP	18-802-21	300	300	180	Nov 2018
Rehabilitation of Overhead Bridge Crane, SSA	18-906-21	240	125	390	Dec 2018
Railroad Track Improvements, SSA	18-913-21	1,565	825	486	Dec 2018
Sludge Pump Replacements, SWRP	18-916-21	825	725	395	Dec 2018
Total Projects Under Construction		$ 11,416	$ 7,232		

Awards in 2019

Project Name	Project Number	Est. Construction Cost	MWRD 2019 Appropriation	Duration (days)	Award / Est. Award Date
Furnish, Deliver, and Install Three Bar Screens, KWRP	18-706-21	$ 1,350	$ 900	713	Jan 2019
Programmable Logic Controller Human Machine Interface Migration, CSA	19-805-21	563	563	350	Jan 2019
Avaya Telecom Project, Final Phase, District-wide	MWD0000013IT	150	150	364	Jan 2019
Microvi Pilot, OWRP	18-180-21	400	400	699	Feb 2019
Furnish, Deliver, and Install Deep Anode Ground Bed System, CWRP	19-804-21	495	495	333	Feb 2019
Remove and Replace Two Carrier Chillers, MOBA	MWD2010002GA	1,000	1,000	89	Feb 2019
Rehabilitate Gloria Alitto Majewski Reservoir, KWRP	16-708-21	750	750	305	Mar 2019
Furnish and Deliver Excitation Control Equipment, NBPS and RAPS	19-603-21	480	480	305	Mar 2019
Furnish and Deliver Paddle Aerator, LASMA	19-610-21	560	560	213	Mar 2019
Replace Final Tank Channel Covers, OWRP	19-705-21	45	45	305	Mar 2019
Rebuild Gate Houses and Sludge Concentration Building, OWRP	19-707-21	155	155	305	Mar 2019
Furnish and Deliver Lathe, OWRP	19-716-21	170	170	305	Mar 2019
Furnish and Deliver Automated Online Water Quality Monitoring System, OWRP	19-721-21	97	97	153	Mar 2019
Discharge Valve Rehabilitation, Main Sewage Pump No. 5, SWRP	19-905-21	800	400	671	Mar 2019
Construct Plenum Fan Array, MOBA	MWD2010001GA	310	310	152	Mar 2019
Replace HVAC Coils, Various Locations	19-608-21	225	225	274	Apr 2019
Roof Restoration, Lockport Powerhouse	19-612-21	240	240	91	May 2019
HVAC System Replacements, Various Locations	19-613-21	1,018	393	610	May 2019
Furnish, Deliver, and Install Crane Braking System, MSPS	19-904-21	140	140	244	May 2019
Furnish and Deliver Four Lagoon Pumps, CALSMA and LASMA	19-611-21	180	180	183	Jul 2019
Collateral Channel Riverbed Restoration, SSA	18-145-2S	1,200	300	366	Aug 2019
Total 2019 Awards		$ 10,328	$ 7,953		
Cumulative Projects Under Construction and 2019 Awards		$ 21,744	$ 15,185		

Note: All cost figures are in thousands of dollars.

CAPITAL PROJECTS LISTED BY SERVICE AREA - CONSTRUCTION FUND

The following is a list of capital projects within the District's three major service areas. They are presented by their association with a water reclamation plant (WRP) and by their completion status: projects under construction or for 2019 award.

STICKNEY SERVICE AREA (SSA)

Stickney Water Reclamation Plant (SWRP)

		Estimated Substantial Completion Date		Estimated Construction Cost
Projects Under Construction				
13-806-2S	Television Inspection and Recording of Sewers and Manholes, District-wide	9/20	$	1,944,000
18-604-21	Furnish, Deliver, and Install Fire Detection Systems, Various Locations	12/19		535,000
18-605-21	Furnish and Deliver Station Battery Equipment, Various Locations	1/19		275,000
18-608-21	Furnish and Deliver Screens, Conveyors, and Grit Classifier, Various Locations	2/19		300,000
18-610-21	Rehabilitate Raw Sewage Pump Rotating Assemblies, Various Locations	11/20		825,000
18-614-21	Pavement Rehabilitation, Various Locations	12/19		881,000
18-906-21	Rehabilitation of Overhead Bridge Crane, SSA	12/19		240,000
18-913-21	Railroad Track Improvements, SSA	3/20		1,565,000
18-914-21	Furnish and Deliver Reconditioned Circuit Breakers, SSA	12/19		164,000
18-916-21	Sludge Pump Replacements, SWRP	12/19		825,000
18-917-21	Furnish and Deliver Sludge Pumps, SWRP	1/19		215,000
J15090-054	Elevator Rehabilitation, MOB	6/19		529,000
		Total	**$**	**8,298,000**
Projects for 2019 Award				
18-145-2S	Collateral Channel Riverbed Restoration, SSA		$	1,200,000
19-608-21	Replace HVAC Coils, Various Locations			225,000
19-610-21	Furnish and Deliver Paddle Aerator, LASMA			560,000
19-611-21	Furnish and Deliver Four Lagoon Pumps, CALSMA and LASMA			180,000
19-612-21	Roof Restoration, Lockport Powerhouse			240,000
19-613-21	HVAC System Replacements, Various Locations			1,018,000
19-904-21	Furnish, Deliver, and Install Crane Braking System, MSPS			140,000
19-905-21	Discharge Valve Rehabilitation, Main Sewage Pump No. 5, SWRP			800,000
MWD0000013IT	Avaya Telecom Project, Final Phase, District-wide			150,000

Stickney Water Reclamation Plant (SWRP)

Projects for 2019 Award (continued)			Estimated Construction Cost
MWD2010001GA	Construct Plenum Fan Array, MOBA	$	310,000
MWD2010002GA	Remove and Replace Two Carrier Chillers, MOBA		1,000,000
	Total	**$**	**5,823,000**
	Stickney Service Area Grand Total	**$**	**14,121,000**

NORTH SERVICE AREA (NSA)

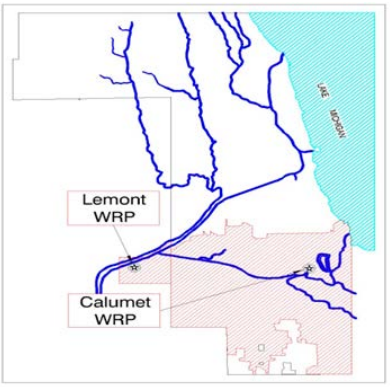
Terrence J. O'Brien Water Reclamation Plant (OWRP)

		Estimated Substantial Completion Date		Estimated Construction Cost
Projects Under Construction				
18-611-21	HVAC Improvements, Various Locations	3/20	$	1,851,000
18-708-21	Furnish, Deliver, and Install Influent Gate Actuators, OWRP	3/19		293,000
		Total	**$**	**2,144,000**
Projects for 2019 Award				
18-180-21	Microvi Pilot, OWRP		$	400,000
19-603-21	Furnish and Deliver Excitation Control Equipment, NBPS and RAPS			480,000
19-705-21	Replace Final Tank Channel Covers, OWRP			45,000
19-707-21	Rebuild Gate Houses and Sludge Concentration Building, OWRP			155,000
19-716-21	Furnish and Deliver Lathe, OWRP			170,000
19-721-21	Furnish and Deliver Automated Online Water Quality Monitoring System, OWRP			97,000
		Total	**$**	**1,347,000**

James C. Kirie Water Reclamation Plant (KWRP)

Projects Under Construction				
18-704-21	Recondition Pump Motors No. 1 and No. 2, KWRP	12/19	$	280,000
		Total	**$**	**280,000**
Projects for 2019 Award				
16-708-21	Rehabilitate Gloria Alitto Majewski Reservoir, KWRP		$	750,000
18-706-21	Furnish, Deliver, and Install Three Bar Screens, KWRP			1,350,000
		Total	**$**	**2,100,000**
		North Service Area Grand Total	**$**	**5,871,000**

CALUMET SERVICE AREA (CSA)



Calumet Water Reclamation Plant (CWRP)

		Estimated Substantial Completion Date		Estimated Construction Cost
Projects Under Construction				
18-613-21	Furnish and Deliver HVAC Coils, CWRP	4/19	$	132,000
18-802-21	Furnish, Deliver, and Install Grit Screw Conveyor, CWRP	4/19		300,000
18-803-21	Rehabilitation of Blower No. 9, CWRP	12/19		169,000
18-805-21	Furnish, Deliver, and Install Underground Steam and Utility Piping, CWRP	4/19		93,000
		Total	**$**	**694,000**
Projects for 2019 Award				
19-804-21	Furnish, Deliver, and Install Deep Anode Ground Bed System, CWRP		$	495,000
19-805-21	Programmable Logic Controller Human Machine Interface Migration, CSA			563,000
		Total	**$**	**1,058,000**
		Calumet Service Area Grand Total	**$**	**1,752,000**
		Capital Projects Grand Total - All Service Areas	**$**	**21,744,000**

Television Inspection and Recording of Sewer and Manholes, District-wide

Project Number	13-806-2S
Service Area	Calumet, North, and Stickney
Location	District-wide
Engineering Consultant	In-house design
Engineering Contractor	National Power Rodding Corporation
Estimated Construction Cost	$1,944,000.00
Contract Award Date	October-17
Substantial Completion Date	September-20
Project Description	To provide the District with sewer inspection services of varying methods including video inspection, water jetter system television inspection, zoom camera inspection, laser profiling, multi-sensor inspection, and manhole and Tunnel and Reservoir Plan drop shaft inspection. The contractor will also be responsible for cleaning, disposing, and hourly video inspecting services.
Project Justification	The purpose of this contract is to determine and monitor the state of the District's existing collection systems infrastructure.
Project Status	Construction

Rehabilitate Gloria Alitto Majewski Reservoir, KWRP

Project Number	16-708-21
Service Area	North
Location	Kirie WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$750,000.00
Contract Award Date	March-19
Substantial Completion Date	December-19

Project Description Installation of a process water cleaning system and miscellaneous repairs and rehabilitation of the Gloria Alitto Majewski Reservoir.

Project Justification This water reuse project/initiative will greatly assist with cleaning the reservoir after fill events. In 2011, the Army Corps of Engineers' reservoir inspection identified many deficiencies with the geomembrane liner and under drainage system. The Engineering Department's Contract 06-363-3D implemented repairs based on the 2011 inspection, and the repairs were completed in 2013. In 2015, a follow-up inspection by the District's Engineering Department determined that the drainage underliner south of intake structure, the liner connection, concrete toe block, and roller compacted concrete are all in need of repair.

Project Status Planning

Collateral Channel Riverbed Restoration, SSA

Project Number	18-145-2S
Service Area	Stickney
Location	Stickney, IL
Engineering Consultant	HBK Engineering, LLC
Engineering Contractor	To be determined
Estimated Construction Cost	$1,200,000.00
Contract Award Date	August-19
Substantial Completion Date	August-20

Project Description This project will employ a barge-based pump to transfer riverbed sediments though the combined sewer overflow outfall to the District's interceptor for transfer to the Stickney WRP. The rate will be controlled as not to upset any treatment processes or biosolids quality, with strict monitoring at the barge location and at the Stickney WRP. The process will continue until the soft sediments along the length of the Channel are removed.

Project Justification The purpose of this project is to remove sediments from the Collateral Channel to mitigate odors in the community and improve water quality. The Collateral Channel is in close proximity to residences and adjacent to a recently dedicated local park, which is heavily used in the warmer months when odors can be most prevalent.

Project Status Design

Microvi Pilot, OWRP

Project Number 18-180-21

Service Area North

Location O'Brien WRP

Engineering Consultant In-house design

Engineering Contractor To be determined

Estimated Construction Cost $400,000.00

Contract Award Date February-19

Substantial Completion Date December-20

Project Description The Monitoring & Research Department plans to begin construction and operation of a pilot unit of the MicroNiche™ Technology at the O'Brien WRP. The MicroNiche™ Technology is a suite of products that target specific pollutants for removal by way of biocatalysts that are self-contained stable communities of mature organisms. The MicroNiche™ Technology can be used to remove Biochemical Oxygen Demand (BOD), ammonia, and phosphorus in a manner that provides numerous benefits over the traditional activated sludge and enhanced biological phosphorus removal processes. For example, MicroNiche™ Technology can accomplish BOD, ammonia, and phosphorus removal in a tank with less volume than that required for activated sludge. This could be a benefit if applied at the O'Brien WRP, which does not have sufficient aeration tank capacity to create an anaerobic zone required for enhanced biological phosphorus removal, without negatively affecting nitrification. In addition, MicroNiche™ Technology operates at a much lower mixed liquor suspended solids concentration than activated sludge. Therefore, BOD, ammonia, and phosphorus removal can be accomplished in a smaller tank volume and with less air requirements, leading to a potential 35 percent reduction in energy costs. MicroNiche™ Technology operates with 95 percent less secondary solids production than activated sludge, which could also have multiple benefits if applied at the O'Brien WRP, including lower solids loading on the final clarifiers during stress periods, less impact on the aging sludge force main, and a significant savings in solids processing costs at the Stickney WRP. All this can be accomplished through repurposing the existing aeration tanks with a modest amount of modifications.

The goals of the project are as follows: 1) Achieve effluent requirements relative to future O'Brien WRP's National Pollutant Discharge Elimination System (NPDES) permit effluent discharge limits regarding total suspended solids, Carbonaceous BOD, ammonia-nitrogen, and phosphorus; 2) Quantify the reduction in operating costs and solids production; 3) Assess the ease of operation of the system; and 4) Establish design and economic parameters required for the Monitoring & Research Department's Process Facilities Capital Planning Section to prepare a life cycle analysis of the feasibility and economics of full-scale application at the O'Brien WRP.

Project Justification The O'Brien WRP has limited aeration capacity to meet its current NPDES permit effluent discharge limits for BOD, ammonia, and phosphorus removal. This biocatalyst technology can be retrofitted into the current tank infrastructure and has the potential to replace activated sludge, reduce sludge to the Stickney WRP, meet the NPDES permit effluent discharge limits, and reduce operational and capital expenditure costs.

Project Status Design

Furnish, Deliver, and Install Fire Detection Systems, Various Locations

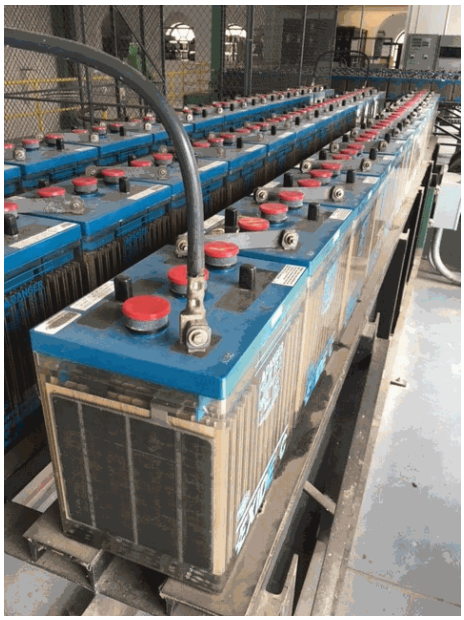
Project Number	18-604-21
Service Area	Calumet and Stickney
Location	Calumet WRP, Lockport Powerhouse, and Mainstream Pumping Station
Engineering Consultant	In-house design
Engineering Contractor	Broadway Electric, Inc.
Estimated Construction Cost	$535,000.00
Contract Award Date	June-18
Substantial Completion Date	December-19

Project Description Remove obsolete life-safety equipment and then furnish, deliver, and install new programmable fire alarm panels and network components at the Calumet WRP, Mainstream Pumping Station, and Lockport Powerhouse.

Project Justification The fire panels have been in service since 1992 and the manufacturer stopped providing parts in 2018. The lack of replacement parts jeopardizes the District's ability to maintain this life-safety equipment to an acceptable standard. Specifically, only the obsolete fire control panels will be replaced as the hundreds of sensors connected to them, despite their age, can still be maintained and will be able to communicate with the replacement panels. Upgrading the obsolete fire panels to newer models will improve our ability to properly maintain the life-safety systems at these locations.

Project Status Construction

Furnish and Deliver Station Battery Equipment, Various Locations



Project Number	18-605-21
Service Area	Calumet and Stickney
Location	Calumet and Stickney WRPs and Lockport Powerhouse
Engineering Consultant	In-house design
Engineering Contractor	Harrison Electric, Inc.
Estimated Construction Cost	$275,000.00
Contract Award Date	June-18
Substantial Completion Date	January-19

Project Description The purpose of this project is to furnish and deliver station batteries to various locations in the Calumet and Stickney service areas. The batteries will be replaced by District trades.

Project Justification The station batteries at the various locations need to be replaced as they have started to deteriorate. The batteries are needed for the switchgear circuit breaker controls and for emergency loads. The existing batteries are in poor condition and the cells, jars, and specific gravities are all becoming unreliable. At the Lockport Powerhouse, for instance, the jars have started to leak and the specific gravities have started to decrease, which may limit the charging capacities of the battery lineups. The Lockport Powerhouse generates electricity and transfers it to Commonwealth Edison's power grid, for which the District receives a substantial energy credit.

Project Status Construction

Furnish and Deliver Screens, Conveyors, and Grit Classifier, Various Locations

Project Number	18-608-21
Service Area	North and Stickney
Location	Hanover Park and Stickney WRPs
Engineering Consultant	In-house design
Engineering Contractor	WAM North America Inc., D/B/A Enviro-Care Company
Estimated Construction Cost	$300,000.00
Contract Award Date	May-18
Substantial Completion Date	February-19

Project Description At the Hanover Park WRP, replace the grit classifier, two catenary fine screens with traveling bar rake screens, and the flat belt conveyor with an enclosed shaftless screw conveyor. At the Stickney WRP, replace two shafted screw conveyors for scum concentration with one shaftless screw conveyor and one shafted screw conveyor.

Project Justification At the Hanover Park WRP, the 35-year-old screens and conveyor frames are corroding. The bar screens and beaching plate are in need of replacement, and the grit classifier trough, which has been repaired numerous times, is beginning to wear through. The switch to enclosed equipment will reduce odors. All equipment will be installed by District trades. At the Stickney WRP, the existing shafted screw conveyors move scum from the scum concentration tanks to the dumpster. The bearing supports have been repaired frequently and the auger is worn and in need of replacement. The support bearings trap debris causing the conveyor to overflow. The shaftless screw conveyor rides on the trough, so there are no supports for debris to get caught. Maintenance costs have risen drastically over the past five years. The conveyors will be installed by District trades.

Project Status Construction

Rehabilitate Raw Sewage Pump Rotating Assemblies, Various Locations

Project Number 18-610-21

Service Area North and Stickney

Location O'Brien and Stickney WRPs

Engineering Consultant In-house design

Engineering Contractor To be determined

Estimated Construction Cost $825,000.00

Contract Award Date November-18

Substantial Completion Date November-20

Project Description This project will include a complete rebuild of one main raw sewage pump (RSP) rotating assembly for the O'Brien WRP and four main RSP rotating assemblies for the Stickney WRP. Rehabilitation work includes sandblasting, inspecting, machining, and welding repair of the impellers as well as fabricating new components to replace typical wear items. This would include new pump shafts, casing rings, impeller rings, and shaft sleeves for the rotating assemblies. In addition, the contract work will require the reassembly and the balancing of the rotating assemblies to International Organization for Standardization balance quality grade G6.3.

Project Justification The O'Brien WRP has six main RSPs with various flow capabilities. RSP Nos. 1 and 2 can each generate 97 millions of gallons per day (MGD), RSP Nos. 3 and 4 can produce 65 MGD each, and RSP Nos. 5 and 6 can each pump 130 MGD. During a rain event, five main RSPs are required to be in service to reach the maximum plant flow. The Stickney WRP has seven main RSPs in the West Side Pumping Station. RSP Nos. 1 and 2 can each generate 65 MGD, while RSP Nos. 3 through 7 can each generate 130 MGD. In addition, the Stickney WRP has six main RSPs for the Southwest Pump and Blower House. RSP Nos. 1 through 4 can each generate 200 MGD, while RSP Nos. 5 and 6 can each generate 240 MGD. During a rain event, various combinations of main RSPs are utilized to reach the maximum plant flow. In some instances, 10 of the 12 main RSPs are required. Centrifugal pumps are designed to allow for sacrificial wear rings to thin over time and protect the costly impellers from damage. As the rings wear, the gap between the wear rings and the casing rings increase, allowing additional recirculation within the pump casing. As a result, the flow generated by the pump and the overall efficiency of the pump are decreased. This contract will rebuild one worn 65 MGD rotating assembly removed from RSP No. 4 at the O'Brien WRP, as well as four rotating assemblies at the Stickney WRP. This includes one 130 MGD rotating assembly removed from the West Side Pumping Station's RSP No. 3, two 200 MGD rotating assemblies removed from the Southwest Pump and Blower House's RSP Nos. 2 and 3, and one 240 MGD rotating assembly removed from the Southwest Pump and Blower House's RSP No. 5. Having spare rotating assemblies on hand significantly reduces the downtime required to replace a main RSP rotating assembly in case of failure.

Project Status Pending award

HVAC Improvements, Various Locations

Project Number	18-611-21
Service Area	Calumet and North
Location	Egan, O'Brien, and Calumet WRPs
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$1,851,000.00
Contract Award Date	October-18
Substantial Completion Date	March-20

Project Description HVAC system replacements at the Calumet WRP include the Administration Building computer room HVAC and supplemental cooling, the Administration Building control room cooling, the digester control room cooling, the Tunnel and Reservoir Plan control room cooling, and the High Level Pumping Station cooling. Calumet WRP replacements also consist of make-up air units for concentration, penthouse air handling and condensing units for the Administration Building, and reciprocating chillers in the Process Control Building. At the O'Brien WRP, rooftop units for the Administration Building will be replaced. Egan WRP replacement work consists of the condensation control for chiller condenser water in the pump room.

Project Justification The need for replacement is based on age, life expectancy, and reliability. The equipment being replaced has experienced numerous failures due to equipment corrosion and leaking coils and piping. This project will minimize future maintenance costs and ensure increased reliability to protect the District's assets.

Project Status Design

Furnish and Deliver HVAC Coils, CWRP

Project Number	18-613-21
Service Area	Calumet
Location	Calumet WRP
Engineering Consultant	In-house design
Engineering Contractor	Indi Enterprise, Inc.
Estimated Construction Cost	$132,000.00
Contract Award Date	September-18
Substantial Completion Date	April-19
Project Description	This project will replace deteriorated and leaking air handling coils used for the process facility air handling system at the Calumet WRP.
Project Justification	The existing air handling coils have deteriorated and corroded due to age and hydrogen sulfide exposure. New air handling coils will restore heating capacity at the process facility building.
Project Status	Construction

Pavement Rehabilitation, Various Locations

Project Number	18-614-21
Service Area	North, Calumet, and Stickney
Location	Calumet, Egan, Kirie, O'Brien, and Stickney WRPs, CALSMA, and LASMA
Engineering Consultant	In-house design
Engineering Contractor	Sumit Construction Co., Inc.
Estimated Construction Cost	$881,000.00
Contract Award Date	June-18
Substantial Completion Date	December-19

Project Description Portland Cement Concrete pavement removal and replacement, Illinois Department of Transportation type B patch, curb and gutter removal and replacement, asphalt pavement resurfacing, and repair of collapsed inlets in the North, Calumet, and Stickney Service Areas.

Project Justification Roadway and parking lot pavements as old as 35 years show signs of deterioration at the North, Calumet, and Stickney Service Areas. Cracks are as wide as six inches, and potholes are noted at numerous locations in various facilities. Asphalt cold patch has been applied every year in the past but will not last. Collapsed inlets are noted at each WRP as well. The poor condition of the pavement has a negative impact on District vehicles as well as employee vehicles. This project will extend the useful life of the roadways and parking lots and provide safe driving conditions at the WRPs.

Project Status Construction

Recondition Pump Motors No. 1 and No. 2, KWRP

Project Number	18-704-21
Service Area	North
Location	Kirie WRP
Engineering Consultant	In-house design
Engineering Contractor	KW Services, LLC
Estimated Construction Cost	$280,000.00
Contract Award Date	September-18
Substantial Completion Date	December-19

Project Description The purpose of this contract is for the offsite reconditioning of two 2,250 horsepower vertical shaft synchronous pump motors, two eddy current clutches, and two motor base plates. The motors are producing excessive vibration and have reached the end of their useful operational life. Following re-installation, the reconditioned motors will be reliable for an estimated additional 30 years. The District's trades will remove and reinstall the motors/clutches and provide labor support at the site.

Project Justification Vibration analysis testing of raw sewage pumps No. 1 and No. 2 showed excessive vibration on the motors and clutch assemblies, beyond the acceptable industry standard. The reliability and safe operation of the raw sewage pumps are adversely impacted due to the significant wear of the motors and clutch components. The pumps have been in service for 36 years and are in need of reconditioning.

Project Status Construction

Furnish, Deliver, and Install Three Bar Screens, KWRP

Project Number	18-706-21
Service Area	North
Location	Kirie WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$1,350,000.00
Contract Award Date	January-19
Substantial Completion Date	December-20
Project Description	Furnish, deliver, and install three bar screens at the Kirie WRP.
Project Justification	The current screens are 35 years old and their ability to capture debris has diminished significantly due to corrosion on the bars. Switching to a smaller screen opening will increase capture rates and reduce the amount of rags and debris in the return activated sludge channel. Because of the current screens' diminished performance, debris accumulates and prevents the return activated sludge butterfly valves from operating properly, which negatively impacts treatment operations and increases maintenance costs.
Project Status	Planning

Furnish, Deliver, and Install Influent Gate Actuators, OWRP

Project Number	18-708-21
Service Area	North
Location	O'Brien WRP
Engineering Consultant	In-house design
Engineering Contractor	Independent Mechanical Industries, Inc.
Estimated Construction Cost	$293,000.00
Contract Award Date	September-18
Substantial Completion Date	March-19

Project Description Replace seven beveled gear actuators with direct mount actuators at the O'Brien WRP's ultraviolet channel inlet gates.

Project Justification Two channel inlet gates have fallen due to the stem nuts stripping, as the stem nut height is too low. The current actuators have a stem nut height that is less than 1-1/2 times the stem diameter. A direct mount actuator's stem nut height is more than twice the stem diameter, so the possibility of stem nut stripping and resultant falling of a gate is greatly reduced. Inspection of the beveled gear actuator stem nut requires the complete actuator assembly to be removed from the stem, whereby a direct mount actuator's stem nut can be inspected without having to remove the actuator from the stem.

Project Status Construction

Furnish, Deliver, and Install Grit Screw Conveyor, CWRP

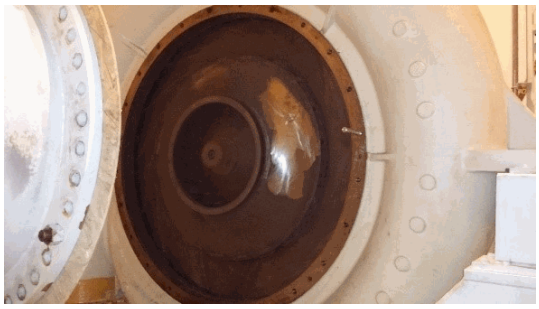
Project Number	18-802-21
Service Area	Calumet
Location	Calumet WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$300,000.00
Contract Award Date	November-18
Substantial Completion Date	April-19

Project Description Furnish, deliver, and install one screw conveyor in a grit tank at the Calumet WRP's Grit Building.

Project Justification The grit building has eight traveling bridge grit tanks that were installed four years ago. There have been seven bridge misalignment problems since the installation. The bridges' festoon rollers have been replaced at a cost of approximately $4,500 per grit tank; there have also been numerous problems with the proximity and limit switches. District staff investigated putting the bridges on rails to eliminate misalignments, but the cost of parts alone would be $177,880. The estimated cost for installing a screw conveyor is $300,000. Screw conveyors are less complex than traveling bridges because they have fewer moving parts. Additionally, electrical components on traveling bridges are prone to failure due to hydrogen sulfide exposure. On the other hand, the screw conveyor will be controlled via distributed control systems that will limit electrical component exposure to hydrogen sulfide.

Project Status Design

Rehabilitation of Blower No. 9, CWRP



Project Number	18-803-21
Service Area	Calumet
Location	Calumet WRP
Engineering Consultant	In-house design
Engineering Contractor	Howden Roots, LLC
Estimated Construction Cost	$169,000.00
Contract Award Date	May-18
Substantial Completion Date	December-19
Project Description	Sole source project to rehabilitate a damaged diffuser ring and rotating assembly on Blower No. 9 at the Calumet WRP
Project Justification	Blower No. 9 is one of two 75,000 cubic feet per minute blowers required for the aeration process at the Calumet WRP's secondary treatment facilities. The blower diffuser ring and rotating assembly were damaged during operation. If this blower becomes inoperable, a larger blower may have to be used instead, which would increase energy costs.
Project Status	Construction

Furnish, Deliver, and Install Underground Steam and Utility Piping, CWRP

Project Number	18-805-21
Service Area	Calumet
Location	Calumet WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$93,000.00
Contract Award Date	October-18
Substantial Completion Date	April-19
Project Description	Replacement of existing Ricwil pipe in the scum concentration building at the Calumet WRP. The Ricwil pipe is a host pipe which contains steam, pumped condensate return, effluent water, and low pressure air piping.
Project Justification	The steam, pumped condensate return, effluent water, and low pressure air piping inside the Ricwil pipe has failed and/or are severely corroded. This required the steam piping to be permanently shutdown causing the scum concentration building to have no heat. This project will provide new service piping to the scum concentration building and provide heating prior to the next winter season.
Project Status	Design

Rehabilitation of Overhead Bridge Crane, SSA

Project Number	18-906-21
Service Area	Stickney
Location	Mainstream Pumping Station
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$240,000.00
Contract Award Date	December-18
Substantial Completion Date	December-19
Project Description	This project will rehabilitate the existing overhead bridge crane located in the discharge valve chamber at the Mainstream Pumping Station.
Project Justification	The existing 40-ton overhead bridge crane has sustained corrosion to both of its end trucks, as well as to the rail clips and fasteners on both bridge rails. These issues have resulted in the crane being removed from service. In its current condition, the asset cannot perform the intended function and corrective measures are needed to restore its integrity and operability.
Project Status	Design

Railroad Track Improvements, SSA

Project Number	18-913-21
Service Area	Stickney
Location	Stickney, IL
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$1,565,000.00
Contract Award Date	December-18
Substantial Completion Date	March-20

Project Description This project will replace four railroad grade crossings, remove one crossing, provide for track drainage improvements at 11 locations, and rehabilitate dilapidated retaining walls at six locations. One crossing within the Stickney WRP that intersects "D Street" and is connected to an abandoned track to the West Side Plant will be removed and replaced with roadway. A second crossing within the Stickney WRP, which intersects "D Street" and leads to the Roundhouse, will be replaced. Two crossings outside and to the west of the Stickney WRP will be removed and replaced. A third crossing outside and to the west of the Stickney WRP, on the main line to Lawndale Avenue Solids Management Area and located under Interstate 55, will be removed and replaced.

Project Justification The railroad grade crossings have developed large gaps between the rails and adjacent roadway, which have caused undesirable impact forces on the rail, ties, and ballast. There are numerous locations along the track system where poor track drainage causes the track ballast to become fouled with dirt and sediments. In addition, the retaining walls that abut the ends of the tunnel walls are in various stages of disrepair. Improvements to the railroad track are necessary to maintain track gauge, prevent derailments, restore track integrity, and ensure safe operating conditions.

Project Status Design

Furnish and Deliver Reconditioned Circuit Breakers, SSA

Project Number	18-914-21
Service Area	Stickney
Location	Lockport Powerhouse and Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	Wesco Distribution, Inc.
Estimated Construction Cost	$164,000.00
Contract Award Date	June-18
Substantial Completion Date	December-19
Project Description	Recondition various circuit breakers within the Stickney Service Area.
Project Justification	This project will recondition and warranty various circuit breakers in the Stickney Service Area to extend the useful life of the distribution equipment. The reconditioned breakers will ensure the safety and reliability of electrical equipment during normal and fault operating conditions. The reconditioned breakers will meet the original manufacturer's specifications.
Project Status	Construction

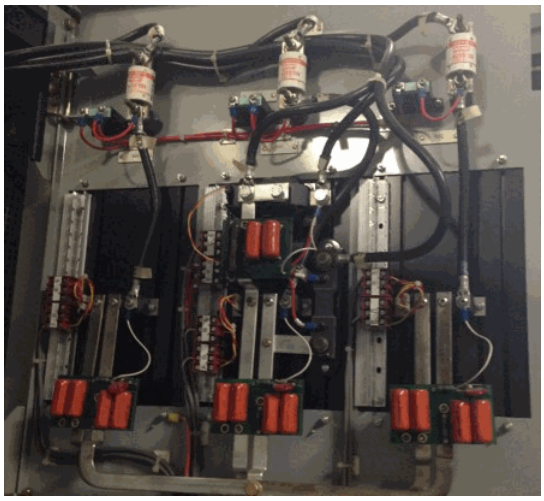
Sludge Pump Replacements, SWRP

Project Number	18-916-21
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$825,000.00
Contract Award Date	December-18
Substantial Completion Date	December-19
Project Description	The purpose of the project is to install both new and previously purchased non-clog centrifugal pumps and replace various screw-centrifugal and rotary lobe pumps in sludge pumping applications throughout the Stickney WRP.
Project Justification	Existing sludge pumps installed under a previous contract do not provide reliable pumping. Installation of various non-clog centrifugal pumps will restore reliable pumping capacity for the separated sludge streams now in place throughout the WRP.
Project Status	Planning

Furnish and Deliver Sludge Pumps, SWRP

Project Number	18-917-21
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	Flow-Technics, Inc.
Estimated Construction Cost	$215,000.00
Contract Award Date	June-18
Substantial Completion Date	January-19
Project Description	The purpose of the project is to purchase eight non-clog centrifugal pumps and replace various screw-centrifugal and rotary lobe pumps in sludge pumping applications throughout the WRP.
Project Justification	Existing sludge pumps installed under another contract do not provide reliable pumping. Procurement of various non-clog centrifugal pumps will restore reliable pumping capacity for the separated sludge streams now in place throughout the plant.
Project Status	Construction

Furnish and Deliver Excitation Control Equipment, NBPS and RAPS



Project Number	19-603-21
Service Area	North and Stickney
Location	North Branch and Racine Avenue Pumping Stations
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$480,000.00
Contract Award Date	March-19
Substantial Completion Date	December-19

Project Description Furnish and deliver replacement excitation control equipment for the North Branch Pumping Station (NBPS) and the Racine Avenue Pumping Station (RAPS) main sewage pump synchronous motors. Four new pump motor exciter control systems will be installed at both the NBPS and the RAPS. Installation will be performed by District trades under the direction of an excitation control manufacturer representative and the resident engineer.

Project Justification The existing synchronous motor power factor controllers and voltage regulators controlling the excitation of the NBPS and the RAPS main sewage pumps are obsolete and no longer manufactured/supported. These analog excitation controllers are more than 30 years old and are prone to malfunction, which negatively impacts sewage conveyance. Excitation controls are required for making an induction motor synchronous and are critical for pump availability and operation. There are currently no spare parts and the new replacement parts do not work without modifications from the manufacturer. Since the controllers are obsolete and no longer manufactured/supported, repairs take longer and are costlier due to specialized use of parts and labor.

Project Status Planning

Replace HVAC Coils, Various Locations

Project Number	19-608-21
Service Area	Calumet, North, and Stickney
Location	Calumet, Kirie, and Stickney WRPs
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$225,000.00
Contract Award Date	April-19
Substantial Completion Date	December-19
Project Description	This project will replace deteriorated and leaking air handling coils used in the process facility air handling system at the Calumet, Kirie, and Stickney WRPs.
Project Justification	The existing air handling coils have deteriorated and corroded due to age and hydrogen sulfide exposure. New air handling coils will restore heating capacity at the process facility building.
Project Status	Planning

Furnish and Deliver Paddle Aerator, LASMA

Project Number	19-610-21
Service Area	Stickney
Location	Lawndale Avenue Solids Management Area
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$560,000.00
Contract Award Date	March-19
Substantial Completion Date	September-19
Project Description	Furnish and deliver a paddle aerator to Lawndale Avenue Solids Management Area.
Project Justification	The Brown Bear 400D paddle aerator would replace the current Brown Bear, which was purchased in October 1989. The Brown Bear is vital to solids processing operations and operates five to six days per week to agitate and dry solids. The current Brown Bear has had a number of large mechanical problems recently, including transmission and pump failures.
Project Status	Planning

Furnish and Deliver Four Lagoon Pumps, CALSMA and LASMA

Project Number	19-611-21
Service Area	Calumet and Stickney
Location	Calumet Solids Management Area and Lawndale Avenue Solids Management Area
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$180,000.00
Contract Award Date	July-19
Substantial Completion Date	December-19
Project Description	Furnish and deliver four lagoon pumps to the Calumet Solids Management Area and the Lawndale Avenue Solids Management Area.
Project Justification	Lagoon pumps are needed to pump lagoon thickened solids into trucks to be transported to paved drying cells for further drying. The current hourly rate for a contract lagoon pump is $296, which would total $284,000 over six months. The payback for the equipment is therefore less than six months.
Project Status	Planning

Roof Restoration, Lockport Powerhouse

Project Number	19-612-21
Service Area	Stickney
Location	Lockport Powerhouse
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$240,000.00
Contract Award Date	May-19
Substantial Completion Date	July-19

Project Description This project will restore the roof of the Lockport Powerhouse.

Project Justification The Lockport Powerhouse's clay tile roof is approximately 110 years old and is leaking at various spots, causing damage to the structural part of the roof and powerhouse building. Improvements are necessary for damage control and for the full functionality of the powerhouse. Failure or delay may cause significant loss in revenue from electricity generated by the hydroelectric generators. The powerhouse building includes essential components to control the water level of the Sanitary and Ship Canal. Due to the specialized type of clay tiles and the roof's location over the high-velocity flowing water, the work cannot be done by District trades and must be contracted out to vendors who specialize in this type of roof replacement.

Project Status Planning

HVAC System Replacements, Various Locations

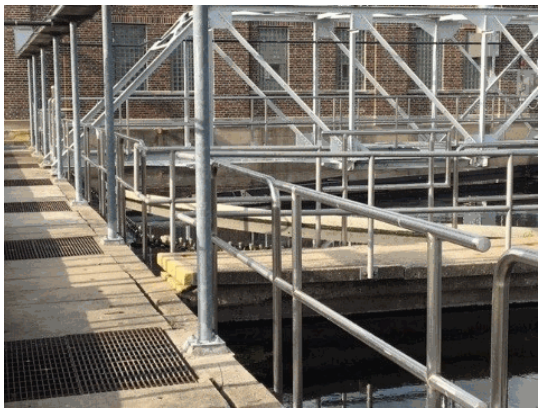
Project Number	19-613-21
Service Area	Calumet, North, and Stickney
Location	Stickney, Calumet, Egan, Kirie, and Hanover Park WRPs and the North Branch Pumping Station
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$1,018,000.00
Contract Award Date	May-19
Substantial Completion Date	December-20

Project Description This project includes the replacement and improvement of HVAC systems in various locations. At the Stickney WRP, the air handling units in the monitoring and research building will be replaced. At the Calumet WRP, ventilation improvements will be made in the battery room, two explosion-proof dehumidifiers will be replaced in the Tunnel and Reservoir Plan pumping station, and system balancing will be performed in the administration building. At the Egan WRP, the controls will be upgraded in the administration building and two digester gas systems with appurtenances will be replaced at the digester complex. At the Kirie WRP, ventilation improvements will be made in the influent pumping station. At the Hanover Park WRP, ventilation improvements will be made and controls will be upgraded in the pump and blower building. At the North Branch Pumping Station, ventilation improvements will also be made.

Project Justification The need for replacement is based on age, life expectancy, and reliability. The equipment being replaced has experienced chronic failures due to equipment corrosion and leaking coils and piping. The project will minimize future maintenance costs and ensure increased reliability to protect District assets, improve air quality, and provide a safe working environment.

Project Status Planning

Replace Final Tank Channel Covers, OWRP



Project Number	19-705-21
Service Area	North
Location	North Branch Pumping Station
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$45,000.00
Contract Award Date	March-19
Substantial Completion Date	December-19

Project Description This project will replace the damaged concrete covers over channels near the final tanks at the North Branch Pumping Station.

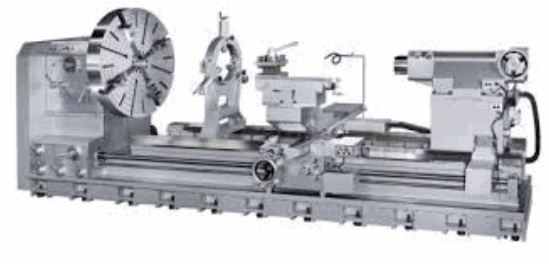
Project Justification The concrete covers are blocks that are designed to be removable and are used as a walkway over the channels. Some of the blocks are damaged and need to be replaced with either new blocks or a fiberglass grating. The damaged blocks can roll or tilt, which creates a tripping hazard.

Project Status Planning

Rebuild Gate Houses and Sludge Concentration Building, OWRP

Project Number	19-707-21
Service Area	North
Location	O'Brien WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$155,000.00
Contract Award Date	March-19
Substantial Completion Date	December-19
Project Description	Tuckpointing, glass block repair, parapet repair, and roof removal and replacement are required at gate house Nos. 1 and 2. Tuckpointing and glass block repair are required at the sludge concentration building.
Project Justification	The two gate houses have not been restored or tuckpointed since they were built in 1926. The sludge concentration building has not had tuckpointing performed in the last 30 years and needs to be maintained in order to increase its useful life.
Project Status	Planning

Furnish and Deliver Lathe, OWRP



Project Number	19-716-21
Service Area	North
Location	O'Brien WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$170,000.00
Contract Award Date	March-19
Substantial Completion Date	December-19
Project Description	Furnish and deliver a new lathe to the O'Brien WRP.
Project Justification	The lathe will replace a 40-year old unit that has reached the end of its useful life and is now incapable of producing reliable machined parts. The lathe will be used for day-to-day machining operations, such as threading specialized Tunnel and Reservoir Plan gate stem nuts. The machine will include a six-inch large spindle bore diameter to increase machining capabilities and facilitate shop fabrication of repair parts.
Project Status	Planning

Furnish and Deliver Automated Online Water Quality Monitoring System, OWRP

Project Number 19-721-21

Service Area North

Location O'Brien WRP

Engineering Consultant In-house design

Engineering Contractor To be determined

Estimated Construction Cost $97,000.00

Contract Award Date March-19

Substantial Completion Date August-19

Project Description Furnish and deliver an automated online water quality monitoring system to the O'Brien WRP. The system is based on an innovative optical technology, and the online optical monitoring sensors in the system measure a range of important water quality parameters on a rapid cycle, with results in approximately 2-5 minutes. While these results are not currently accepted by the regulatory agencies and will not substitute for the District's current testing program, they are very important for providing real-time monitoring information to treatment plant operators. Such information will help to better optimize treatment processes and maximize operational efficiencies with reduced costs. The acquired unit will be installed at the O'Brien WRP for a trial period.

Project Justification The automated water quality monitoring system will provide real-time monitoring of suspended solids, turbidity, ammonia, Biochemical/Chemical Oxygen Demand, and E. coli in treatment plant effluent, and the monitoring data will be used to optimize operations which can reduce costs and the probability of permit violations. Current disinfection tests take upwards of 30 hours to perform due to the sample collection, transport, and required methodology of testing, and treatment plant operators are forced to operate plant processes more conservatively due to delayed monitoring results. If this technology is successful, treatment plant operators will be afforded the opportunity to make decisions based on more current data, decisions which can be used to better control ultraviolet dosing of the disinfection process at the O'Brien WRP. It has been reported that similar installations in Grand Rapids, Michigan and Corvallis, Oregon have saved thousands of dollars per year through better controlling disinfection processes.

Project Status Design

Furnish, Deliver, and Install Deep Anode Ground Bed System, CWRP

Project Number 19-804-21

Service Area Calumet

Location Tunnel and Reservoir Plan (TARP) East and West Pumping Stations

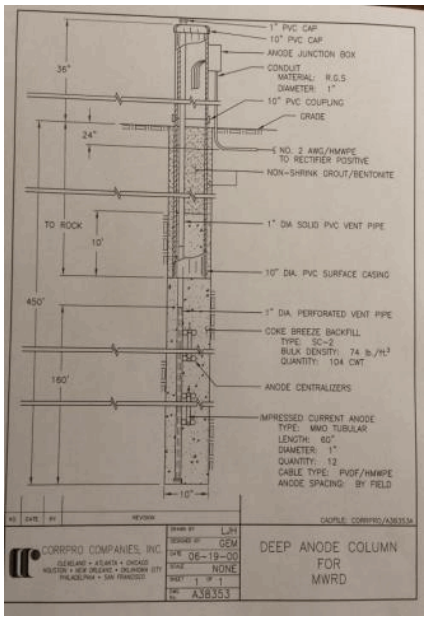
Engineering Consultant In-house design

Engineering Contractor To be determined

Estimated Construction Cost $495,000.00

Contract Award Date February-19

Substantial Completion Date December-19

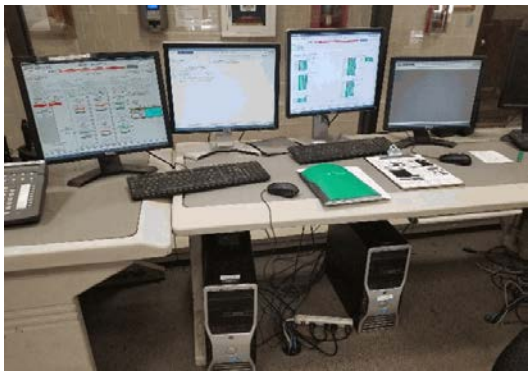


Project Description Drill four, 10-inch diameter, holes by approximately 400 feet. Furnish, deliver, and install 14 mixed metal oxide sacrificial anodes in the four holes. Fill the remainder of the holes with coke breeze and bentonite. Install new junction boxes. Connect new wires to the existing rectifier system. Install reference cells for the new deep anode ground bed cathodic protection system in the east and west TARP pumping stations. Replace conduit and cables as needed.

Project Justification The purpose of the contract is to replace four deep anode ground beds (DAGBs) which are no longer functional and do not protect underground equipment. The DAGBs are a part of the cathodic protection system responsible for protection of the underground piping infrastructure, mainly suction and discharge pipe sleeves. Based on the annual cathodic protection maintenance report received in 2017, the DAGBs' cathodic protection system located at the east and west TARP pumping stations is no longer functional. The anodes inside each of the deep anode columns have completely disintegrated, and they are no longer protecting the underground piping. Installation of a new DAGB system will restore protection for the existing and new underground equipment.

Project Status Planning

Programmable Logic Controller Human Machine Interface Migration, CSA



Project Number	19-805-21
Service Area	Calumet
Location	Calumet WRP
Engineering Consultant	In-house design
Engineering Contractor	Schneider Electric
Estimated Construction Cost	$563,000.00
Contract Award Date	January-19
Substantial Completion Date	December-19

Project Description The proposed solution will replace the existing installed A-B programmable logic controller human machine interface (HMI) with a new H90 server and a new Wonderware historian with an information server license.

Project Justification The current Dell servers running the A-B HMI are obsolete. These servers are running Windows XP, which is also obsolete. The goal is to move the A-B HMI into the existing Foxboro system and remove the obsolete hardware and software.

Project Status Planning

Furnish, Deliver, and Install Crane Braking System, MSPS

Project Number	19-904-21
Service Area	Stickney
Location	Mainstream Pumping Station
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$140,000.00
Contract Award Date	May-19
Substantial Completion Date	December-19
Project Description	This project will replace the brake system on the main hoist on the overhead bridge crane located in the south pump house at the Mainstream Pumping Station.
Project Justification	The brake system has failed and the vertical motion of the main hoist cannot be safely stopped. Replacement of this equipment will restore the crane to safe operating condition.
Project Status	Planning

Discharge Valve Rehabilitation, Main Sewage Pump No. 5, SWRP

Project Number 19-905-21

Service Area Stickney

Location Stickney WRP

Engineering Consultant In-house design

Engineering Contractor To be determined

Estimated Construction Cost $800,000.00

Contract Award Date March-19

Substantial Completion Date December-20

Project Description This project entails the rehabilitation of a 66-inch discharge valve assembly on main raw sewage pump No. 5 at the southwest pumping station at the Stickney WRP. In-house trades will perform the removal of the valve and its installation following a full rehabilitation. The rehabilitation work will include weld repair and machining of the gate discs, fabrication and replacement of the valve stem, stem nut, disc nut, wedges, disc and valve body seats, hooks, and the hardware for the discharge valve assembly. The scope of work also includes hydraulic leak testing of the valve assembly to American Water Works Association C500-93 standard and the preparation of drawings.

Project Justification The Stickney WRP has six main raw sewage pumps at the southwest pumping station with a 66-inch discharge valve on each pump. The discharge valves on main sewage pump Nos. 1 through 4 were originally installed in 1938 and rehabilitated in 2008 through 2010. The discharge valves on raw sewage pump Nos. 5 and 6 were originally installed in 1958. During recent maintenance work, severe wear and damage were observed on the components of the discharge valve assembly on main sewage pump No. 5. Rehabilitation of the discharge valve is needed to avoid any catastrophic failure. Failure of the discharge valve could result in the pump being unavailable for operation, which would reduce the pumping capacity of the station. A leaking valve could also cause the sewage discharge to backflow into the wet well, necessitating the need to operate more pumps and increase electrical energy consumption.

Project Status Planning

Elevator Rehabilitation, MOB

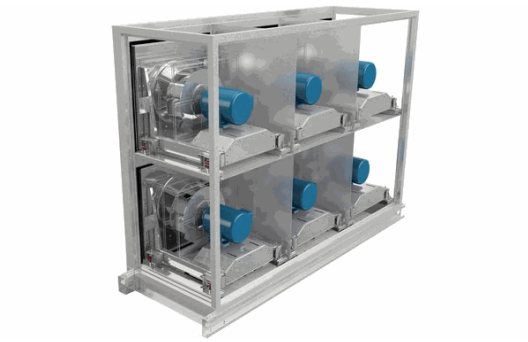
Project Number	J15090-054
Service Area	Stickney
Location	Main Office Building
Engineering Consultant	In-house design
Engineering Contractor	McDonagh Demolition, Inc.
Estimated Construction Cost	$529,000.00
Contract Award Date	June-18
Substantial Completion Date	June-19

Project Description Modernize two Main Office Building (MOB) elevators by replacing direct current motors with alternating current motors with variable frequency drives (VFDs) to ensure better, more reliable performance while achieving energy savings.

Project Justification Elevator entrapments result in lost employee productivity, potentially leading to an increase in the number of Workers' Compensation claims. Modernization of the MOB elevators will address this risk by providing a more reliable vertical transportation system for District employees and visitors at the MOB. Visitors will have a better impression of the MOB while experiencing a smoother elevator ride. This is in line with the District's strategic goal of Excellence, as related to the operations of the MOB Complex facilities. Additionally, the parts obsolescence issue will be addressed. Energy savings due to installation of load-modulating VFDs are expected.

Project Status Construction

Construct Plenum Fan Array, MOBA



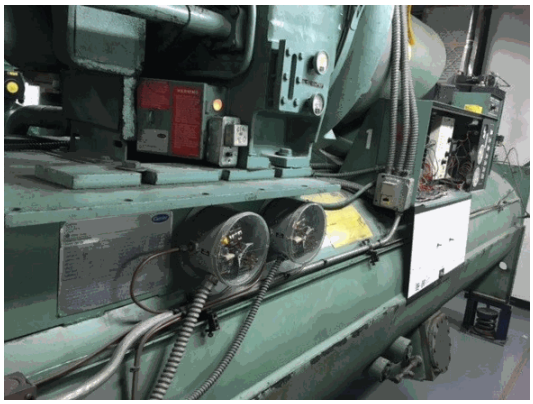
Project Number	MWD2010001GA
Service Area	Stickney
Location	Main Office Building Annex
Engineering Consultant	In-house design
Engineering Contractor	McDonagh Demolition, Inc.
Estimated Construction Cost	$310,000.00
Contract Award Date	March-19
Substantial Completion Date	July-19

Project Description Furnish, deliver, and construct a new air handling unit (AHU) in the 2nd floor mechanical room at the MOBA consisting of one four-fan array and one six-fan array. Fans will be modular plenum, airfoil nine-blade fans. The four-fan array will be rated at 100,000 cubic feet per minute; 1,923 revolutions per minute (RPM); 202 total horsepower. The six-fan array will be rated at 100,000 cubic feet per minute; 2,180 RPM; 168 total horsepower. The new AHU will be connected to the existing building automation system.

Project Justification The original AHU installed during building construction in 1985 is currently powered by an 1,800 RPM, 200 horsepower Flakt fan. This system experienced failures in 1999 and 2016. The total cost for replacing the fan and motor in 2016 was $104,522. Construction of a second AHU with plenum fan arrays will provide a layer of redundancy for supplying airflow throughout the building. In the event of a system failure, the redundant system will be utilized to provide air flow, thus negating the need to close the building during severe outside temperatures.

Project Status Planning

Remove and Replace Two Carrier Chillers, MOBA



Project Number	MWD2010002GA
Service Area	Stickney
Location	Main Office Building Annex
Engineering Consultant	In-house design
Engineering Contractor	McDonagh Demolition, Inc.
Estimated Construction Cost	$1,000,000.00
Contract Award Date	February-19
Substantial Completion Date	May-19
Project Description	Remove and replace two chiller units at the Main Office Building Annex. The new units must be energy efficient.
Project Justification	The electric elements of the existing unit are failing, which may result in hazards. These chillers are original to the building's construction in 1985. The American Society of Heating, Refrigerating and Air-Conditioning Engineers' standard for useful life of centrifugal chillers is 23 years. These chillers have now been operational for 33 years. Failure of either existing chiller could have adverse effects on the working conditions of all employees in the Main Office Building Annex due to the inability to regulate temperature during summer months.
Project Status	Planning

Avaya Telecom Project, Final Phase, District-wide

Project Number	MWD0000013IT
Service Area	Stickney
Location	District-wide
Engineering Consultant	In-house design
Engineering Contractor	Avaya
Estimated Construction Cost	$150,000.00
Contract Award Date	January-19
Substantial Completion Date	December-19

Project Description The infrastructure hardware at the remaining North Service Area locations will be upgraded with the purpose of creating a consolidated virtual environment District-wide. The infrastructure hardware at the Main Office Building Complex was upgraded in 2017. The upgrade will result in cost savings in terms of both equipment replacement and overall maintenance, with the added benefits of management flexibility, scalability, and expandability of feature sets at the sites.

Project Justification The District's telecommunications infrastructure is over seven years old. The project will upgrade the old system and allow for the added benefit of more responsive redundancy in the design, a feature not available with a physical environment.

Project Status Planning

50000 CONSTRUCTION FUND — OBJECTIVES AND PROGRAM SUMMARY

OBJECTIVES BY PRIORITY:	Cost	Percent
1. COLLECTION FACILITIES: Award projects, such as the installation of a crane braking system at the Mainstream Pumping Station, which will reduce operation and maintenance costs and/or provide facility improvements.	$ 2,771,000	15.7%
2. TREATMENT FACILITIES: Award projects, such as the installation of three bar screens at the Kirie WRP and the migration of the programmable logic controller human machine interface at the Calumet WRP, which will reduce operation and maintenance costs and/or provide facility improvements.	$ 3,916,100	22.2%
3. SOLIDS PROCESSING AND DISPOSAL FACILITIES: Award projects, such as the procurement of a paddle aerator and lagoon pumps for the Lawndale Avenue Solids Management Area, which will reduce costs and/or provide facility improvements.	$ 1,810,300	10.3%
4. FLOOD AND POLLUTION CONTROL: Provide funding for construction projects addressing flood control.	$ 1,050,000	6.0%
5. CONSTRUCTION FUND PROJECT COST: Provide funding for contracts awarded prior to 2019.	$ 4,217,000	24.0%
6. PROJECT SUPPORT: Development, design, and administration of current and future contracts, funding support, construction materials, and utility support services.	$ 3,837,900	21.8%
Total	$ 17,602,300	100.0%

MEASURABLE GOAL:	2017 Actual	2018 Estimated	2019 Proposed
Award contracts for the continued implementation of the District's Capital Improvement Program.			
Number of projects proposed	54	53	21
Number of contracts awarded	38	56	21
Number of plans available for award	38	56	21

The projects proposed for each year are based upon the requirements dictated by the Capital Improvement Program. The number of actual projects awarded may not, on face value, quantify performance. There are several factors that could either increase or decrease the number of projects awarded. Some of these factors are project size, project complexity, and unforeseen obstacles. The numbers are provided only as a general indicator of performance.

50000 CONSTRUCTION FUND — OBJECTIVES AND PROGRAM SUMMARY

PROGRAMS BY PRIORITY: Number	Name	2017 Actuals		Budgeted Positions	Budgeted Dollars	Change Dollars	Change Percent
1110	Interceptor Systems	$ 328,353	2019	—	$ 921,000	$ 121,000	15.1
			2018	—	$ 800,000		
1530	Local Sewer Permit Activity	$ —	2019	—	$ —	$ (50,000)	(100.0)
			2018	—	$ 50,000		
1800	Collection Construction	$ 1,524,017	2019	—	$ 3,275,000	$ 935,000	40.0
			2018	—	$ 2,340,000		
2800	Treatment Construction	$ 7,817,375	2019	—	$ 6,262,100	$ (1,759,300)	(21.9)
			2018	—	$ 8,021,400		
3700	Solids Processing Design	$ 40,399	2019	—	$ —	$ (1,995,400)	(100.0)
			2018	—	$ 1,995,400		
3800	Solids Processing Construction	$ 522,666	2019	—	$ 582,300	$ (25,300)	(4.2)
			2018	—	$ 607,600		
4600	Monitoring	$ 1,649,421	2019	—	$ 2,075,900	$ (1,991,700)	(49.0)
			2018	—	$ 4,067,600		
4800	Flood and Pollution Control Construction	$ 288,059	2019	—	$ 1,050,000	$ (160,000)	(13.2)
			2018	—	$ 1,210,000		
5800	Solids Disposal Construction	$ —	2019	—	$ 1,565,000	$ (2,385,000)	(60.4)
			2018	—	$ 3,950,000		
7284	Store Operations and Issue	$ 30,818	2019	—	$ —	$ —	—
			2018	—	$ —		
7290	Examinations and Employment Activities	$ 48,000	2019	—	$ —	$ (198,500)	(100.0)
			2018	—	$ 198,500		
7367	Real Estate Asset Management	$ 37,000	2019	—	$ —	$ —	—
			2018	—	$ —		
7380	Information Technology and Telecommunications	$ 559,602	2019	—	$ 150,000	$ (420,100)	(73.7)
			2018	—	$ 570,100		
7390	Accounting and Auditing	$ 14,500	2019	—	$ —	$ (60,000)	(100.0)
			2018	—	$ 60,000		
7460	Main Office Complex Building Services	$ —	2019	—	$ 1,721,000	$ 411,000	31.4
			2018	—	$ 1,310,000		
7491	Automotive Fleet Procurement	$ 915,205	2019	—	$ —	$ (900,000)	(100.0)
			2018	—	$ 900,000		
7801	Information Technology Services - General Administration	$ 17,848	2019	—	$ —	$ —	—
			2018	—	$ —		
	Totals	$13,793,263	2019	—	$ 17,602,300	$ (8,478,300)	(32.5)%
			2018	—	$ 26,080,600		

Projects budgeted in the Construction Fund, a pay-as-you-go capital fund, are prioritized based on operational needs, design time frames, and available funding. Year-over-year variances in program area budgets are the result of project timing within the five-year capital planning cycle.

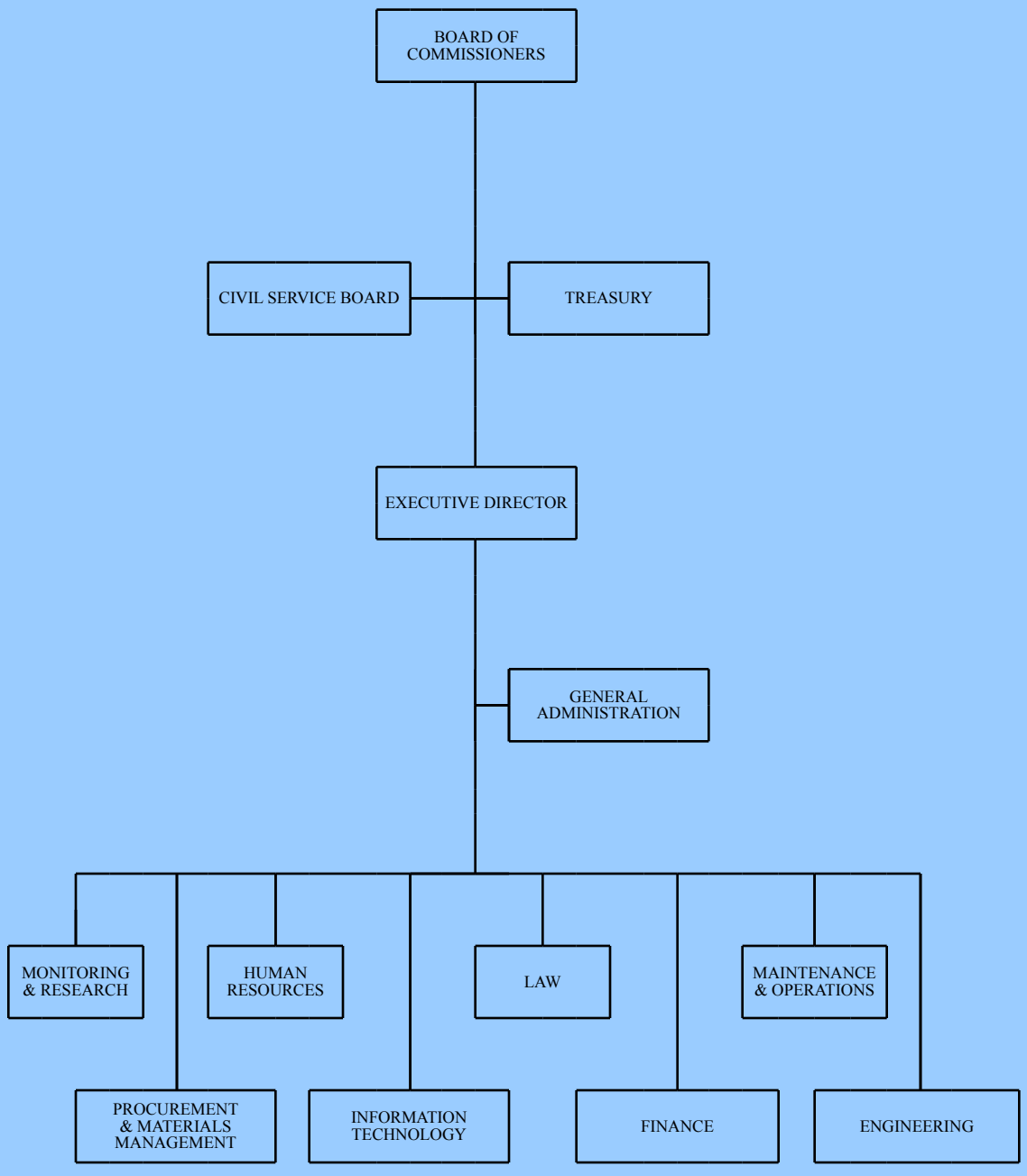
201 50000	Fund: Construction Department: Engineering	LINE ITEM ANALYSIS						
		2017	2018				2019	
Account Number	Account Name	Expenditure	Original Appropriation	Adjusted Appropriation 09/30/18	Expenditure (Committed Budget plus Disbursement) 09/30/18	Estimated Expenditure 12/31/18	Proposed by Executive Director	Recommended by Committee on Budget and Employment
612240	Testing and Inspection Services	$ 43,366	$ 1,016,000	$ 1,016,000	$ 992,084	$ 713,200	$ 1,270,000	$ —
612400	Intergovernmental Agreements	82,000	70,000	70,000	64,280	64,300	68,500	—
612430	Payments for Professional Services	1,650,905	3,282,100	3,282,100	2,771,261	2,401,800	1,357,400	—
612440	Preliminary Engineering Reports and Studies	—	50,000	50,000	49,920	49,600	50,000	—
612450	Professional Engineering Services for Construction Projects	—	1,834,400	1,834,400	11,875	11,900	—	—
612490	Contractual Services, N.O.C.	29,350	50,000	50,000	—	20,000	50,000	—
612600	Repairs to Collection Facilities	284,987	—	—	—	—	—	—
200	TOTAL CONTRACTUAL SERVICES	2,090,608	6,302,500	6,302,500	3,889,420	3,260,800	2,795,900	—
634600	Equipment for Collection Facilities	—	665,000	572,000	467,783	569,700	480,000	—
634620	Equipment for Waterway Facilities	202,377	110,000	163,000	142,852	162,800	—	—
634650	Equipment for Process Facilities	308,100	1,958,000	1,943,000	1,893,785	1,249,800	1,564,000	—
634760	Material Handling and Farming Equipment	—	975,000	2,140,000	2,083,630	2,090,600	740,000	—
634810	Computer Equipment	240,887	406,000	406,000	403,906	403,900	—	—
634820	Computer Software	35,000	85,000	85,000	45,000	45,000	—	—
634840	Communications Equipment (Includes Software)	67,459	64,100	64,100	40,888	—	150,000	—
634860	Vehicle Equipment	1,882,968	1,134,000	1,209,000	1,128,383	1,186,500	—	—
634990	Machinery and Equipment, N.O.C.	139,028	—	—	—	—	—	—
400	TOTAL MACHINERY AND EQUIPMENT	2,875,818	5,397,100	6,582,100	6,206,226	5,708,300	2,934,000	—
645600	Collection Facilities Structures	949,998	876,000	1,276,000	1,047,055	1,047,100	300,000	—
645620	Waterway Facilities Structures	—	75,000	75,000	—	—	—	—
645650	Process Facilities Structures	1,021,242	2,526,500	2,526,500	1,661,583	1,211,400	2,109,000	—
645680	Buildings	849,589	3,781,000	3,596,000	2,368,502	1,352,300	2,936,000	—
645690	Capital Projects, N.O.C.	3,065,725	2,625,000	625,000	213,500	213,500	1,388,000	—
645700	Preservation of Collection Facility Structures	—	1,140,000	667,200	270,000	30,000	2,505,000	—
645720	Preservation of Waterway Facility Structures	—	650,000	674,000	624,000	670,500	300,000	—
645750	Preservation of Process Facility Structures	618,498	832,600	1,082,600	873,736	541,500	1,232,800	—
645780	Preservation of Buildings	2,321,786	1,796,300	2,595,100	2,333,359	2,573,400	1,048,000	—

201 / 50000	Fund: Construction / Department: Engineering	LINE ITEM ANALYSIS						
		2017	2018				2019	
Account Number	Account Name	Expenditure	Original Appropriation	Adjusted Appropriation 09/30/18	Expenditure (Committed Budget plus Disbursement) 09/30/18	Estimated Expenditure 12/31/18	Proposed by Executive Director	Recommended by Committee on Budget and Employment
645790	Preservation of Capital Projects, N.O.C.	—	78,600	78,600	78,536	25,000	53,600	—
500	TOTAL CAPITAL PROJECTS	8,826,837	14,381,000	13,196,000	9,470,270	7,664,700	11,872,400	—
TOTAL ENGINEERING CONSTRUCTION		$ 13,793,263	$ 26,080,600	$ 26,080,600	$ 19,565,916	$ 16,633,800	$ 17,602,300	$ —

NOTES: 1. Amounts may not add up due to rounding.

2. Estimated Expenditure may either exceed Adjusted Appropriation when transfers of funds are anticipated or be less than Expenditure (Committed Budget plus Disbursement) when not all commitments are anticipated to be completed by year-end.

GO TO TABLE OF CONTENTS



CAPITAL IMPROVEMENTS BOND FUND

Fund Summary

The Capital Improvements Bond Fund is used when acquiring an asset that meets the definition of a capital asset: the cost typically exceeds $500,000 and the useful life extends beyond five years. Capital projects pursued by the Engineering Department are: (a) preservation/rehabilitation of existing infrastructure to maintain service levels, (b) improvement of environmental quality, or (c) commitment to community through process optimization. The Capital Improvements Bond Fund is funded by the sale of bonds and receipt of loans from the Illinois Environmental Protection Agency and State Revolving Loan Fund. The use of these funds is governed by state statutes and federal guidelines.

Summary of 2018 Accomplishments

The District's Capital Improvements Bond Fund is grouped into three categories: preservation of infrastructure, improvement of environmental quality, and commitment to community.

Preservation of Infrastructure

- Completed the rehabilitation of the Salt Creek Intercepting Sewer 2 and the Calumet Intercepting Sewer 19F;
- Completed the installation of new pumps and mechanical screens at the Calumet TARP (Tunnel and Reservoir Plan) Pump Station;
- Completed the rehabilitation of Pump 8 at the Mainstream Pumping Station;
- Completed the replacement of electrical switchgear at the Devon Avenue Aeration Station;
- Planned award of construction contracts to rehabilitate the Summit Conduit, rehabilitate the North Branch Pumping Station, replace tailrace stop logs, headrace gates, and equipment at the Lockport Powerhouse, repair structures and replace the roof at the 95th Street Pumping Station, replace switchgear and the Motor Control Center at the O'Brien Water Reclamation Plant (WRP), and rehabilitate pumps and replace the diverter gate at the Egan WRP.

Improvement of Environmental Quality

- Commenced operation of an energy-efficient nitrogen removal system, ANITA™ Mox, for the centrate at the Egan WRP. ANITA™ Mox de-nitrifies the centrate rather than conveying the centrate to the O'Brien WRP;
- Completed automation of air valves to allow better control of air usage for the Enhanced Biological Phosphorus Removal process at the Stickney WRP.

Commitment to Community

- Planned award of a construction contract to furnish and install odor control systems at the Kirie, Hanover Park, and Calumet WRPs.

Budget Highlights

The 2019 appropriation for the Capital Improvements Bond Fund is $236,431,900, a decrease of $76,551,000, or 24.5 percent, from 2018. There are no staff positions budgeted in the Capital Improvements Bond Fund. The 2019 appropriation includes construction costs for capital projects to be awarded in 2019 in the amount of $202,447,000 including funding for stormwater management capital projects. The remaining $33,984,900 includes funding for acquisition of easements, allowances for contract change orders, and legal and other support services relating to capital projects.

Significant features of the 2019 Budget are:

Preservation of Infrastructure

- Continue Phase II rehabilitation of the service and connecting tunnels at the Stickney WRP;
- Continue construction to replace electrical switchgear at the Stickney WRP;
- Award contracts to rehabilitate the digester and replace gas piping at the Stickney WRP, upgrade the digester sludge heating system and remove a boiler at the Calumet WRP, rehabilitate TARP pumps at the Mainstream Pumping Station, rehabilitate the pump and blower house at the O'Brien WRP, replace Section 1 of the North Side Sludge Pipeline, rehabilitate the North Shore 1 Intercepting Sewer, and rehabilitate the Upper Des Plaines 14B Intercepting Sewer.

Improvement of Environmental Quality

- Continue construction of the Des Plaines Inflow Tunnel at the McCook Reservoir;
- Continue the conversion of two gravity concentration tanks to primary sludge fermenters at the Stickney WRP;
- Continue construction of nine new primary settling tanks and aerated grit removal facilities at the Stickney WRP;
- Continue construction of baffle plates on final settling tanks to improve effluent quality at the O'Brien WRP.

Commitment to Community

- Award a contract to furnish and install an odor control system at the Thornton Reservoir Gate and Construction Shafts.

2019 Initiatives in Support of the Strategic Business Plan Include the Following:

• Add Value

Though only partially complete, TARP has already been effective in reducing pollution and flooding throughout the District's combined sewer service area. The Engineering Department has continued working with the Army Corps of Engineers to complete the reservoir phase of that project, and in 2018, Stage 1 of the McCook Reservoir was fully operational and captured more than 15 billion gallons of combined sewer overflow from 37 communities in Cook County. This first stage of the reservoir provides 3.5 billion gallons of storage and benefit the health and welfare of 3.1 million area residents.

The Engineering Department has developed odor control strategies at several of the WRPs to reduce the odor emissions that affect the District's neighbors and staff. Three projects are planned to be under construction in 2019 to accomplish this goal, improving the quality of life for many individuals. One such project will be implemented at the Hanover Park WRP. The coarse screen building exhaust, gravity belt thickener exhaust, aerated grit tanks, and pre-treatment building are odorous areas at the plant, which is located in a residential neighborhood and adjacent to an elementary school. Odor compounds, concentrations, and associated air flows were collected and evaluated to determine the best available strategy to address the odor emissions. A biotrickling filter and carbon polisher unit will be constructed to effectively treat the odor emissions.

• Excellence

The Engineering Department strives to achieve best-in-class performance for budgeting and scheduling of all Capital Improvement Program projects and has implemented comprehensive metrics to keep track of performance. In addition, projects are reviewed after construction is complete to document best practices and foster continuous improvement. The Engineering Department's capital projects have consistently averaged at or below the best-in-class goal in cost of 105 percent of the award value. This is due to the quality assurances and control of both in-house and consultant designs. Additionally, the Department strives to meet or beat the industry standard of 120 percent of the originally scheduled contract time and has made consistent improvements in this arena. The improvement is reflected in the data that shows that recent close outs of projects started in 2009 had averaged over 200 percent of the original contract time, whereas those projects beginning in 2015 had averaged closer to 110 percent of the original contract time.

• Resource Recovery

Four of the District's WRPs produce digester gas, also known as "biogas," which is a byproduct of the anaerobic digestion process. Biogas is used as a fuel source in boilers at the four WRPs to produce steam or hot water which is used to heat the digesters and plant buildings. However, not all of the biogas is fully utilized throughout the year. The District will evaluate technologies and opportunities for utilizing 100 percent of the biogas production at each of the WRPs to increase the quantity of resources recovered, reduce dependence on purchased energy, and reduce the District's carbon footprint. The District will also investigate pre-digestion treatment technologies and processes which may increase biogas production. Analysis of options will include a review of financial return on investment, carbon offsets, and market risks.

Water is an extremely valuable resource and the District's effluent is of exceptionally high quality. The Engineering Department is pursuing opportunities for water reuse by entities external to the District. In 2018, the District sold reclaimed wastewater to Intren LLC, a Women-owned Business Enterprise and innovative utility solutions partner of the energy industry. While the amount sold was relatively small, it was an important step to promote conservation and recycling and demonstrate the feasibility and benefits of water reuse. Additionally, Koppers, Inc., a global manufacturer and distributer located near the Stickney WRP, continues to express interest in pursuing reuse water at their plant and the District continues to look for other opportunities to supply reclaimed water.

In order to optimize aeration processes and reduce energy consumption, the Engineering Department has worked with the Monitoring & Research and Maintenance & Operations Departments to implement an ammonia control system. To realize savings from these control strategies, the existing large blowers at the Stickney WRP must be evaluated for optimized operation. Currently, the Engineering Department is evaluating the complex piping configuration to determine the improvements required to reliably provide the reduced air flow equally to all four aeration batteries. Also, the Engineering Department is evaluating the turn-down capacity of the existing large blowers in order to determine if air reduction from a new blower control system can be realized.

Specifications are in place for every Engineering Department Capital Improvement Program project that includes administrative and procedural requirements for the recycling and disposing of non-hazardous construction and demolition waste. The waste includes building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations, including packaging materials. Under this specification, the contractor is required to develop a Waste Management Plan that results in a recycling rate of 60 percent by weight of total waste generated by the work. This plan must include how the weights of each type of debris will be calculated and documented. The District's goal is to recycle as much non-hazardous construction and demolition waste as possible.

Capital Improvements Bond Fund Program

Awards in 2019

Project Name	Project Number	Est. Construction Cost	Duration (days)	Est. Award Date
Drop Shaft 5 Inspection and Rehabilitation, NSA	14-372-3S	$ 3,500	212	Jan 2019
Furnish, Deliver, and Install Disc Filters, EWRP	18-702-31	4,000	730	Jan 2019
Energy Efficiency Improvements, SWRP	19-901-31	5,820	364	Jan 2019
Phosphorus Removal Struvite Facilities at the Fox River Water Reclamation District	18-IGA-35	2,493	659	Feb 2019
Digester Rehabilitation and Gas Piping Replacement, SWRP	17-140-3P	15,000	704	Mar 2019
North Side Sludge Pipeline Replacement - Section 1, NSA	07-027-3S	14,327	922	Apr 2019
Odor Control Systems at Two TARP Shafts and Decommissioning the Thornton Transitional Reservoir, CSA	15-266-4H	5,000	452	Apr 2019
Phosphorus Removal Liquid Facilities at the Fox River Water Reclamation District	18-IGA-36	9,340	921	Apr 2019
Modifications to TARP Structures, CSA and SSA	17-842-3H	3,500	317	May 2019
Digester Sludge Heating System Upgrades and Boiler Removal, CWRP	18-277-3M	10,500	493	Jun 2019
Rehabilitation of Steel Spandrel Beams of Pump and Blower House, OWRP	15-069-3D	10,000	903	Jul 2019
Rehabilitation of Elevator Shafts, MSPS	18-142-3H	1,500	412	Oct 2019
Rehabilitation of TARP Pumps, MSPS	18-144-3M	16,500	672	Oct 2019
Furnish, Deliver, and Install Disc Filters for Filters 3 and 4, HPWRP	19-701-31	1,400	517	Oct 2019
Roof Replacement of the Lue-Hing M&R Complex, SWRP	17-135-3V	6,500	493	Nov 2019
Rehabilitation of Locomotive Terminal Building, SWRP	18-143-3D	2,750	532	Nov 2019
Sidestream Enhanced Biological Phosphorus Removal Pilot Study, CWRP	18-248-3P	1,000	252	Nov 2019
Upper Des Plaines Intercepting Sewer 14B Rehabilitation, NSA	06-360-3S	6,700	313	Dec 2019
North Shore 1 Rehabilitation, NSA	10-047-3S	22,750	602	Dec 2019
Stickney Effluent Reuse Line, SSA	14-107-3S	800	193	Dec 2019
Total 2019 Awards		$ 143,380		

Projects Under Development

Project Name	Project Number	Est. Construction Cost	Duration (days)	Est. Award Date
A/B and C/D Service Tunnel Rehabilitation - Phase III, SWRP	16-127-3D	$ 17,000	1,047	Jan 2020
Battery B Final Settling Tanks, Rehabilitation of Concrete, SWRP	16-128-3D	2,000	381	Jan 2020
Utility Tunnel Cracks and Expansion Joints Rehabilitation, OWRP, KWRP, EWRP, HPWRP	17-843-3D	3,000	334	Mar 2020
BioP Pilot Study, EWRP	18-414-3P	500	364	Mar 2020
39th Street Conduit Rehabilitation - Phase II, SSA	01-103-AS	24,700	690	Apr 2020
Battery D Final Settling Tanks, Rehabilitation of Concrete, SWRP	16-130-3D	2,000	472	May 2020
Upper Des Plaines Intercepting Sewer 11D, Ext. C Rehabilitation, NSA	11-404-3S	5,500	402	Jun 2020
Upper Des Plaines Intercepting Sewer 11D Rehabilitation, NSA	12-369-3S	5,500	402	Jul 2020
Battery A Final Settling Tanks, Rehabilitation of Concrete, SWRP	08-174-3D	2,000	450	Aug 2020
Gate Control Equipment Upgrade at TARP Control Structures, KWRP	06-358-3M	2,200	552	Nov 2020
Battery C Final Settling Tanks, Rehabilitation of Concrete, SWRP	16-129-3D	2,000	472	Nov 2020
Digester Rehabilitation and Gas Piping Replacement, CWRP	18-253-3P	15,000	772	Nov 2020
Digester Gas Utilization Facilities, SWRP	11-189-3P	17,000	683	Jan 2021
Post-Digestion Dewatering System, CWRP	17-275-3P	15,000	492	Jan 2021
Palos Hills Pumping Station Force Main, CSA	11-242-3S	6,700	572	Feb 2021
Deammonification System, SWRP	13-101-3P	30,000	503	May 2021
McCook Reservoir Expanded Stage 2 Rock Wall Stabilization, SWRP	17-131-4F	5,000	1,230	Jan 2022
Phosphorus Recovery System, CWRP	12-245-3P	31,000	853	Aug 2022
McCook Reservoir Expanded Stage 2 Aeration and Floor Features, SSA	17-132-4F	2,000	317	Jan 2026
Total Future Awards		$ 188,100		
Cumulative 2019 and Future Awards		$ 331,480		

*This project is funded by the Capital Improvements Bond Fund and the Stormwater Management Fund.

Note: All cost figures are in thousands of dollars; inflation factor is 0 percent.

Bold type indicates projects to be financed by "Unlimited Tax Bonds."

	Method of Financing		
	State Revolving Fund Loans	General Obligation Bonds	Total
Tunnel and Reservoir Plan	$ 16,500	$ 5,000	$ 21,500
Water Reclamation Plant Expansion and Improvements	39,200	46,853	86,053
Solids Management	84,827	15,000	99,827
Collection Facilities	32,200	91,900	124,100
Replacement of Facilities	—	—	—
Other	—	—	—
	$ 172,727	$ 158,753	$ 331,480

Projects Under Construction

Projects Under Construction in the Capital Improvements Bond Fund were appropriated in prior years using the full encumbrance (obligation) method of budgetary accounting. The construction contract award amount and the anticipated completion date are provided in this table.

Project Name	Project Number	Est. Construction Cost	Award Date	Est. Substantial Completion Date
Thornton Composite Reservoir Mining, Land, and Corp Costs, CSA	77-235-2F	$ 52,806	Jun 1998	Oct 2020
McCook Reservoir Stages 1 & 2, SSA	73-161-2H	137,500	May 1999	Oct 2023
D799 Switchgear Replacement, SWRP	09-182-3E	12,771	Dec 2015	Mar 2020
A/B & C/D Service Tunnel and Connecting Tunnel Rehabilitation - Phase II, SWRP	04-132-3D	20,906	May 2016	May 2019
McCook Reservoir Des Plaines Inflow Tunnel	13-106-4F	107,831	Jun 2016	May 2020
Painting of Final Tanks, Various Locations	17-601-31	1,582	Jul 2017	Dec 2019
Conversion of Two Gravity Concentration Tanks to Primary Sludge Fermenters, SWRP	15-124-3P	4,095	Sep 2017	Jun 2019
Furnish, Deliver, and Install Boiler Controls, SWRP	16-901-31	1,224	Sep 2017	Mar 2019
Installation of Baffle Plates in Final Settling Tanks, OWRP	15-074-3D	1,405	Nov 2017	Aug 2019
Installation of Shaftless Screw Conveyors for Aerated Grit Tanks, SWRP	17-902-31	2,595	Dec 2017	Jan 2021
Heavy Equipment Storage Building Site Improvements, Bulk Material Storage Building, CWRP and OWRP	17-845-3P	1,962	Apr 2018	Mar 2019
Emerson Ovation Distributed Control System, NSA	18-704-31	1,802	May 2018	Nov 2019
Rehabilitation of North Branch Pumping Station, NSA	16-079-3D	4,613	Aug 2018	Nov 2019
Summit Conduit Rehabilitation, SSA	16-126-3SR	2,900	Aug 2018	Jul 2019
Switchgear & Motor Control Center Replacement, OWRP	17-080-3E	3,577	Sep 2018	Jul 2020
Installation and Removal of Cofferdam at Sluice Gate No. 2, Lockport Powerhouse Controlling Works, SSA	18-607-31	350	Sep 2018	Aug 2019
Structural Repairs and Roofing Replacement at 95th Street Pumping Station, CSA	17-276-3D	5,000	Nov 2018	Sep 2020
Furnish, Deliver, and Install Telemetry Replacement for SCADA Control, Various Locations	17-606-31	545	Nov 2018	Oct 2019
Rehabilitation of Gravity Concentration Tank, CWRP	18-803-31	1,650	Nov 2018	Dec 2019
Replacement of Tailrace Stop Logs, Headrace Gates, and Equipment at Lockport Powerhouse, SSA	15-830-3D	10,000	Dec 2018	Aug 2020
Pump Rehabilitation and Diverter Gate Installation, EWRP	16-412-3M	550	Dec 2018	Nov 2019
Odor Control Facilities at WASSTRIP®, Southwest Coarse Screen and Overhead Weir, and Post-Centrifuge Building, SWRP	17-134-3M	15,000	Dec 2018	Jul 2020
Furnish, Deliver and Install Odor Control System, KWRP, HPWRP, and CWRP	17-844-3P	4,347	Dec 2018	Apr 2020
Total Projects Under Construction		$ 395,011		

Note: All cost figures are in thousands of dollars; inflation factor is 0 percent.

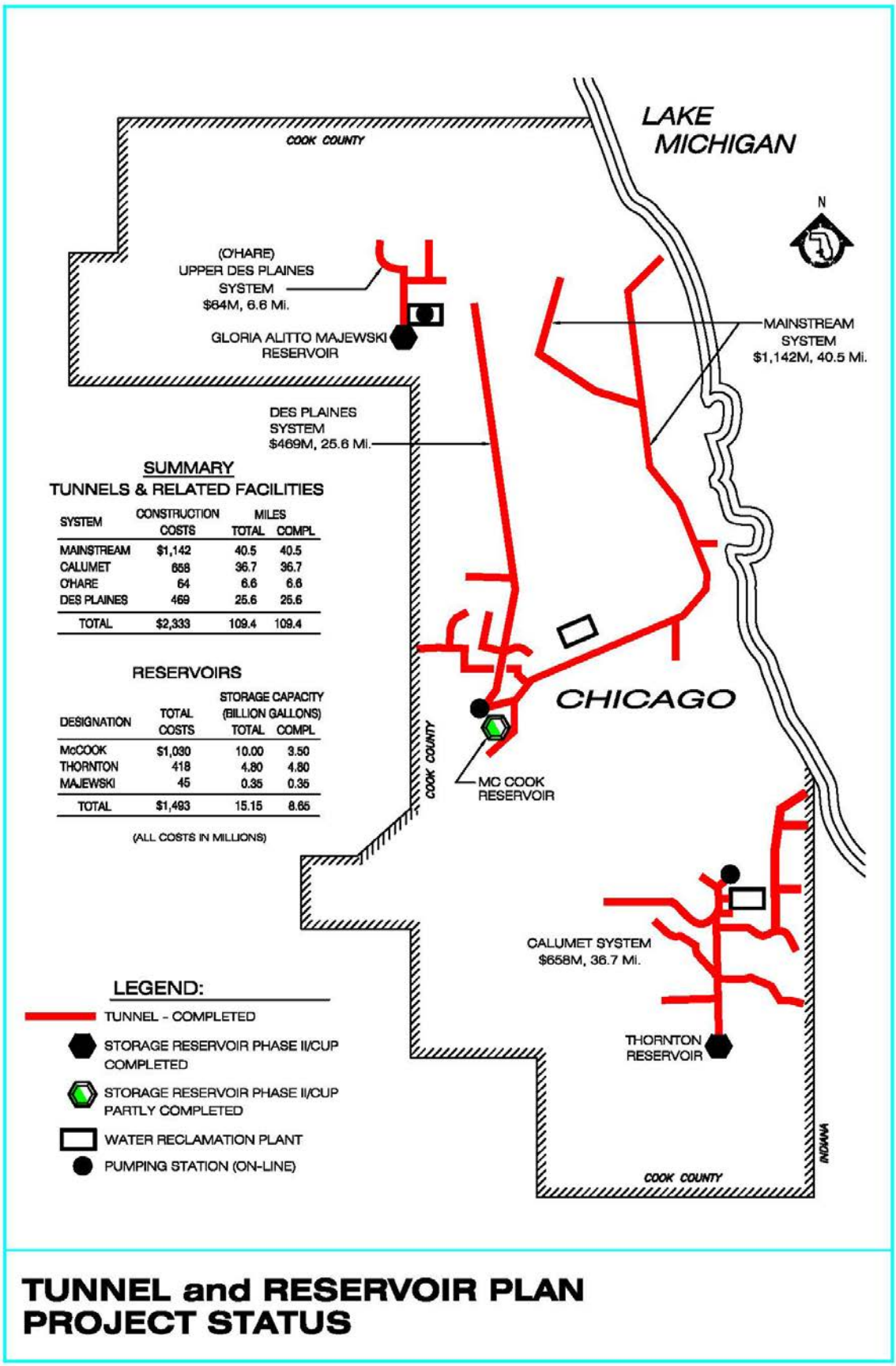
Bold type indicates projects to be financed by "Unlimited Tax Bonds."

TARP PHASE II PROJECT COSTS

Phase I of TARP was completed in 2006 and two of the Phase II reservoirs, Majewski and Thornton, are now fully operational. Stage 1 of the McCook Reservoir became operational in December 2017 and Stage 2 will continue to be mined with completion scheduled for 2029. Though only partially complete, TARP has already been effective in reducing pollution and flooding. The Phase II Reservoir project costs are shown in the table below.

Project Name	Project Number	Design/Construction Status	Project Costs (4)	Funded by Army Corps of Engineers
Majewski Reservoir				
I - Army Corps of Engineers Contracts	73-315-2S	Construction completed in 1998	$40,818,858	75%
II - Betterments (1)	93-339-2F	Construction completed in 1998	$3,991,694	No
Thornton Reservoir				See Note (3)
I - Vincennes Avenue Relocation	77-235-AF	Construction completed in 2001	$4,398,000	
II - Transitional Reservoir GW Monitoring Wells	77-235-CF	Construction completed in 2002	$529,000	
III - Transitional Reservoir (2)	77-235-BF	Construction completed in 2003	$54,707,000	
IV - Mining, Land, and Corps Costs	77-235-2F	Mining completed in 2013	$65,210,000	
V - Tollway Dam and Grout Curtain	04-201-4F	Construction completed in 2015	$80,750,000	
VI - TARP Inlet/Outlet Tunnels and Gates	04-202-4F	Construction completed in 2015	$147,000,000	
VII - Final Reservoir Preparation	04-203-4F	Construction completed in 2015	$63,479,000	
VIII - Surface Aeration	04-203-AF	Construction completed in 2017	$1,921,000	
McCook Reservoir				
I - Stages 1 and 2 - Army Corps of Engineers Contracts	73-161-2H	Reservoir constructed under several contracts	$675,000,000	75%
II - Site Preparation, Lagoons 1-10	73-161-BH	Construction completed in 2000	$889,000	$307,000 Credited
III - 73rd Street Tunnel Relocation	97-156-2H	Construction completed in 2002	$15,132,000	Credited
IV - Willow Springs Berm	96-249-2P	Construction completed in 2002	$3,593,000	No
V - Vulcan Primary Crusher Furnish and Deliver	PO3030920	Crusher purchased in 2005	$1,626,000	No
VI - Conveyance Tunnel	73-161-AH	Construction completed in 2006	$5,428,000	No
VII - Vulcan Mining Trucks and Loaders	73-161-HH	Vehicles delivered in 2007	$11,105,000	No
VIII - Vulcan Miscellaneous Mining Vehicles	73-161-GH	Vehicles delivered in 2007 and 2008	$4,989,000	No
IX - Conveyance System and Maintenance Facilities	73-161-FH	Construction completed in 2008	$32,381,000	$1.84M Credited
X - LASMA Overburden Removal	73-161-CH	Construction completed in 2010	$66,316,000	No
XI - Vulcan Rock Mining Hard Costs Less Royalty	73-161-EH	Mining underway	$61,695,000	No
XII - Stage 2 Miscellaneous Overburden Removal	73-161-JH	Construction completed in 2012	$6,510,000	No
XIII - Expanded Stage 2 Overburden Removal	73-161-DH	Construction completed in 2016	$18,743,000	No
XIV - Des Plaines Inflow Tunnel	13-106-4F	Construction underway in 2016	$112,237,000	No
XV - Expanded Stage 2 Slope Stabilization	16-125-4F	Construction underway in 2017	$8,765,000	No
XVI - Expanded Stage 2 Rock Wall Stabilization	17-131-4F	Future	$5,000,000	No
XVII - Expanded Stage 2 Aeration and Floor Features	17-132-4F	Future	$2,000,000	No
		Total Project Cost	$1,494,213,552	

Notes:
(1) Betterment includes a control building, reservoir outflow control gates, and monitoring system.
(2) Cost shown is total cost of Transitional Reservoir. Facilities that will be re-used for the Thornton Composite Reservoir account for $30,337,000 of the cost.
(3) The District designed and constructed the Thornton Composite Reservoir in anticipation of receiving reimbursement or credits from the Army Corps of Engineers.
(4) Includes land, engineering, and construction costs.



TUNNEL and RESERVOIR PLAN PROJECT STATUS

CAPITAL PROJECTS LISTED BY SERVICE AREA - CAPITAL IMPROVEMENTS BOND FUND

The following is a list of capital projects within the District's three major service areas. They are presented by their association with a water reclamation plant (WRP) and by their completion status: projects under construction, for 2019 award, or under development.

Bold type indicates projects to be financed by "Unlimited Tax Bonds."

STICKNEY SERVICE AREA (SSA)

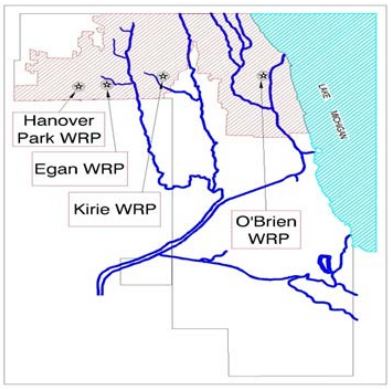
Stickney Water Reclamation Plant (SWRP)

		Projects Under Construction	Estimated Substantial Completion Date		Estimated Construction Cost
73-161-2H		**McCook Reservoir Stages 1 & 2, SSA**	10/23	$	137,500,000
04-132-3D		A/B & C/D Service Tunnel and Connecting Tunnel Rehabilitation - Phase II, SWRP	5/19		20,905,936
09-182-3E		D799 Switchgear Replacement, SWRP	3/20		12,770,509
11-186-3F	^	Addison Creek Reservoir, SSA	12/21		95,155,000
13-106-4F		**McCook Reservoir Des Plaines Inflow Tunnel**	5/20		107,830,897
14-263-3F	^	Melvina Ditch Reservoir Improvements, SSA	5/21		14,245,000
15-124-3P		Conversion of Two Gravity Concentration Tanks to Primary Sludge Fermenters, SWRP	6/19		4,094,860
15-830-3D		Replacement of Tailrace Stop Logs, Headrace Gates, and Equipment at Lockport Powerhouse, SSA	8/20		10,000,000
16-126-3SR		Summit Conduit Rehabilitation, SSA	7/19		2,900,000
16-901-31		Furnish, Deliver, and Install Boiler Controls, SWRP	3/19		1,224,000
16-IGA-20	^	Pilot Study for Investigating Technology to Address Basement Backups, CSA	12/20		400,000
17-134-3M		Odor Control Facilities at WASSTRIP®, Southwest Coarse Screen and Overhead Weir, and Post-Centrifuge Building, SWRP	7/20		15,000,000
17-601-31		Painting of Final Tanks, Various Locations	12/19		1,582,100
17-606-31		Furnish, Deliver, and Install Telemetry Replacement for SCADA Control, Various Locations	10/19		545,000
17-844-3P		Furnish, Deliver and Install Odor Control System, KWRP, HPWRP, and CWRP	4/20		4,347,000
17-902-31		Installation of Shaftless Screw Conveyors for Aerated Grit Tanks, SWRP	1/21		2,595,000
18-607-31		Installation and Removal of Cofferdam at Sluice Gate No. 2, Lockport Powerhouse Controlling Works, SSA	8/19		350,000
			Total	**$**	**431,445,302**
Projects for 2019 Award					
11-187-3F	^	Addison Creek Channel Improvements, SWRP		$	42,607,981
14-107-3S		Stickney Effluent Reuse Line, SSA			800,000

Stickney Water Reclamation Plant (SWRP)

			Estimated Construction Cost
Projects for 2019 Award (continued)			
17-135-3V	Roof Replacement of the Lue-Hing M&R Complex, SWRP	$	6,500,000
17-140-3P	Digester Rehabilitation and Gas Piping Replacement, SWRP		15,000,000
17-842-3H	Modifications to TARP Structures, CSA and SSA		3,500,000
18-142-3H	Rehabilitation of Elevator Shafts, MSPS		1,500,000
18-143-3D	Rehabilitation of Locomotive Terminal Building, SWRP		2,750,000
18-144-3M	Rehabilitation of TARP Pumps, MSPS		16,500,000
19-901-31	Energy Efficiency Improvements, SWRP		5,820,000
	Total	**$**	**94,977,981**
Projects Under Development			
01-103-AS	39th Street Conduit Rehabilitation - Phase II, SSA	$	24,700,000
08-174-3D	Battery A Final Settling Tanks, Rehabilitation of Concrete, SWRP		2,000,000
11-189-3P	Digester Gas Utilization Facilities, SWRP		17,000,000
13-101-3P	Deammonification System, SWRP		30,000,000
16-127-3D	A/B and C/D Service Tunnel Rehabilitation - Phase III, SWRP		17,000,000
16-128-3D	Battery B Final Settling Tanks, Rehabilitation of Concrete, SWRP		2,000,000
16-129-3D	Battery C Final Settling Tanks, Rehabilitation of Concrete, SWRP		2,000,000
16-130-3D	Battery D Final Settling Tanks, Rehabilitation of Concrete, SWRP		2,000,000
17-131-4F	**McCook Reservoir Expanded Stage 2 Rock Wall Stabilization, SWRP**		5,000,000
17-132-4F	**McCook Reservoir Expanded Stage 2 Aeration and Floor Features, SSA**		2,000,000
	Total	**$**	**103,700,000**
	Stickney Service Area Grand Total	**$**	**630,123,283**

NORTH SERVICE AREA (NSA)



Terrence J. O'Brien Water Reclamation Plant (OWRP)

		Estimated Substantial Completion Date		Estimated Construction Cost
Projects Under Construction				
15-074-3D	Installation of Baffle Plates in Final Settling Tanks, OWRP	8/19	$	1,405,000
16-079-3D	Rehabilitation of North Branch Pumping Station, NSA	11/19		4,613,450
17-080-3E	Switchgear & Motor Control Center Replacement, OWRP	7/20		3,577,000
18-704-31	Emerson Ovation Distributed Control System, NSA	11/19		1,802,000
		Total	**$**	**11,397,450**
Projects for 2019 Award				
07-027-3S	North Side Sludge Pipeline Replacement - Section 1, NSA		$	14,326,850
10-047-3S	North Shore 1 Rehabilitation, NSA			22,750,000
15-069-3D	Rehabilitation of Steel Spandrel Beams of Pump and Blower House, OWRP			10,000,000
18-IGA-35	Phosphorus Removal Struvite Facilities at the Fox River Water Reclamation District			2,492,880
18-IGA-36	Phosphorus Removal Liquid Facilities at the Fox River Water Reclamation District			9,339,600
		Total	**$**	**58,909,330**
Projects Under Development				
17-843-3D	Utility Tunnel Cracks and Expansion Joints Rehabilitation, OWRP, KWRP, EWRP, HPWRP		$	3,000,000
		Total	**$**	**3,000,000**

John E. Egan Water Reclamation Plant (EWRP)

Projects Under Construction				
16-412-3M	Pump Rehabilitation and Diverter Gate Installation, EWRP	11/19	$	550,000
		Total	**$**	**550,000**
Projects for 2019 Award				
18-702-31	Furnish, Deliver, and Install Disc Filters, EWRP		$	4,000,000
		Total	**$**	**4,000,000**
Project Under Development				
11-404-3S	Upper Des Plaines Intercepting Sewer 11D, Ext. C Rehabilitation, NSA		$	5,500,000
18-414-3P	BioP Pilot Study, EWRP			500,000
		Total	**$**	**6,000,000**

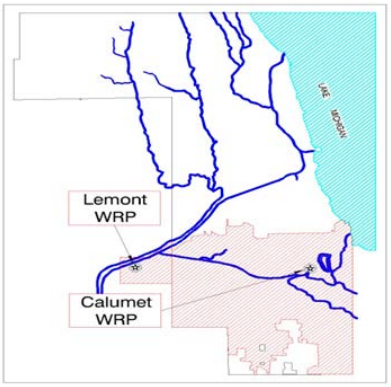
James C. Kirie Water Reclamation Plant (KWRP)

		Estimated Substantial Completion Date		Estimated Construction Cost
Projects Under Construction				
13-370-3F ^*	Buffalo Creek Reservoir Expansion, NSA	3/20	$	8,597,900
		Total	**$**	**8,597,900**
Projects for 2019 Award				
06-360-3S	Upper Des Plaines Intercepting Sewer 14B Rehabilitation, NSA		$	6,700,000
14-372-3S	Drop Shaft 5 Inspection and Rehabilitation, NSA			3,500,000
		Total	**$**	**10,200,000**
Projects Under Development				
06-358-3M	Gate Control Equipment Upgrade at TARP Control Structures, KWRP		$	2,200,000
12-369-3S	Upper Des Plaines Intercepting Sewer 11D Rehabilitation, NSA			5,500,000
		Total	**$**	**7,700,000**

Hanover Park Water Reclamation Plant (HPWRP)

Projects for 2019 Award				
19-701-31	Furnish, Deliver, and Install Disc Filters for Filters 3 and 4, HPWRP		$	1,400,000
		Total	**$**	**1,400,000**
		North Service Area Grand Total	**$**	**111,754,680**

CALUMET SERVICE AREA (CSA)



Calumet Water Reclamation Plant (CWRP)

		Projects Under Construction	Estimated Substantial Completion Date		Estimated Construction Cost
77-235-2F		**Thornton Composite Reservoir Mining, Land, and Corp Costs, CSA**	10/20	$	52,805,539
10-882-CF	^	Streambank Stabilization Project along Midlothian Creek in Tinley Park, CSA	1/22		645,000
17-276-3D		Structural Repairs and Roofing Replacement at 95th Street Pumping Station, CSA	9/20		5,000,000
17-845-3P		Heavy Equipment Storage Building Site Improvements, Bulk Material Storage Building, CWRP and OWRP	3/19		1,961,700
18-803-31		Rehabilitation of Gravity Concentration Tank, CWRP	12/19		1,650,000
			Total	**$**	**62,062,239**
		Projects for 2019 Award			
10-882-AF	^	Streambank Stabilization Project on Tinley Creek, CSA		$	3,806,000
13-248-3F	^	Streambank Stabilization Project on Melvina Ditch in Oak Lawn and Chicago Ridge, CSA			8,800,000
15-266-4H		**Odor Control Systems at Two TARP Shafts and Decommissioning the Thornton Transitional Reservoir, CSA**			5,000,000
15-IGA-14	^*	Construction of a Levee along Thorn Creek at Arquilla Park, Glenwood, CSA			3,483,000
17-IGA-04	^	Land Acquisition for a Flood Control Project in the vicinity of 131 Street and Cypress Drive in Palos Heights, CSA			370,000
18-248-3P		Sidestream Enhanced Biological Phosphorus Removal Pilot Study, CWRP			1,000,000
18-277-3M		Digester Sludge Heating System Upgrades and Boiler Removal, CWRP			10,500,000
			Total	**$**	**32,959,000**

Calumet Water Reclamation Plant (CWRP)

		Projects Under Development			
11-242-3S		Palos Hills Pumping Station Force Main, CSA		$	6,700,000
12-245-3P		Phosphorus Recovery System, CWRP			31,000,000
17-275-3P		Post-Digestion Dewatering System, CWRP			15,000,000
18-253-3P		Digester Rehabilitation and Gas Piping Replacement, CWRP			15,000,000
			Total	**$**	**67,700,000**
			Calumet Service Area Grand Total	**$**	**162,721,239**
			Capital Projects Grand Total - All Service Areas	**$**	**904,599,202**

^ These projects are part of the Stormwater Management Program. Detailed information about this fund and these projects appears in Section VI of this budget document.

* These projects are funded by the Capital Improvements Bond Fund and the Stormwater Management Fund.

McCook Reservoir Stages 1 & 2, SSA

Project Number	73-161-2H
Service Area	Stickney
Location	Lawndale Avenue Solids Management Area
Engineering Consultant	Army Corps of Engineers
Engineering Contractor	Army Corps of Engineers
Estimated Construction Cost	$137,500,000.00
Contract Award Date	May-99
Substantial Completion Date	October-23

Project Description

The Army Corps of Engineers is designing and constructing this project. The Army Corps of Engineers is responsible for designing and constructing the reservoir features. This work includes groundwater protection, soil and rock wall stabilization, aeration, connecting tunnels, associated gates, valves, shafts and controls, and other miscellaneous features.

The McCook Reservoir will provide 10 billion gallons of storage for combined sewer overflows located at the Lawndale Avenue Solids Management Area facility and will be built in two stages. As the local sponsor, the District will pay 25 percent of the total cost.

Project 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. The McCook Reservoir will provide $143 million per year in benefits to 3.1 million people in 37 communities.

Project Status

Construction

Thornton Composite Reservoir Mining, Land, and Corp Costs, CSA

Project Number	77-235-2F
Service Area	Calumet
Location	Thornton TARP
Engineering Consultant	Not Applicable
Engineering Contractor	Not Applicable
Estimated Construction Cost	$52,805,539.00
Contract Award Date	June-98
Substantial Completion Date	October-20

Project Description An agreement was entered into between the District and Material Service Corporation 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 and use of the west lobe for the transitional reservoir.

Project Justification Allows for the use of the Thornton Composite Reservoir to capture combined sewer overflows and for the Thornton Transitional Reservoir to capture flood waters from Thorn Creek.

Project Status Construction

A/B & C/D Service Tunnel and Connecting Tunnel Rehabilitation - Phase II, SWRP

Project Number	04-132-3D
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	IHC Construction Companies, LLC and F.H. Paschen, S.N. Nielsen Joint Venture
Estimated Construction Cost	$20,905,936.00
Contract Award Date	May-16
Substantial Completion Date	May-19

Project Description This project will rehabilitate approximately 200 feet of the A/B Service Tunnel north of Column Line 10, 135 feet of the C/D Service Tunnel between Column Lines 10 and 25, and 150 feet of the service tunnel connecting the A/B and C/D Service Tunnels. Significant structural deterioration has occurred since the tunnels were constructed approximately 77 years ago. (This project combines the scope of work for projects 04-132-3D and 04-133-3D.)

Project 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.

Project Status Construction

Upper Des Plaines Intercepting Sewer 14B Rehabilitation, NSA

Project Number	06-360-3S
Service Area	North
Location	Wheeling, IL
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$6,700,000.00
Contract Award Date	December-19
Substantial Completion Date	October-20

Project Description Project consists of rehabilitating 2,902 feet of 48-inch diameter sewer and 11,902 feet of 69-inch diameter sewer by cured-in-place pipe lining and/or the slip lining method, rehabilitating 27 manholes/structures and the abandonment of one offset manhole, which is part of a control structure, and 85 feet of 3.5 feet by 4.5 feet pipe.

Project Justification The 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 the manholes revealed cracks and holes in the walls and bases of the manholes and in one offset manhole, which is part of a control structure, and 85 feet of 3.5 feet by 4.5 feet pipe.

Project Status Design

North Side Sludge Pipeline Replacement - Section 1, NSA

Project Number	07-027-3S
Service Area	North
Location	Skokie, Lincolnwood, and Chicago, IL
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$14,326,850.00
Contract Award Date	April-19
Substantial Completion Date	October-21
Project Description	The purpose of this project is to replace Section 1 of the existing North Side Sludge Pipeline and rehabilitate 42 existing structures located in the Villages of Skokie and Lincolnwood and the City of Chicago.
Project Justification	Due to external corrosion and damage caused by construction activities of others in the area, the pipeline developed a number of holes over the years resulting in sludge overflowing into the North Shore Channel. In order to increase the reliability of sludge conveyance, the pipeline needs to be rehabilitated and/or replaced. The structures were inspected by the Maintenance & Operations Department in January 2008 with a closed-circuit television inspection system and by physical inspection. The video inspection shows that the piping and valves inside the structures have corroded. Due to the importance of the North Side Sludge Pipeline, the piping and valves in the 42 structures will be removed and replaced. New automatic air release valves will be installed in the remaining existing structures to preserve the useful life of those structures.
Project Status	Design

D799 Switchgear Replacement, SWRP

Project Number	09-182-3E
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	Electrical Systems, Inc.
Estimated Construction Cost	$12,770,509.00
Contract Award Date	December-15
Substantial Completion Date	March-20

Project Description Replacement of the medium voltage switchgear and feeder cables in D799 at the Stickney WRP. This equipment is beyond its useful life and must be replaced. The new equipment will be arc flash resistant to comply with new electric codes.

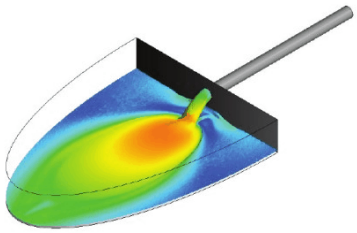
Project Justification The medium voltage switchgear and cables are over 30 years old. Failure of a tie breaker in 2009 caused the Stickney WRP facility to be out of service. Replacement of the switchgear would improve reliability, reduce the risk of failure, provide enhanced safety features, and provide 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. They will be replaced to avoid a catastrophic failure.

Project Status Construction

North Shore 1 Rehabilitation, NSA

Project Number	10-047-3S
Service Area	North
Location	Kenilworth, Winnetka, and Wilmette, IL
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$22,750,000.00
Contract Award Date	December-19
Substantial Completion Date	August-21
Project Description	Rehabilitation of a 10,110 foot long six feet by nine feet sewer, a 4,257 foot long, six feet by eight feet sewer, and 22 manhole structures in Kenilworth, Winnetka, and Wilmette.
Project Justification	The sewers were inspected by the Maintenance & Operations Department with a closed-circuit television inspection system. The video shows infiltration and concrete/metal deterioration due to hydrogen sulfide. In order to restore the hydraulic and structural integrity of the sewers, they need to be rehabilitated. The manholes and structures exhibit similar signs of deterioration and need to be rehabilitated. Construction of new manholes along the Evanston Intercepting Sewer is necessary to provide access to the sewer at pipe bends and longer segments. Rehabilitation of the North Shore 1 manholes is required because the manholes were not rehabilitated when that sewer was rehabilitated in 1998.
Project Status	Design

McCook Reservoir Des Plaines Inflow Tunnel



Project Number	13-106-4F
Service Area	Stickney
Location	Lawndale Avenue Solids Management Area
Engineering Consultant	Black & Veatch Corporation, Inc.
Engineering Contractor	Walsh Construction Company II, LLC
Estimated Construction Cost	$107,830,897.00
Contract Award Date	June-16
Substantial Completion Date	May-20
Project Description	This project consists of the construction of an approximately 20-foot diameter tunnel that will connect the Des Plaines tunnel directly to the McCook Reservoir and includes a gate shaft, primary gate, backup gate, gate control building, temporary construction access shaft, tunnel portal and highwall stability measures, and an energy dissipation apron with baffle blocks. The project also includes the demolition of an existing concrete tunnel plug, making a live connection to the existing Des Plaines Tunnel System and future McCook Reservoir, installation of reservoir level and tunnel inflow instrumentation, installation of duct banks, conduits, wiring, lighting, and electrical equipment, installation of permanent perimeter fencing, and performance of other work.
Project 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. The tunnel is required to provide adequate conveyance of combined sewer overflows from the Des Plaines tunnel to the reservoir. The tunnel will improve upon the conveyance plan formulated by the Army Corps of Engineers, which includes undesirable flow restrictions.
Project Status	Construction

Stickney Effluent Reuse Line, SSA

Project Number	14-107-3S
Service Area	Stickney
Location	Stickney, IL
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$800,000.00
Contract Award Date	December-19
Substantial Completion Date	July-20

Project Description

This project consists of the installation of 2,000 linear feet of six-inch diameter pressure pipe by directional drilling and the installation of air relief, blow off, and clean-out structures.

This project will be used to design a force main between the Stickney WRP and Koppers Inc., a distiller of coal tar. The force main will deliver effluent water from the Stickney WRP to the Koppers plant. The District will receive payment for effluent water delivered to Koppers to be used in their industrial processes as gray water. The rate will be determined.

Project Justification

The project provides a source of treated effluent water for use in a process applications in the immediate vicinity of the Stickney WRP and represents the first of the effluent reuse opportunities to be constructed. The construction of the effluent line will result in a increase to the labor operating budget.

Project Status

Design

Drop Shaft 5 Inspection and Rehabilitation, NSA

Project Number	14-372-3S
Service Area	North
Location	Des Plaines, IL
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$3,500,000.00
Contract Award Date	January-19
Substantial Completion Date	August-19

Project Description

The project consists of the following rehabilitation work at Drop Shaft No. 5: Repair drop shaft by means of slip lining, repair 100 feet of 108-inch pipe by the cured-in-place lining process, repair 100 feet of the drop shaft exit conduit by spray-on lining, and the replacement of deteriorated appurtenances. Additionally, Drop Shaft No. 8 will have louvers and grating installed and Control Structure 10 will have Gate 11 removed and Gate 13 replaced along with the installation of a new actuator. The work also includes the installation of radar level measurement devices at three shafts on the Calumet tunnel system and the replacement of gates and stop logs on Drop Shaft DS-PI, which is part of the 39th Street Conduit.

Project Justification

Drop Shaft No. 5 was inspected visually by the Maintenance & Operations and Engineering Departments. The results of the visual inspection show concrete and metal deterioration due to hydrogen sulfide. In order to restore the structural integrity of the drop shaft and sewer, they need to be rehabilitated.

Drop Shaft No. 8 experiences large air displacement during Tunnel and Reservoir Plan fill events causing potential damage to the structure. Increasing the venting area will help in reducing this issue.

The gates within Control Structure 10 are non-operational. The Maintenance & Operations Department has requested the rehabilitation of one of the gates for diversion purposes and the removal of the other.

A bubbler instrumentation system was installed to measure and monitor water levels in the Tunnel and Reservoir Plan system. The District has found that the bubbler systems at these locations are unreliable and provide inaccurate data and need to be replaced.

During storm events in 2014, the stop logs at DS-P1 dislodged and passed through the dual flap gate bulkhead. As a result, the bottom flap gates were severely damaged in a manner that prevents proper operation.

Project Status Design

Rehabilitation of Steel Spandrel Beams of Pump and Blower House, OWRP

Project Number 15-069-3D

Service Area North

Location O'Brien WRP

Engineering Consultant In-house design

Engineering Contractor To be determined

Estimated Construction Cost $10,000,000.00

Contract Award Date July-19

Substantial Completion Date December-21

Project Description Repair and rehabilitation of the pump and blower house building roof and facade components at the O'Brien WRP. Besides protecting, repairing, and structurally strengthening steel frame beams and columns embedded in the masonry wall, the scope of work includes localized roof deck repair including roof slope remediation, full roofing membrane and insulation replacement, full masonry and flashing repairs at roof parapet walls, localized windows and exterior doors repairs, localized tuckpointing, and other miscellaneous repairs associated or incidental to facade/roof rehabilitation project. The District's Structural Architectural Section will be working with RME, Inc., a Chicago-based consulting company. District staff will manage the repair design process, review and approve all submitted repair documents, administer the contract, and oversee the repair construction. In addition, the District will manage the contract budget and payments. The project goal is to rehabilitate the pump and blower house roof and facade and to extend the building life span for another 50 to 90 years.

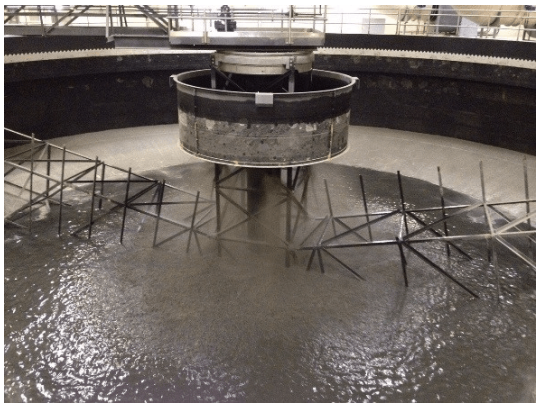
Project Justification The pump and blower house building has not undergone major structural repair since it was built in 1926. During its 90 years of service, the building experienced maintenance repairs (reroofing, window repair, and tuckpointing). During south parapet wall repair in 2013, it was observed that several steel spandrel beams that frame the upper roof and support the pump and blower house south parapet wall were severely corroded. The roof steel beams that are part of the building vertical (gravity) and lateral (wind/seismic) loads resisting system appeared compromised. Additionally, corrosion of the steel can result in severe deterioration of the masonry, water infiltration, and a potential for bulging and falling masonry. The parapet wall distress, which collapsed in May 2013 during the repair, was directly related to the severely corroded steel beams supporting the wall.

Project Status Design

Installation of Baffle Plates in Final Settling Tanks, OWRP

Project Number	15-074-3D
Service Area	North
Location	O'Brien WRP
Engineering Consultant	In-house design
Engineering Contractor	IHC Construction Companies, LLC
Estimated Construction Cost	$1,405,000.00
Contract Award Date	November-17
Substantial Completion Date	August-19
Project Description	The project will remove an existing steel and wood baffle plate in Final Settling Tank B-1. The contractor will also furnish and install circular, fiber reinforced plastic baffle plates and support framing under the bottoms of the influent wells in each of the converted final settling tanks.
Project Justification	A test baffle plate was installed in Final Settling Tank B-1 to see if the addition would improve the settling of solids in the tank. The test proved successful; therefore, installation of permanent baffle plates in the final settling tanks will improve the solids settling and removal process, which helps the District comply with its National Pollutant Discharge Elimination System limits.
Project Status	Construction

Conversion of Two Gravity Concentration Tanks to Primary Sludge Fermenters, SWRP



Project Number	15-124-3P
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	Independent Mechanical Industries, Inc.
Estimated Construction Cost	$4,094,860.00
Contract Award Date	September-17
Substantial Completion Date	June-19

Project Description This project will convert two of the new gravity concentration tanks into fermenters and install a pumping station to pump the fermentate directly into the West Side primary effluent conduit feeding the secondary aeration batteries. This project will also install a gas detection system for the new gravity concentration tank building.

Project Justification The District is pursuing Enhanced Biological Phosphorus Removal at the Stickney WRP for the recovery of phosphorus and meeting a new regulatory limit for phosphorus in the effluent. The fermentation of primary solids will result in an additional production of volatile fatty acids which will be fed directly in secondary treatment. The additional volatile fatty acids will be utilized in the Enhanced Biological Phosphorus Removal process, resulting in a more stable and better performing process. Additionally, code requirements for an enclosed gravity concentration tank area requires the installation of a combustible gas detection system.

Project Status Construction

Odor Control Systems at Two TARP Shafts and Decommissioning the Thornton Transitional Reservoir, CSA

Project Number	15-266-4H
Service Area	Calumet
Location	Thornton, IL
Engineering Consultant	Black & Veatch Corporation, Inc.
Engineering Contractor	To be determined
Estimated Construction Cost	$5,000,000.00
Contract Award Date	April-19
Substantial Completion Date	July-20

Project Description Work associated with decommissioning of the Thornton Transitional Reservoir includes excavation of existing rock plug in Thorn Creek Connection Tunnel, installation of east and west tunnel plugs in Thorn Creek Diversion Tunnel, placement of mass concrete fill between east tunnel plug and connection tunnel, installation of lining and contact grouting in portions of the connection tunnel and diversion tunnel, removal of concrete beams, rock support, and rock in the vicinity of the existing Thornton Transitional Reservoir Portal, removal of sediment in the Thornton Transitional Reservoir, installation of flow meter, bubbler, tubes, and all appurtenances related to flow meter installation in the lower connection tunnel, demolition of the existing 25-ton crane and crane rail within the valve shaft chamber, construction shaft concrete repairs (adjacent to the valve shaft chamber), removal of cone valves, knife gates, adjacent spool pieces, pipe supports, hydraulic power unit, hydraulic lines, and all appurtenant mechanical and electrical work inside the valve chamber, installation of a new dewatering pump, air release valves, gate valves, check valves, meters, piping, fittings and all appurtenant mechanical and electrical work inside the valve chamber, and any appurtenant live tunnel connection work associated with items listed above.

Project Justification The District entered into an agreement with Hansen Material Service to extend the lease for use of the Thornton Transitional Reservoir, and the west lobe of the Thornton Quarry, for another five years. This allows the District to utilize the Thornton Transitional Reservoir for holding overbank floodwaters from Thorn Creek while reviewing the capacity of the Thornton Composite Reservoir during its initial years of operation. With this agreement extension through December 2020, several items related to the decommissioning of the Thornton Transitional Reservoir were removed from Project 04-203-4F, Thornton Composite Reservoir Final Preparation. The purpose of this project (15-266-4H) is to complete the items that were removed and credited from Project 04-203-4F in preparation for the decommissioning of the Thornton Transitional Reservoir in late 2020.

Project Status Design

Replacement of Tailrace Stop Logs, Headrace Gates, and Equipment at Lockport Powerhouse, SSA

Project Number	15-830-3D
Service Area	Stickney
Location	Lockport Powerhouse
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$10,000,000.00
Contract Award Date	December-18
Substantial Completion Date	August-20
Project Description	Design, fabricate, and install tailrace stop logs for Bays 1 and 2. Replace headrace gates, tailrace stop logs, and associated hoist systems.
Project Justification	Headrace gates in Bays 1 and 2 are not properly functioning. The tailrace stop logs are rusted and are not functional. The tailrace hoist system is not operational. Consequently, the chambers of Bays 1 and 2 cannot be drained, and turbines cannot be inspected and maintained. These issues have delayed maintenance for several years. Ideally, turbines and other accessories require annual inspection and maintenance to prolong their life span.
Project Status	Design

Rehabilitation of North Branch Pumping Station, NSA

Project Number	16-079-3D
Service Area	North
Location	North Branch Pumping Station
Engineering Consultant	In-house design
Engineering Contractor	Path Construction Company Inc.
Estimated Construction Cost	$4,613,450.00
Contract Award Date	August-18
Substantial Completion Date	November-19

Project Description Provide grouted fiberglass fiber reinforced plastic jackets around the existing concrete columns to protect columns from erosion. Repair underwater deteriorated concrete of the east wall and under the deck wall. Repair deteriorated concrete stairs and concrete deck. Restore balustrade and deck lighting.

Project Justification This pumping station has five 300 cubic feet per second discharge pumps that discharge excess storm water into the river. The pipe outlets are a few feet below river water facing downward. The high velocity discharged water has caused severe erosion around the columns generally at the river bottom. As a result, concrete column cross sections have eroded more than 20 percent and, in some cases, up to 50 percent of the original size. Restoration of concrete columns is essential for the safe serviceability of the building. Also, concrete deck and stairs have spalled areas that need to be repaired.

Project Status Construction

Summit Conduit Rehabilitation, SSA

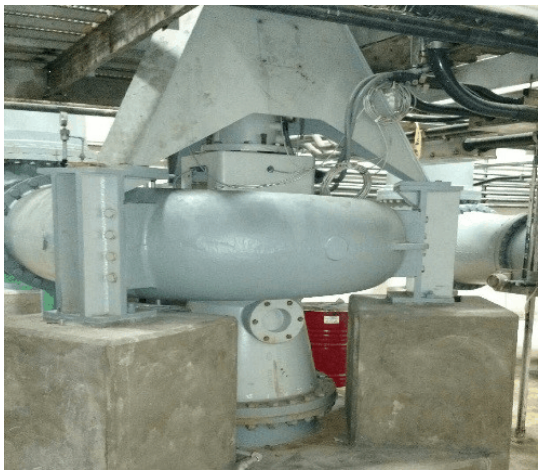
Project Number	16-126-3SR
Service Area	Stickney
Location	Lyons, IL
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$2,900,000.00
Contract Award Date	August-18
Substantial Completion Date	July-19

Project Description This project consists of the rehabilitation of 810 feet of six feet by seven feet semi-elliptic cast-in-place concrete sewer and inlet and outlet structures. The Summit Conduit begins on the northwest side of the Des Plaines River and extends southeast under the Des Plaines River and the Stevenson Expressway to the northwest side of the Chicago Sanitary and Ship Canal.

Project Justification The sewers were inspected by the Maintenance & Operations Department with a closed-circuit television inspection system. The video shows infiltration and concrete and metal deterioration due to hydrogen sulfide. In order to restore the hydraulic and structural integrity of the sewers, they need to be rehabilitated. The inlet/outlet structures show similar signs of deterioration and need to be rehabilitated.

Project Status Construction

Pump Rehabilitation and Diverter Gate Installation, EWRP



Project Number	16-412-3M
Service Area	North
Location	Egan WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$550,000.00
Contract Award Date	December-18
Substantial Completion Date	November-19

Project Description The purpose of this project is to rehabilitate Raw Sewage Pumps 1 and 2 at the Egan WRP. The work includes the replacement of the pump and motor bearings, seals, and related parts to restore the equipment to like-new condition. Also, two old-style centrifuge diverter gates will be replaced with slide gates furnished by the Maintenance & Operations Department. Hopper modifications will be made, as necessary, to allow for the installation of the diverter gates.

A centrate valve will be electrically actuated to allow controlled diversion and increased operational control.

Project Justification This project is being performed to restore the raw sewage pumps to full capacity and increase the operational flexibility of the plant. The slide gates are being replaced to improve control over the sludge loading process.

Project Status Design

Furnish, Deliver, and Install Boiler Controls, SWRP

Project Number	16-901-31
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	M.G. Electric Service, Inc.
Estimated Construction Cost	$1,224,000.00
Contract Award Date	September-17
Substantial Completion Date	March-19
Project Description	The project will furnish, deliver, and install controls, programming, and other required appurtenances to provide a co-fire implementation of Boilers 3, 4, 5, and 7 using natural gas and digester gas through existing gas trains. Use of co-fire logic and technology shall enable full utilization of available digester gas produced at the plant. Controls for Boilers 1 and 2 will be also be upgraded.
Project Justification	The existing control system is obsolete, and parts are no longer available from the manufacturer.
Project Status	Construction

Switchgear & Motor Control Center Replacement, OWRP

Project Number	17-080-3E
Service Area	North
Location	O'Brien WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$3,577,000.00
Contract Award Date	September-18
Substantial Completion Date	July-20
Project Description	The purpose of this project is to replace the Process Control Building 480-volt switchgear, Aerated Grit Motor Control Center (MCC), Scum Concentration MCC, Battery D MCC, and Process Control MCC 19A and 19B. Building additions required for relocation of Aerated Grit MCC and Scum Concentration MCC.
Project Justification	The risk evaluation performed for certain electrical equipment providing power to various process, mechanical, and electrical loads at the O'Brien WRP indicated replacement is needed to address deteriorating conditions and ongoing maintenance, operation, and safety issues. Any catastrophic failure of this electrical equipment will negatively affect the water treatment operation at the O'Brien WRP.
Project Status	Design

Odor Control Facilities at WASSTRIP®, Southwest Coarse Screen and Overhead Weir, and Post-Centrifuge Building, SWRP

Project Number	17-134-3M
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$15,000,000.00
Contract Award Date	December-18
Substantial Completion Date	July-20

Project Description Three biofilter facilities will be constructed (one for sludge concentration and overhead weir, one for the southwest coarse screen, and one for the post-centrifuge building). The facilities will include new biofilters, heating, ventilation, and air conditioning equipment, ductwork, and other ancillary equipment.

Project Justification An odor control system was evaluated for the anticipated Waste Activated Sludge Stripping to Remove Internal Phosphorus (WASSTRIP®) process, existing sludge holding tanks, overhead weir, sludge screens, and course screens located at the Stickney WRP. Currently, odorous air from the sludge holding tanks, overhead weir, and sludge screens is collected but not effectively treated by an ozone odor control system. Odorous air from the coarse screens and adjacent dumpster rooms is collected but not effectively treated by a carbon adsorption system. The WASSTRIP® process is forthcoming but will use existing tanks near the sludge holding tanks. Addressing these odorous sources will help the surrounding community and improve working conditions for plant staff.

Project Status Design

Roof Replacement of the Lue-Hing M&R Complex, SWRP

Project Number	17-135-3V
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$6,500,000.00
Contract Award Date	November-19
Substantial Completion Date	April-21
Project Description	Replacement of roof areas 1, 2, 3, 5, and 6 of the Monitoring & Research (M&R) Department's laboratory at the Stickney WRP. Scope includes a complete tear off of the existing roof membrane in the specified areas, replacement of the roof top equipment that has exceeded its useful life, removal of obsolete roof top equipment, and miscellaneous work associated with the M&R Department's east addition at the Stickney WRP.
Project Justification	The roof has reached the end of its useful life and needs to be replaced as well as the removal of old, disconnected, and no longer used equipment for safety considerations.
Project Status	Design

Digester Rehabilitation and Gas Piping Replacement, SWRP

Project Number	17-140-3P
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$15,000,000.00
Contract Award Date	March-19
Substantial Completion Date	February-21

Project Description The work will remove all inorganic heavy solids which have accumulated and are not removable through the sludge draw-off system. The work will include rehabilitation of the digester covers and tank walls. Digester gas piping will be rehabilitated or replaced as required and the mixing system components will be rehabilitated to a working condition in Digesters 1 through 12. Also, the digester gas waste gas burners will be rehabilitated.

Project Justification Anaerobic digesters accumulate dense inorganic solids through the years of operation which reduces the usable volume of the digester and requires periodic draining and cleaning. Recent work by the Maintenance & Operations Department uncovered extensive fouling of the existing digester gas piping. Remediation is required to ensure the proper conveyance of the additional digester gas expended from the conversion of the Imhoff Tanks to primary settling tanks.

Project Status Design

Structural Repairs and Roofing Replacement at 95th Street Pumping Station, CSA

Project Number	17-276-3D
Service Area	Calumet
Location	95th Street Pumping Station
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$5,000,000.00
Contract Award Date	November-18
Substantial Completion Date	September-20

Project Description Furnish labor, material, and equipment required to replace water-damaged gypsum roof panels and repair or reinforce corroded structural steel members at the upper and lower roof levels. Replace the roof membrane and perform miscellaneous tuckpointing and masonry work to eliminate water infiltration.

Project Justification Roofing and roof drain pipes embedded in the masonry walls leak, and defects in the exterior masonry walls have permitted water to collect in the masonry walls and pond between the roof membrane and the gypsum roof planks. This has softened the gypsum roof panels in multiple locations and promoted corrosion of some structural steel members supporting the upper and lower roofs. Thus far, one roof panel has completely collapsed and three additional areas were temporarily shored by trade staff in the Maintenance & Operations Department following structural inspections. JOC Contract 13-249-3J will reroute the roof drain discharge pipes outside the masonry walls to eliminate this source of water. Work under the proposed contract will eliminate the remaining sources of leakage and restore the lost structural capacities of corroded steel members. If the work is not performed, there will be additional roof panel failures and continued corrosion of the steel members will further reduce the safe load carrying capacity of the roof system.

Project Status Design

Painting of Final Tanks, Various Locations

Project Number	17-601-31
Service Area	Calumet, North, and Stickney
Location	Calumet, O'Brien, and Stickney WRPs
Engineering Consultant	In-house design
Engineering Contractor	CL Coatings, LLC
Estimated Construction Cost	$1,582,100.00
Contract Award Date	July-17
Substantial Completion Date	December-19
Project Description	Paint final tanks, including rake arms and walkways, at the Calumet, O'Brien, and Stickney WRPs.
Project Justification	The paint is peeling, leaving the bare metal exposed, which leads to rust and deterioration. Repairing deteriorated pipes would be more costly than painting.
Project Status	Construction

Furnish, Deliver, and Install Telemetry Replacement for SCADA Control, Various Locations

Project Number 17-606-31

Service Area Calumet, North, and Stickney

Location District-wide

Engineering Consultant In-house design

Engineering Contractor To be determined

Estimated Construction Cost $545,000.00

Contract Award Date November-18

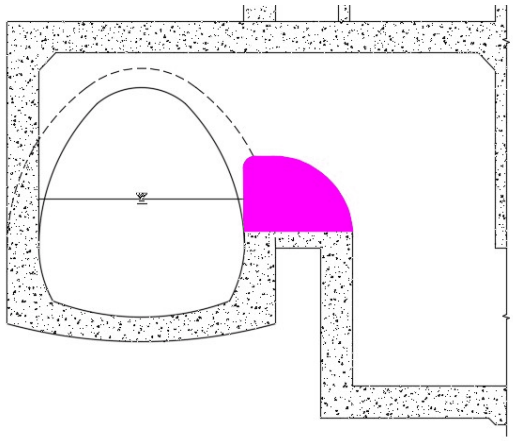
Substantial Completion Date October-19

Project Description Furnish, deliver, and install replacement communications equipment and services for the existing copper phone lines that provide visibility and control of various District remote sites from their respective supervisory plants. The equipment selected will provide secure, bidirectional, periodic commands and readings over cellular radio link to the telecommunications provider's network, as well as the ability to retrieve diagnostic data of the networking equipment itself. The contractor will provide turnkey installation from the Supervisory Control and Data Acquisition (SCADA) interface to the complete field installation.

Project Justification Existing point-to-point copper telemetry lines have been labeled as obsolete by AT&T, which is the District's current service provider. Although the District has entered into a two-year contract with AT&T that includes these copper services, continued telemetry service beyond the end of the current contract is not guaranteed. AT&T has been reluctant to continue long-term contractual relationships for these point-to-point services. Additionally, it is expected that the operating costs for a new communications system will realize actual savings of more than 30 percent.

Project Status Design

Modifications to TARP Structures, CSA and SSA



Project Number 17-842-3H

Service Area Calumet and Stickney

Location Racine Avenue Pumping Station and South Holland, IL

Engineering Consultant In-house design

Engineering Contractor To be determined

Estimated Construction Cost $3,500,000.00

Contract Award Date May-19

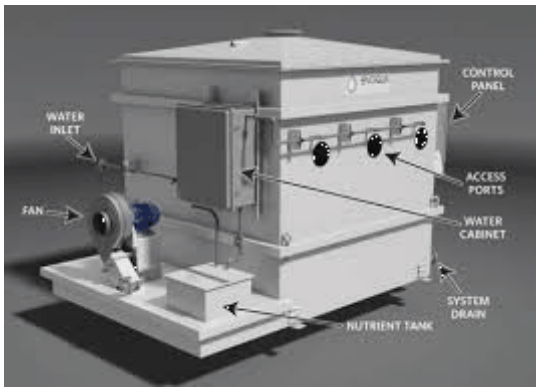
Substantial Completion Date April-20

Project Description The project consists of weir wall modifications for control structures DS-M27, DS-M28, and DS-M29 located at the Racine Avenue Pumping Station. Primary work for these control structures consists of demolition of existing weir walls, concrete placement, and temporary bypass for flow going into the Racine Avenue Pumping Station at these control structures. Work at control structures CDS-C1 and CDS-45 consists of new permanent dry weather diversion bypass sewers and minor demolition and concrete work for removal of existing flumes.

Project Justification Modifications at control structures DS-M27, DS-M28, and DS-M29 are necessary to allow more flexibility of operations at the pumping station while diverting more flow into Tunnel and Reservoir Plan during rain events, thereby reducing the potential for combined sewer overflows into the waterway. Modifications at control structures CDS-C1 and CDS-45 are necessary in order to prevent the occurrences of combined sewer overflows at these sensitive outfalls.

Project Status Planning

Furnish, Deliver and Install Odor Control System, KWRP, HPWRP, and CWRP



Project Number	17-844-3P
Service Area	Calumet and North
Location	Kirie, Hanover Park, and Calumet WRPs
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$4,347,000.00
Contract Award Date	December-18
Substantial Completion Date	April-20

Project Description The work at the Kirie WRP will install an odor control unit to treat the north and south pump house exhaust. The project has the potential to reduce influent chlorination costs. The work at the Hanover Park WRP will install odor control units to treat the pretreatment building (including grit tanks), coarse screen exhaust, and gravity thickening belt exhaust. The work at the Calumet WRP will replace the odor control unit at the high level influent pump station to more effectively treat the exhaust from the junction chamber. The existing unit could not effectively address the odor concentrations. The new odor control unit will reduce the labor required to change media by 80 hours per year and will reduce the cost of media by $20,000 annually.

Project Justification The purpose of this project is to install new odor control systems at various existing facilities within the Kirie, Hanover Park, and Calumet WRPs. These existing facilities have been emitting odorous air that has been negatively affecting District staff and neighboring communities, including an elementary school adjacent to the Hanover Park WRP. Currently, the odorous facilities either do not have an existing odor control system, or they have a system that is not effective. This project will reduce the odor emissions that affect the District's staff and neighbors.

Project Status Planning

Heavy Equipment Storage Building Site Improvements, Bulk Material Storage Building, CWRP and OWRP

Project Number	17-845-3P
Service Area	Calumet and North
Location	Calumet and O'Brien WRPs
Engineering Consultant	In-house design
Engineering Contractor	Rausch Infrastructure, LLC
Estimated Construction Cost	$1,961,700.00
Contract Award Date	April-18
Substantial Completion Date	March-19

Project Description The work proposed under this project consists of constructing a new concrete pavement area surrounding the heavy equipment storage building at the Calumet WRP, which is designed for vehicles entering and leaving the building and providing parking spaces for vehicle operators. Also included is the construction of a new bulk material storage building at the O'Brien WRP.

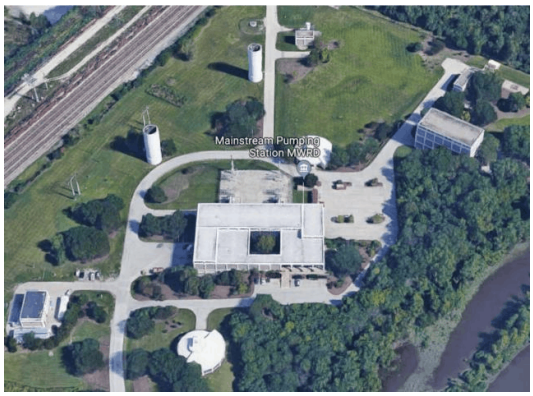
Project Justification The heavy equipment storage building at the Calumet WRP is used to store snow removal equipment, tracked vehicles, and semi-trucks. Presently, the roof drains into the gravel surface, resulting in low spots. In addition, the gravel surface is not sufficient to support heavy vehicle use areas. There will be a designated parking area for vehicle operators. The site around the building will be engineered for equipment and heavy vehicle use, drainage, and storm water management. At the O'Brien WRP, the prior bulk storage building was removed due to the construction of the ultraviolet disinfection facility. The new bulk storage building will provide space for salt and deicing equipment storage.

Project Status Construction

Installation of Shaftless Screw Conveyors for Aerated Grit Tanks, SWRP

Project Number	17-902-31
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	IHC Construction Companies, LLC
Estimated Construction Cost	$2,595,000.00
Contract Award Date	December-17
Substantial Completion Date	January-21
Project Description	Furnish, deliver, and install grit screw conveyors at the Stickney WRP.
Project Justification	The existing chain and flight collector system needs to be rebuilt every four to five years. The screw conveyor installed in the east end of Aerated Grit Tank #4 was initially converted in 1998 and replaced in 2008. The average annual maintenance cost for the chain and flight tanks since 1998 is $30,530. By comparison, the average annual cost for the screw conveyor tank is estimated at $22,800.
Project Status	Construction

Rehabilitation of Elevator Shafts, MSPS

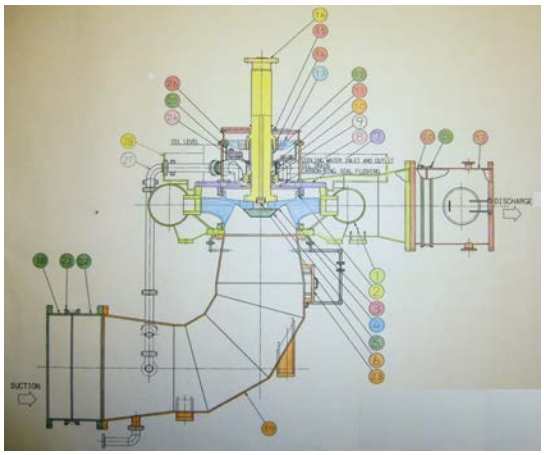


Project Number	18-142-3H
Service Area	Stickney
Location	Mainstream Pumping Station
Engineering Consultant	To be determined
Engineering Contractor	To be determined
Estimated Construction Cost	$1,500,000.00
Contract Award Date	October-19
Substantial Completion Date	December-20
Project Description	Rehabilitation of six shafts at the Mainstream Pumping Station (the north elevator main and ventilation shafts, south elevator main and ventilation shafts, dewatering shaft, and discharge shaft) to address groundwater infiltration in the shafts.
Project Justification	Groundwater infiltration currently enters the elevator shafts and causes damage to the elevator equipment necessitating costly repairs and service shutdown.
Project Status	Planning

Rehabilitation of Locomotive Terminal Building, SWRP

Project Number	18-143-3D
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$2,750,000.00
Contract Award Date	November-19
Substantial Completion Date	April-21
Project Description	Remove all parapets down to the roof and replace with new fascia. Remove and replace existing roofing, windows, and doors (including overhead doors). Remove and replace lintels where required. Tuckpoint all masonry and repair masonry where required. Anchor loose stones, improve ventilation in the building and provide heating, ventilation, and air conditioning for office and crew functions. Improve drainage around the building.
Project Justification	This project will extend the useful life of the facility.
Project Status	Design

Rehabilitation of TARP Pumps, MSPS



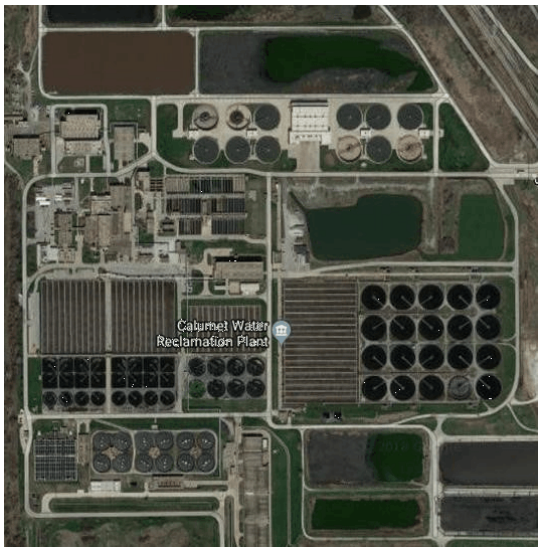
Project Number	18-144-3M
Service Area	Stickney
Location	Mainstream Pumping Station
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$16,500,000.00
Contract Award Date	October-19
Substantial Completion Date	August-21

Project Description The purpose of this project is to completely overhaul TARP Pumps 1 and 3 in the South Pump House and Pump 5 in the North Pump House of the Mainstream Pumping Station, including the associated motors and discharge cone valves and actuators, in order to restore capacity and reliability. The complete overhaul of the pump and motor involves the furnishing and installing of new parts, refurbishing existing salvageable parts, replacing motor exciter panels, and upgrading pump control components.

Project Justification The overhaul will reduce the maintenance labor required, allow for better pump and motor monitoring, and improve reliability. Once the overhaul is complete, there will be a reduction in the electricity usage to power pumps, as the pump will operate more efficiently by being able to pump more fluid in less time. The overhaul will also extend the useful life of the pumps and motors, which have been in service since May 1985.

Project Status Design

Sidestream Enhanced Biological Phosphorus Removal Pilot Study, CWRP



Project Number 18-248-3P

Service Area Calumet

Location Calumet WRP

Engineering Consultant In-house design

Engineering Contractor To be determined

Estimated Construction Cost $1,000,000.00

Contract Award Date November-19

Substantial Completion Date August-20

Project Description The Calumet WRP has attempted to remove phosphorus through enhanced biological phosphorus removal (EBPR). Due to the influent sewage characteristics, this has proven to be impossible without the addition of carbon to assist the process or major infrastructure changes. Before initiating major infrastructure changes at a plant of the Calumet WRP's size, the Phosphorus Task Force would like to attempt Sidestream EBPR (S2EBPR), which uses Return Activated Sludge (RAS) fermentation, to assist with EBPR at a pilot scale level. This will entail isolating two tanks in Battery A, redirecting roughly 20 percent of RAS from Battery A into these two channels, allowing this RAS to ferment, and then reintroducing the fermented RAS to the mixed liquor flow. Pumps and mixers will be installed for the pilot test, which is expected to last for approximately one year.

Project Justification Per the District's 2019 update to the 2015-2020 Strategic Business Plan: Goal 2 - Excellence, the District will potentially identify an approach to reduce the amount of external carbon needed for biological phosphorus (Bio-P) with this S2EBPR pilot test. If the pilot test is successful, this Bio-P approach could be used, rather than chemical phosphorus removal, to meet the current National Pollutant Discharge Elimination System permit. Chemical phosphorus removal would require the addition of ferric or alum to remove phosphorus, increasing operating costs by added chemical and from sludge processing.

By removing phosphorus from the Calumet WRP's effluent, the District will reduce phosphorus discharged to the receiving stream and mitigate eutrophication in the Gulf of Mexico, thus improving the environment.

Project Status Planning

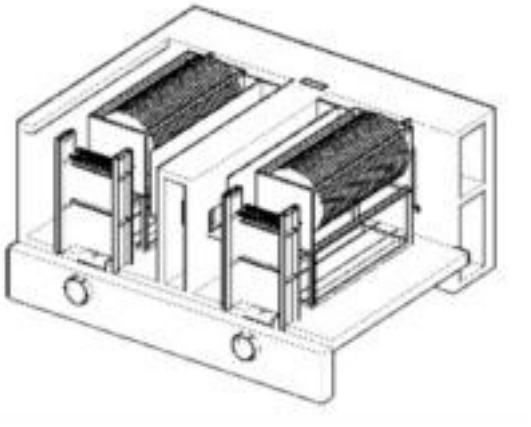
Digester Sludge Heating System Upgrades and Boiler Removal, CWRP

Project Number	18-277-3M
Service Area	Calumet
Location	Calumet WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$10,500,000.00
Contract Award Date	June-19
Substantial Completion Date	October-20
Project Description	Removal of sludge heating boiler systems and installation of steam-to-hot water heat exchanger systems at the Digester Complex. Installation of steam and condensate piping with supports for the new system. Replacement of four sludge heat exchangers in Cluster 1 and replacement of tubes and gaskets for sludge heat exchangers in Cluster 2. Re-purposing of old compressor building for electrical equipment.
Project Justification	This work will reduce the demands on the Maintenance & Operations Department's personnel by replacing inefficient and maintenance-intensive equipment.
Project Status	Design

Installation and Removal of Cofferdam at Sluice Gate No. 2, Lockport Powerhouse Controlling Works, SSA

Project Number	18-607-31
Service Area	Stickney
Location	Lockport Powerhouse Controlling Works
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$350,000.00
Contract Award Date	September-18
Substantial Completion Date	August-19
Project Description	Install a cofferdam to allow in-house trades to repair Gate No. 2 at the Lockport Powerhouse Controlling Works.
Project Justification	This purpose of this project is to provide a bulk head to isolate Gate No. 2 at the Lockport Powerhouse Controlling Works. The gate needs to be isolated for in-house trades to overhaul the gate guides, which have deteriorated and prevent the gate from being operated. The controlling works sluice gates prevent the level of the Sanitary and Ship Canal from rising to flood levels.
Project Status	Construction

Furnish, Deliver, and Install Disc Filters, EWRP



Project Number	18-702-31
Service Area	North
Location	Egan WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$4,000,000.00
Contract Award Date	January-19
Substantial Completion Date	December-20
Project Description	Replace three pairs of tertiary filter beds with six disc filters.
Project Justification	The designed maximum capacity of the secondary treatment is 60 million gallons per day (MGD). The maximum tertiary capacity is 44 MGD. During a backwash cycle the total tertiary capacity would drop to 34 MGD. The Egan WRP has six pairs of filter beds. Installing disc filters in Filter Beds 1, 2, and 6 can increase filtering capacity from 34 to 60 MGD with no loss in capacity during a backwash cycle. The disc filters will reduce the filter backwash from eight percent to less than five percent. The enclosed disc filters will reduce the midge flies in the filter building.
Project Status	Design

Emerson Ovation Distributed Control System, NSA

Project Number	18-704-31
Service Area	North
Location	Egan, Kirie, and Hanover Park WRPs
Engineering Consultant	In-house design
Engineering Contractor	Emerson Process Management Power & Water Solutions, Inc.
Estimated Construction Cost	$1,802,000.00
Contract Award Date	May-18
Substantial Completion Date	November-19

Project Description Upgrade the Emerson Ovation Distributed Control System (DCS) at the Kirie, Egan, and Hanover Park WRPs.

Project Justification Upgrade the DCS controls at the Kirie, Egan, and Hanover Park WRPs with an up-to-date technology that will provide the operators with information while incurring lower maintenance costs. The DCS provides controls and status of the plant's processes. The existing DCS controls have obsolete Ovation OCR161 controllers, Windows 2003 servers, Windows XP workstations, Cisco 2950 switches, power supplies, Ovation 3.0.4 software, and media converters. The upgraded system will utilize the existing wiring to reduce the installation cost and time.

Project Status Construction

Rehabilitation of Gravity Concentration Tank, CWRP

Project Number	18-803-31
Service Area	Calumet
Location	Calumet WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$1,650,000.00
Contract Award Date	November-18
Substantial Completion Date	December-19

Project Description The scope of this project is to provide all the necessary labor, material, and appurtenances to rehabilitate the Cluster 1 gravity concentration tanks at the Calumet WRP. Rehabilitation includes the replacement of the scum arms, scrapers, baffles, sludge inlet piping, rake arm assembly, column assembly, drive unit, and notch weirs, as well as the rehabilitation of the distribution and collection boxes and hardware. A torque limiting system will be included on each main drive unit, and an abandoned chemical tank and associated piping will be removed. All four tanks in this cluster will be out of service for the duration of the project, which will improve efficiencies by reducing ventilation needs and allowing similar work to be performed on all tanks simultaneously.

Project Justification Rake arm assemblies in Cluster 1 have rotted at the water line to the point where skimming is no longer functional, and a skimmer arm on one tank has collapsed due to long-term corrosion effects. In addition, the steel notch weirs and trough baffles in these tanks have deteriorated badly and are missing in many places, resulting in loss of flow control. This rehabilitation will utilize new corrosion resistant materials and coatings that will restore the proper operation of these tanks.

Project Status Design

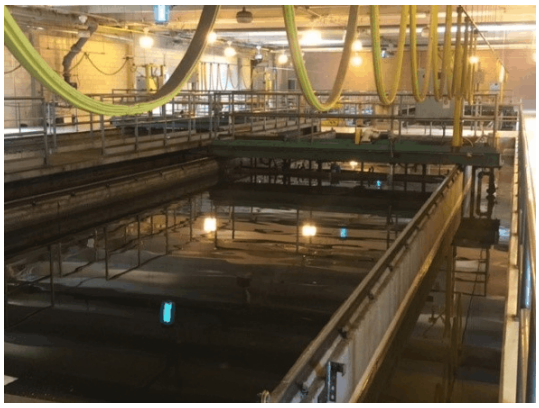
Phosphorus Removal Struvite Facilities at the Fox River Water Reclamation District

Project Number	18-IGA-35
Service Area	North
Location	Fox River Water Reclamation District's Albin D. Pagorski Water Reclamation Facility
Engineering Consultant	Not Applicable
Engineering Contractor	To be determined
Estimated Construction Cost	$2,492,880.00
Contract Award Date	February-19
Substantial Completion Date	December-20
Project Description	Cost sharing agreement with the Fox River Water Reclamation District to construct new facilities to remove phosphorus from side stream solids processes.
Project Justification	Phosphorus removal is required for the Fox River Water Reclamation District to meet new permit standards.
Project Status	Planning

Phosphorus Removal Liquid Facilities at the Fox River Water Reclamation District

Project Number	18-IGA-36
Service Area	North
Location	Fox River Water Reclamation District's Albin D. Pagorski Water Reclamation Facility
Engineering Consultant	Not Applicable
Engineering Contractor	To be determined
Estimated Construction Cost	$9,339,600.00
Contract Award Date	April-19
Substantial Completion Date	November-21
Project Description	Cost sharing agreement with the Fox River Water Reclamation District to construct new facilities to remove phosphorus from liquid stream (biological phosphorus removal) processes.
Project Justification	Process alteration and new facilities are needed to meet new National Pollutant Discharge Elimination System permit standards.
Project Status	Planning

Furnish, Deliver, and Install Disc Filters for Filters 3 and 4, HPWRP

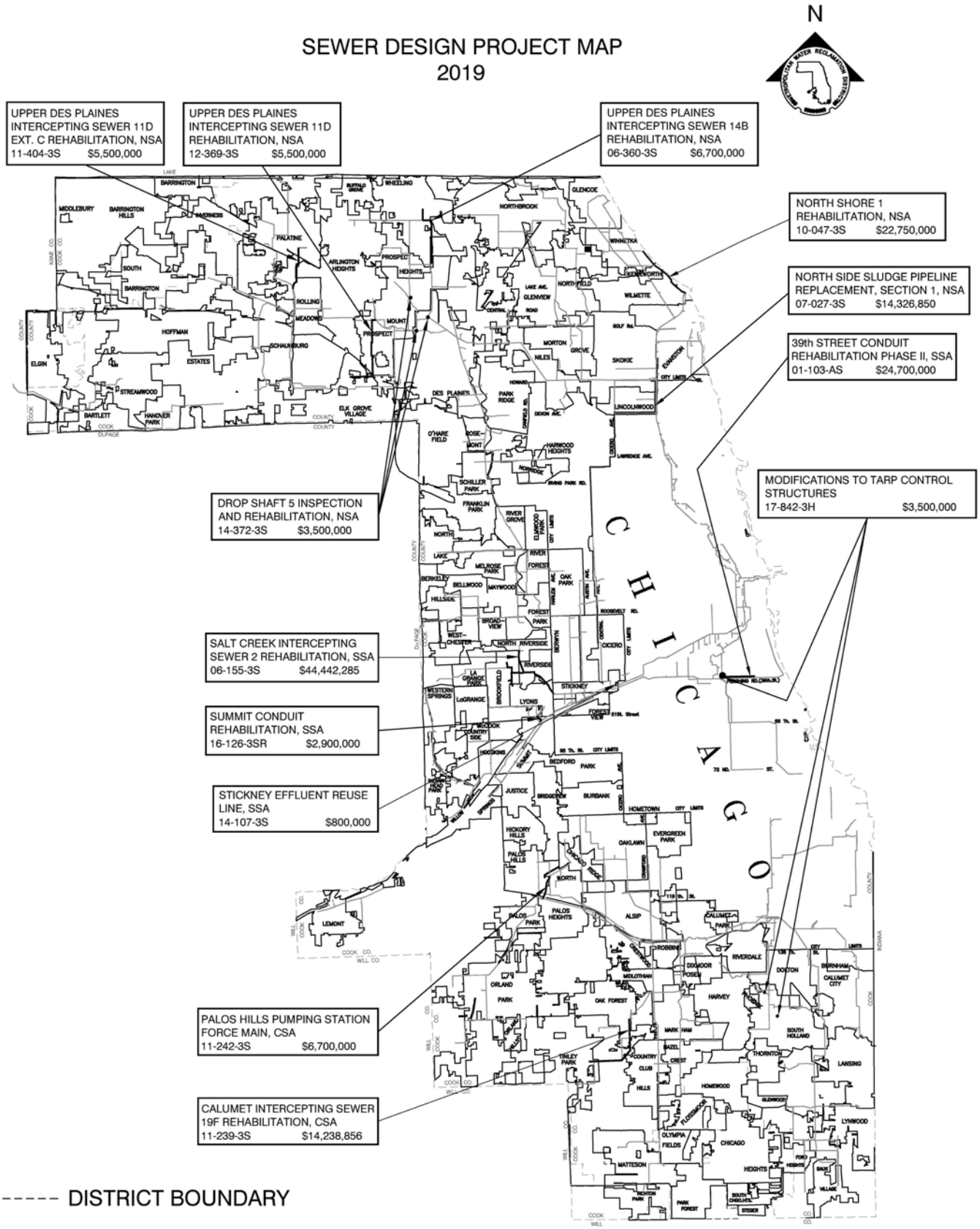


Project Number	19-701-31
Service Area	North
Location	Hanover Park WRP
Engineering Consultant	In-house design
Engineering Contractor	To be determined
Estimated Construction Cost	$1,400,000.00
Contract Award Date	October-19
Substantial Completion Date	March-21
Project Description	Furnish, deliver, and install disc filters at the Hanover Park WRP.
Project Justification	Filter beds 3 and 4 have a current capacity of 3.4 million gallons per day (MGD) combined with a design capacity of 2.5 MGD each. The disc filters have a combined capacity of 12 MGD. The traveling bridge filters need to have their media replaced. The disc filters will reduce the filter backwash from eight percent to less than one percent. The enclosed disc filters will reduce the midge flies in the filter building.
Project Status	Design

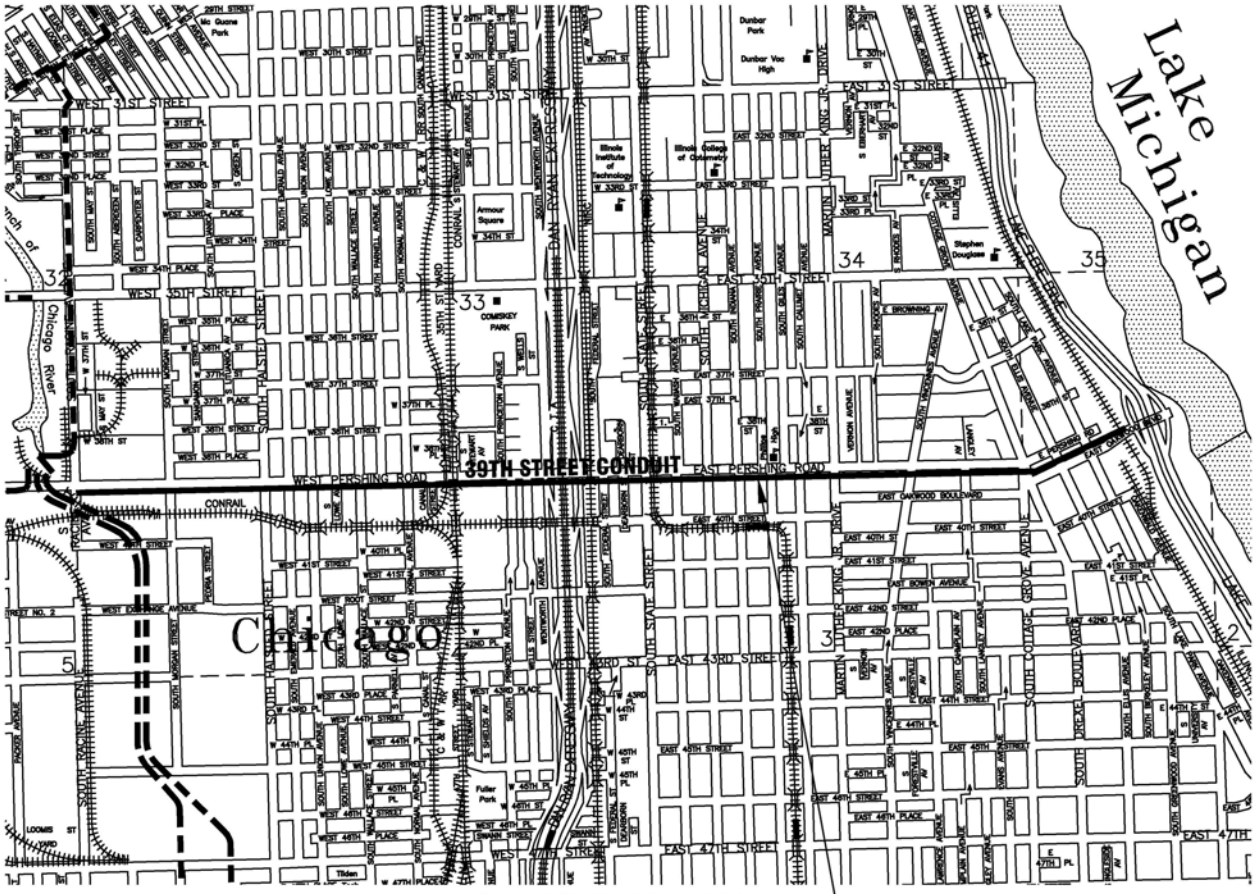
Energy Efficiency Improvements, SWRP

Project Number	19-901-31
Service Area	Stickney
Location	Stickney WRP
Engineering Consultant	In-house design
Engineering Contractor	Noresco, LLC
Estimated Construction Cost	$5,820,000.00
Contract Award Date	January-19
Substantial Completion Date	December-19
Project Description	Perform energy conservation measures identified in the Noresco Investment Grade Audit for the Stickney WRP. The scope of work includes replacing fluorescent, high pressure sodium, and metal halide lighting with light emitting diode lighting.
Project Justification	This project will remedy deficiencies identified in the Energy Efficiency Program Investment Grade Audit conducted by the Public Building Commission and Noresco, LLC.
Project Status	Design

SEWER DESIGN PROJECT MAP
2019



N



LOCATION MAP

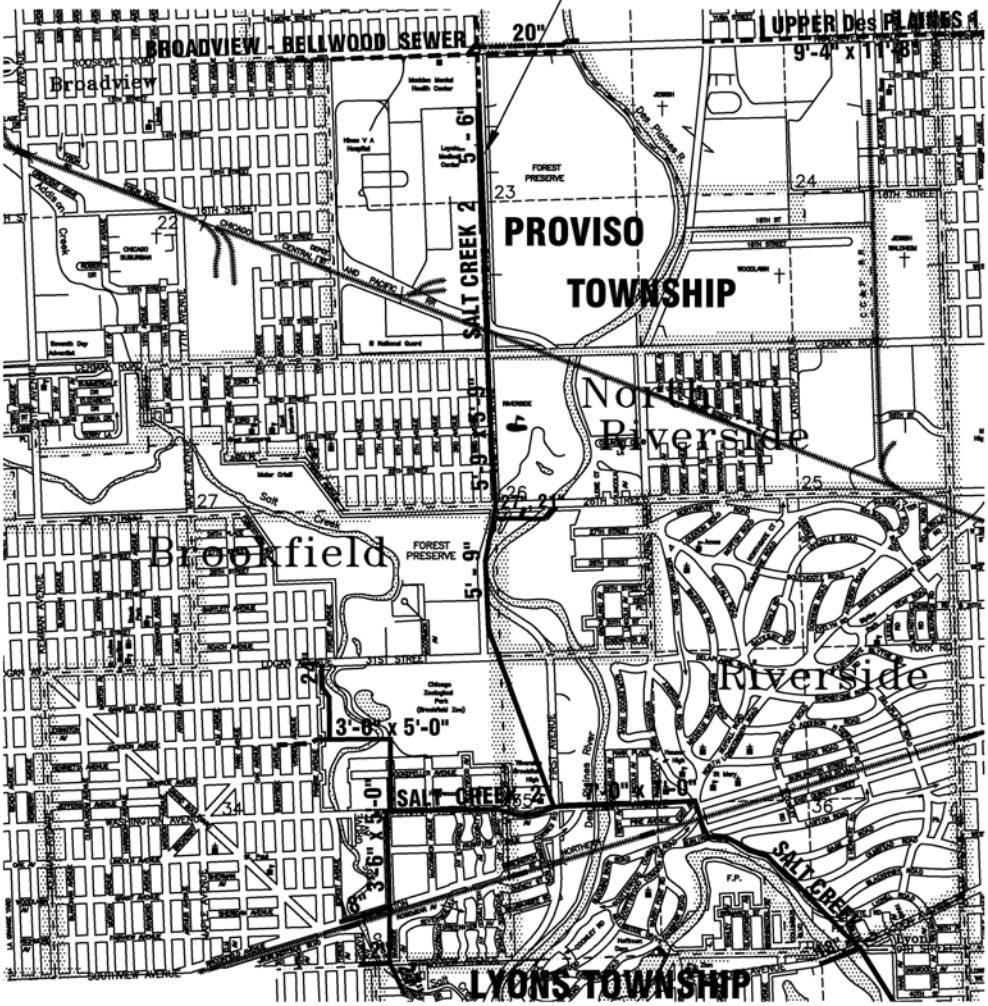
LEGEND:

= SEWER TO BE REHABILITATED
= EXISTING SEWER

39th STREET CONDUIT REHABILITATION - PHASE II, SSA
CONTRACT 01-103-AS

N

SALT CREEK INTERCEPTING SEWER 2 REHABILITATION, SSA
REHABILITATION OF:
70 FEET OF 10-INCH DIAMETER PIPE
300 FEET OF 12-INCH DIAMETER PIPE
48 FEET OF 15-INCH DIAMETER PIPE
1,330 FEET OF 18-INCH DIAMETER PIPE
292 FEET OF 20-INCH DIAMETER PIPE
278 FEET OF 21-INCH DIAMETER PIPE
1,370 FEET OF 24-INCH DIAMETER PIPE
634 FEET OF 27-INCH DIAMETER CLAY PIPE
778 FEET OF 27-INCH DIAMETER CONCRETE PIPE
7,857 FEET OF 3'6" x 5'0" SEMI-ELLIPTICAL PIPE
12,442 FEET OF 5'9" x 5'9" SEMI-ELLIPTICAL PIPE
7,400 FEET OF 7'0" x 7'0" SEMI-ELLIPTICAL PIPE
REHABILITATION OF 81 MANHOLES
REHABILITATION OF 2 JUNCTION CHAMBERS
REBUILDING/RAISING OF 11 MANHOLES
CONSTRUCTION OF 1 MANHOLE
CONTROL STRUCTURE MODIFICATION
COST: $44,442,285

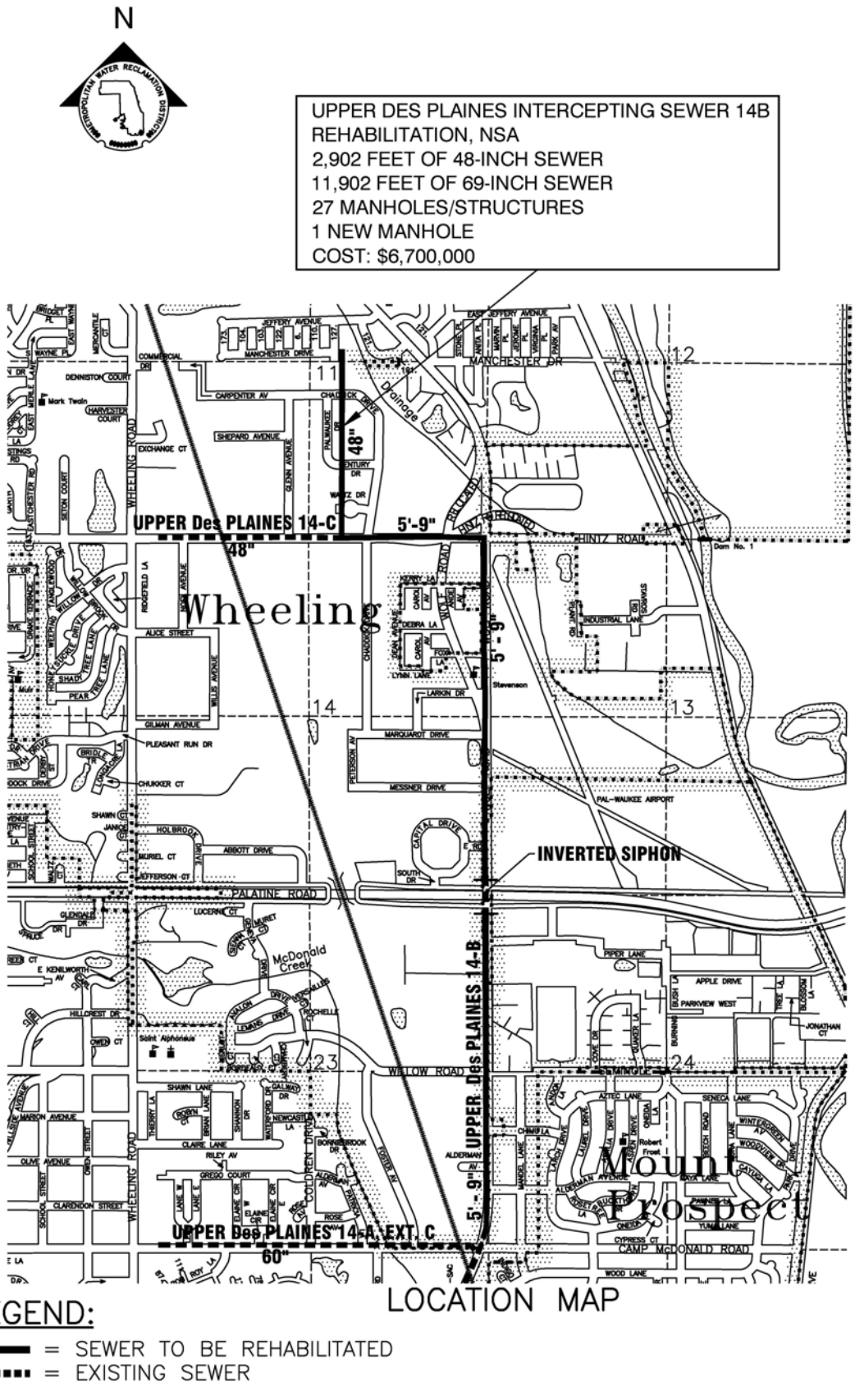


LOCATION MAP

LEGEND:

▬▬ = SEWER TO BE REHABILITATED
▪▪▪▪▪▪ = EXISTING SEWER

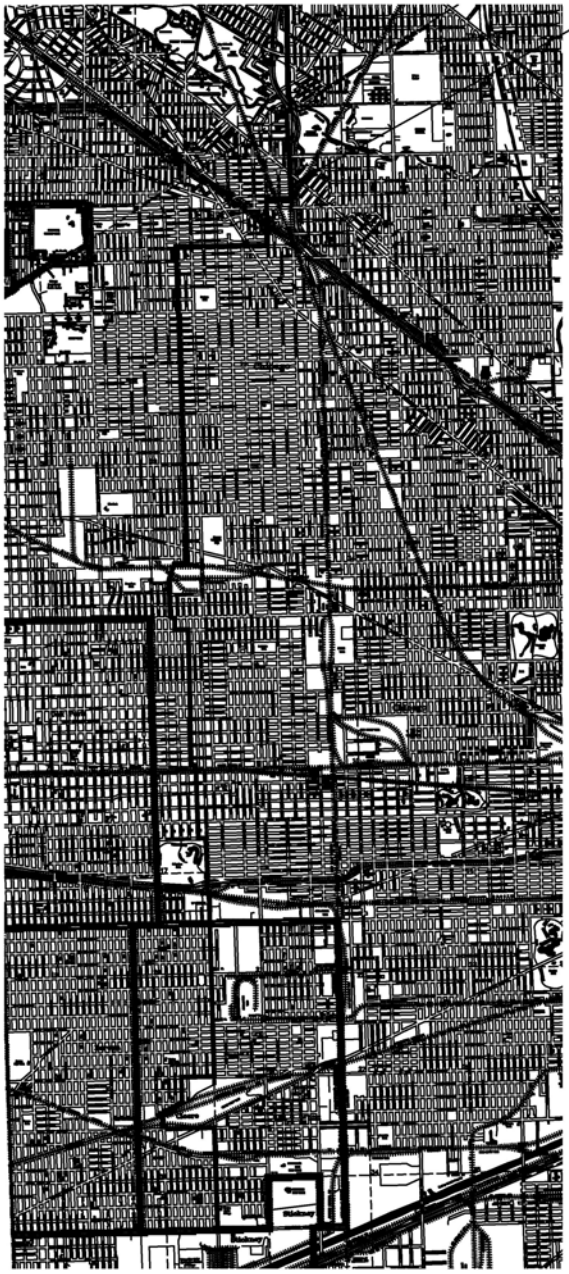
SALT CREEK INTERCEPTING SEWER 2 REHABILITATION, SSA CONTRACT 06-155-3S



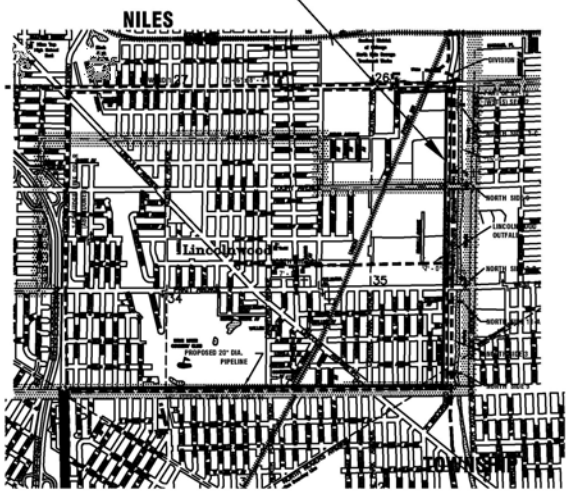
UPPER DES PLAINES INTERCEPTING SEWER 14B REHABILITATION, NSA
CONTRACT 06-360-3S

N

NORTH SIDE SLUDGE PIPELINE REPLACEMENT, SECTION 1, NSA
19,000 FEET OF 20-INCH DIAMETER FORCE MAIN
AIR RELIEF, BLOW OFF & CLEANOUT STRUCTURES
REHABILITATION OF 43 STRUCTURES
COST: $14,326,850



LOCATION MAP

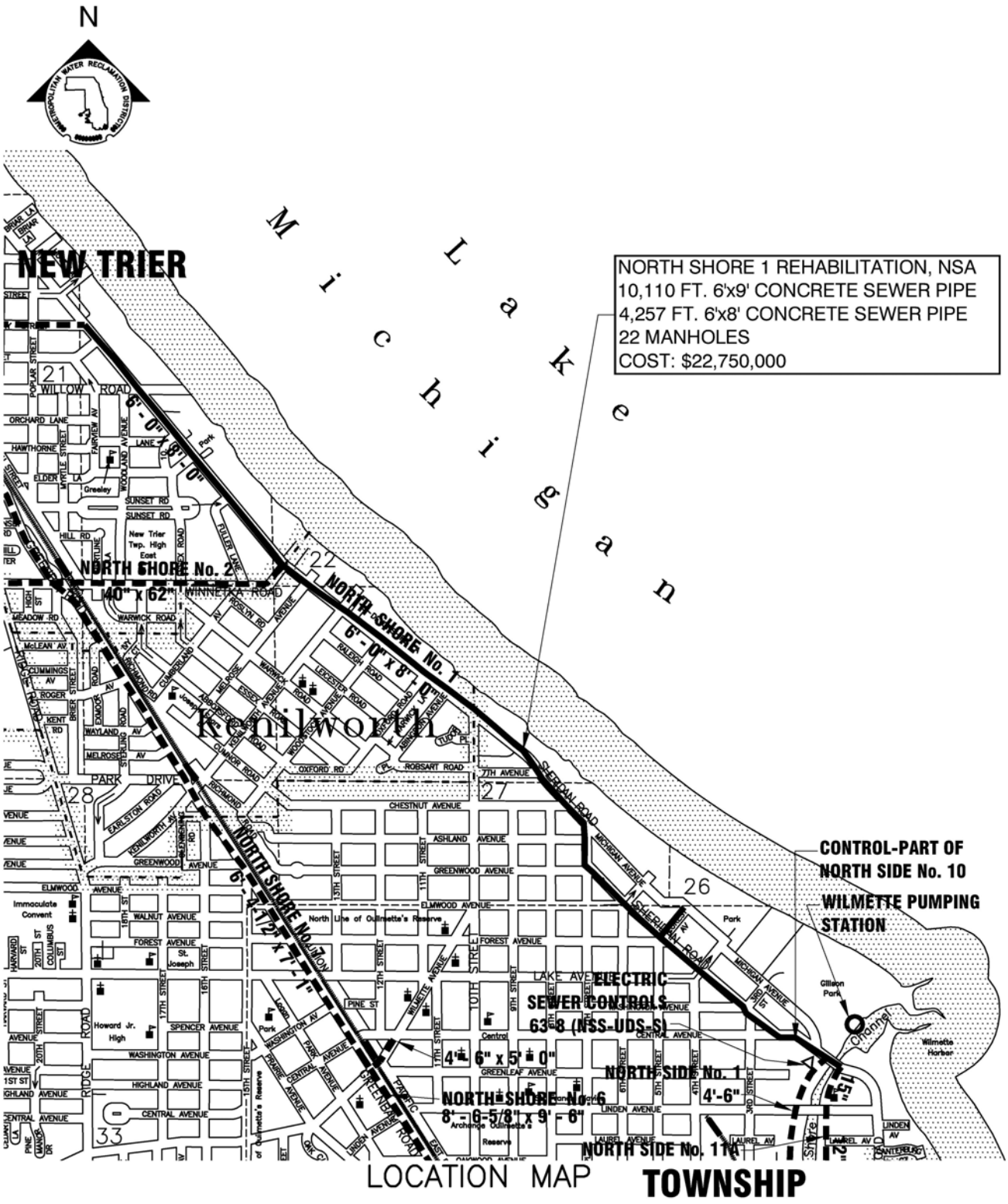


LOCATION MAP

LEGEND:

= SEWER TO BE REHABILITATED
= EXISTING SEWER

NORTH SIDE SLUDGE PIPELINE REPLACEMENT, SECTION 1, NSA
CONTRACT 07-027-3S



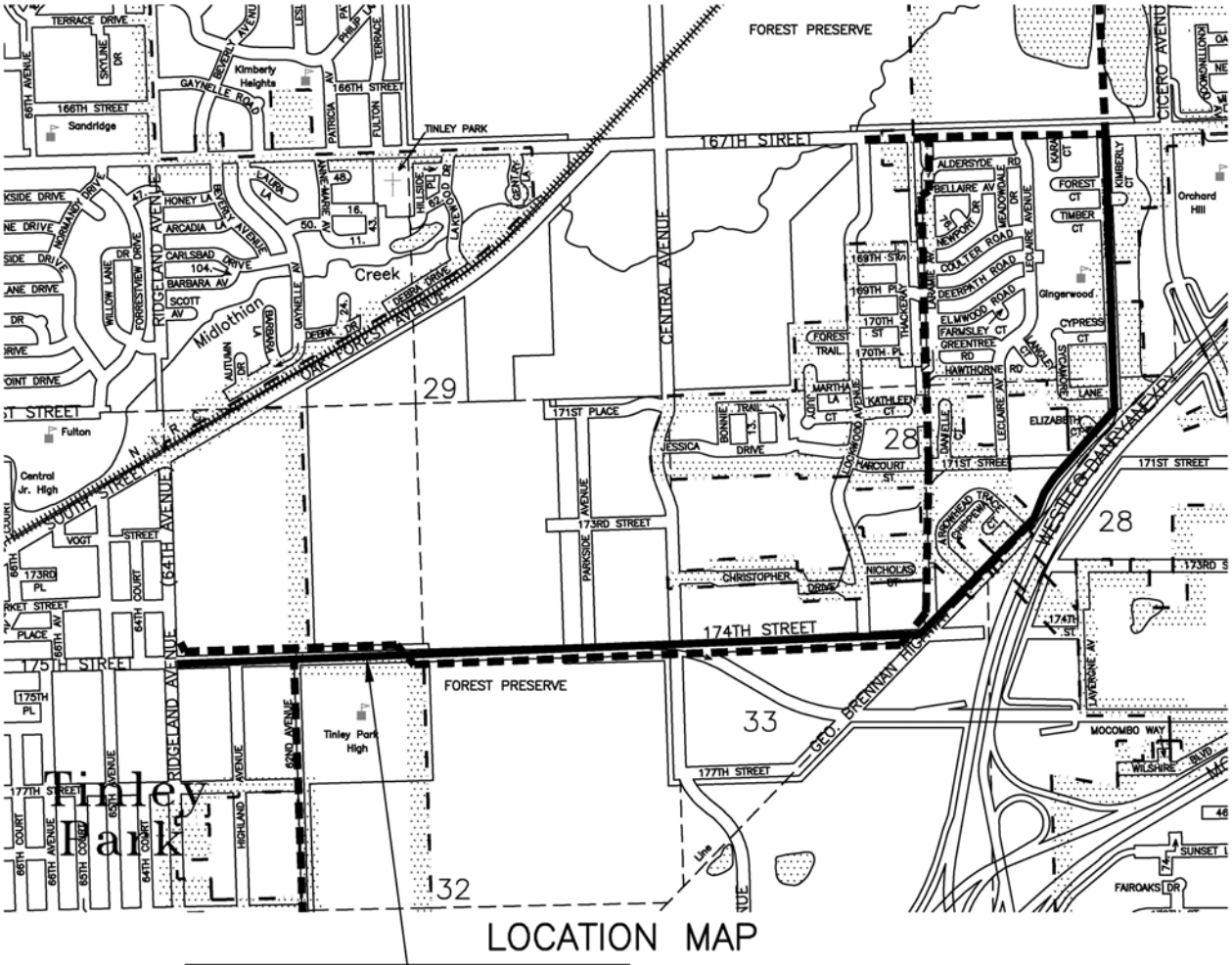
LEGEND:

= SEWER TO BE REHABILITATED

= EXISTING SEWER

NORTH SHORE 1 REHABILITATION, NSA
CONTRACT 10-047-3S

N



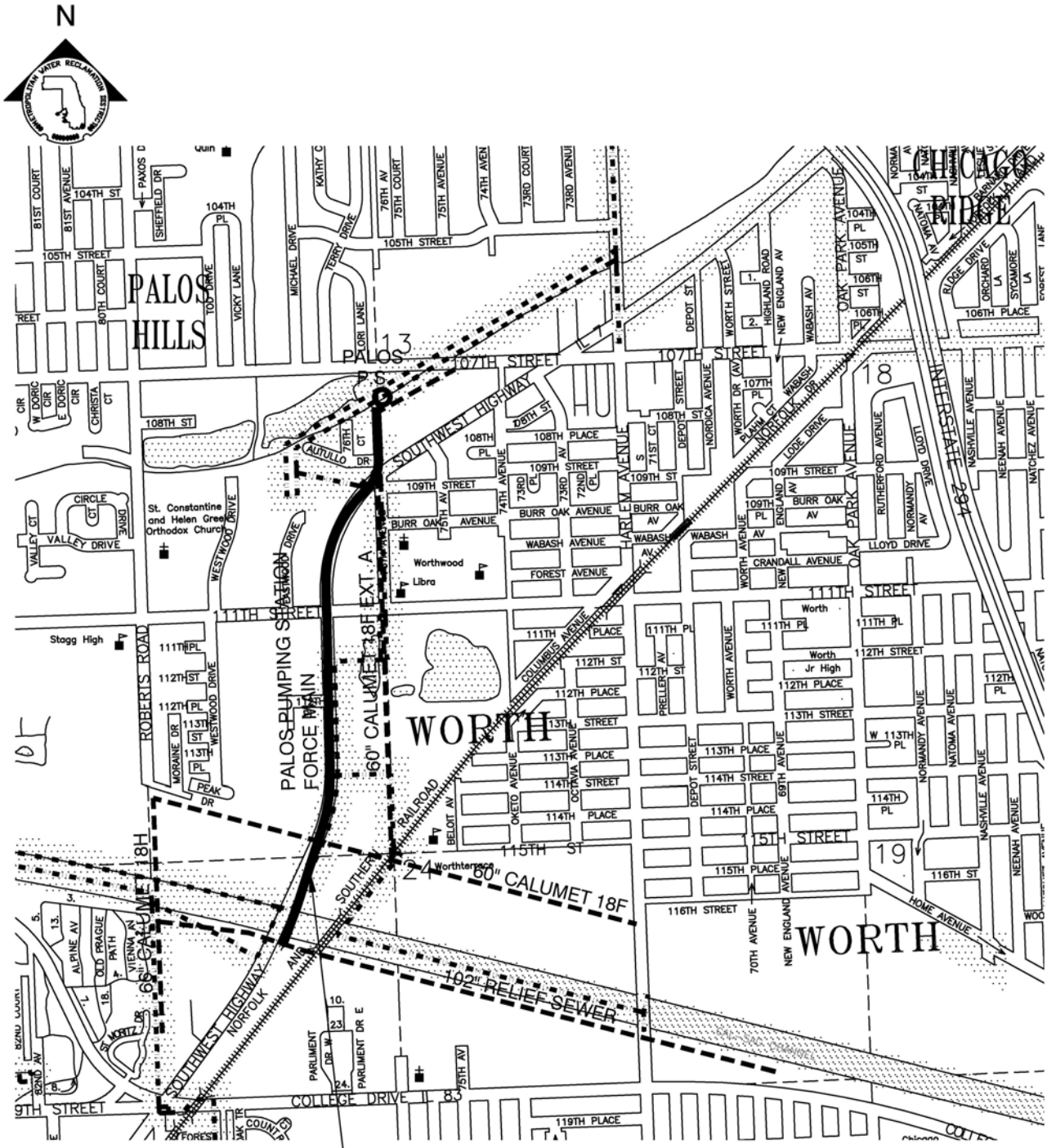
LOCATION MAP

CALUMET INTERCEPTING SEWER 19F
REHABILITATION, CSA
14,051 FEET OF 60-INCH DIAMETER
SEWER
23 MANHOLES AND 1 JUNCTION
STRUCTURE
COST: $14,238,856

LEGEND:

= SEWER TO BE REHABILITATED
= EXISTING SEWER

CALUMET INTERCEPTING SEWER 19F REHABILITATION, CSA
CONTRACT 11-239-3S



PALOS HILLS PUMPING STATION FORCE MAIN, CSA CONTRACT 11-242-3S

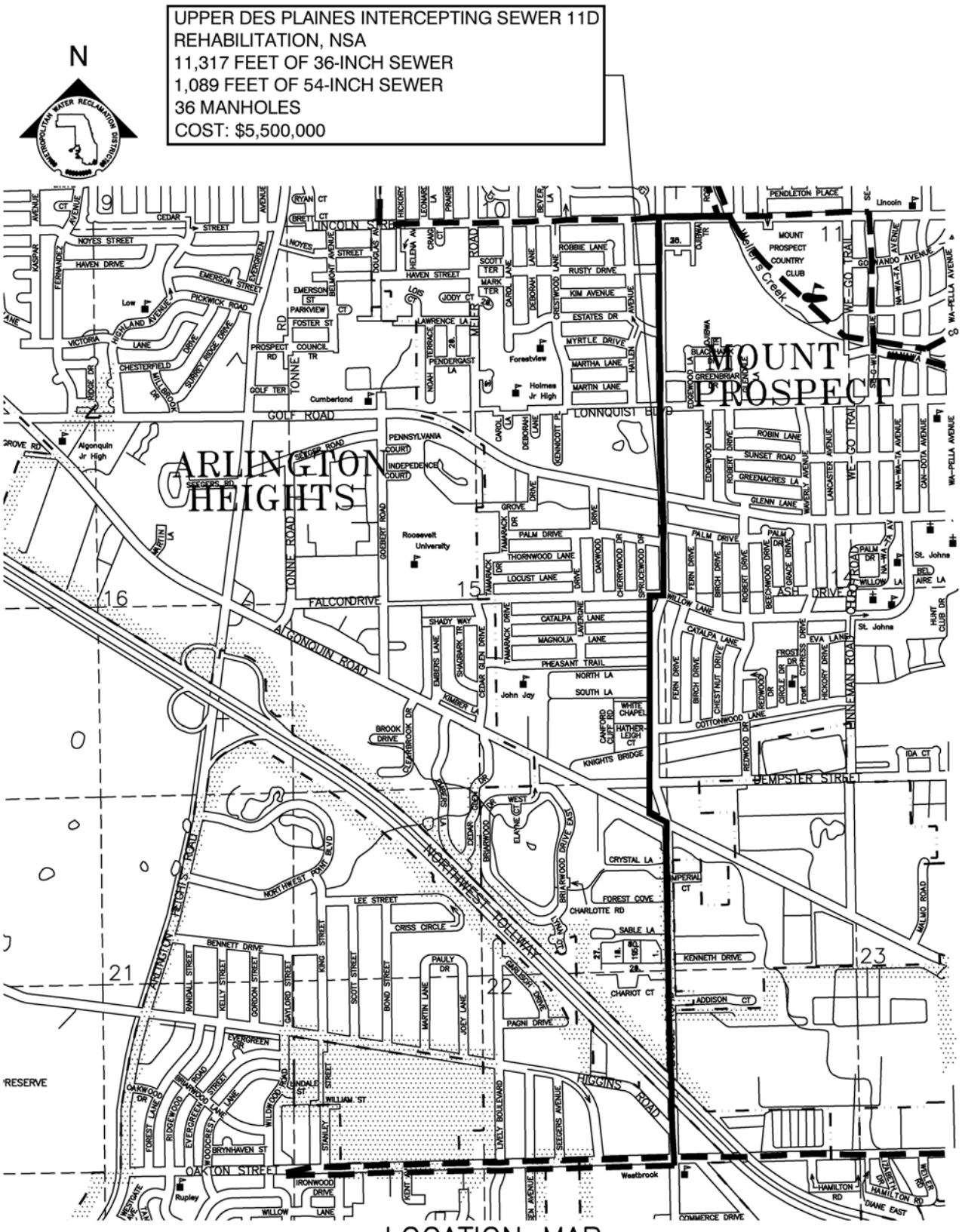
LOCATION MAP

UPPER DES PLAINES INTERCEPTING SEWER 11D EXT. C REHABILITATION, NSA
10,828 FEET OF 36-INCH DIAMETER SEWER
24 MANHOLES AND ONE CONNECTING STRUCTURE
COST: $5,500,000

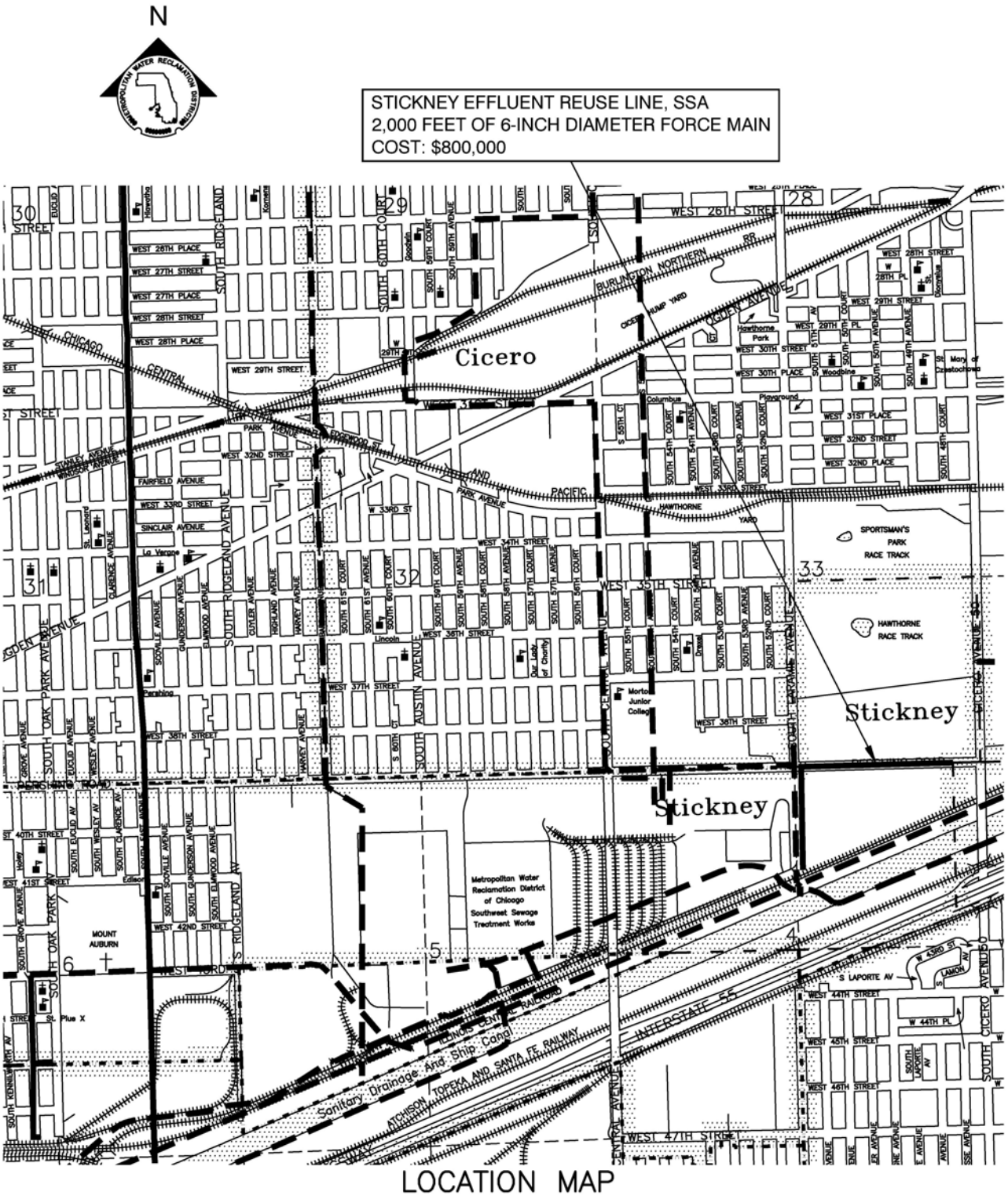
LEGEND:

= SEWER TO BE REHABILITATED
= EXISTING SEWER

UPPER DES PLAINES INTERCEPTING SEWER 11D EXT. C REHABILITATION, NSA CONTRACT 11-404-3S



UPPER DES PLAINES INTERCEPTING SEWER 11D REHABILITATION, NSA CONTRACT 12-369-3S

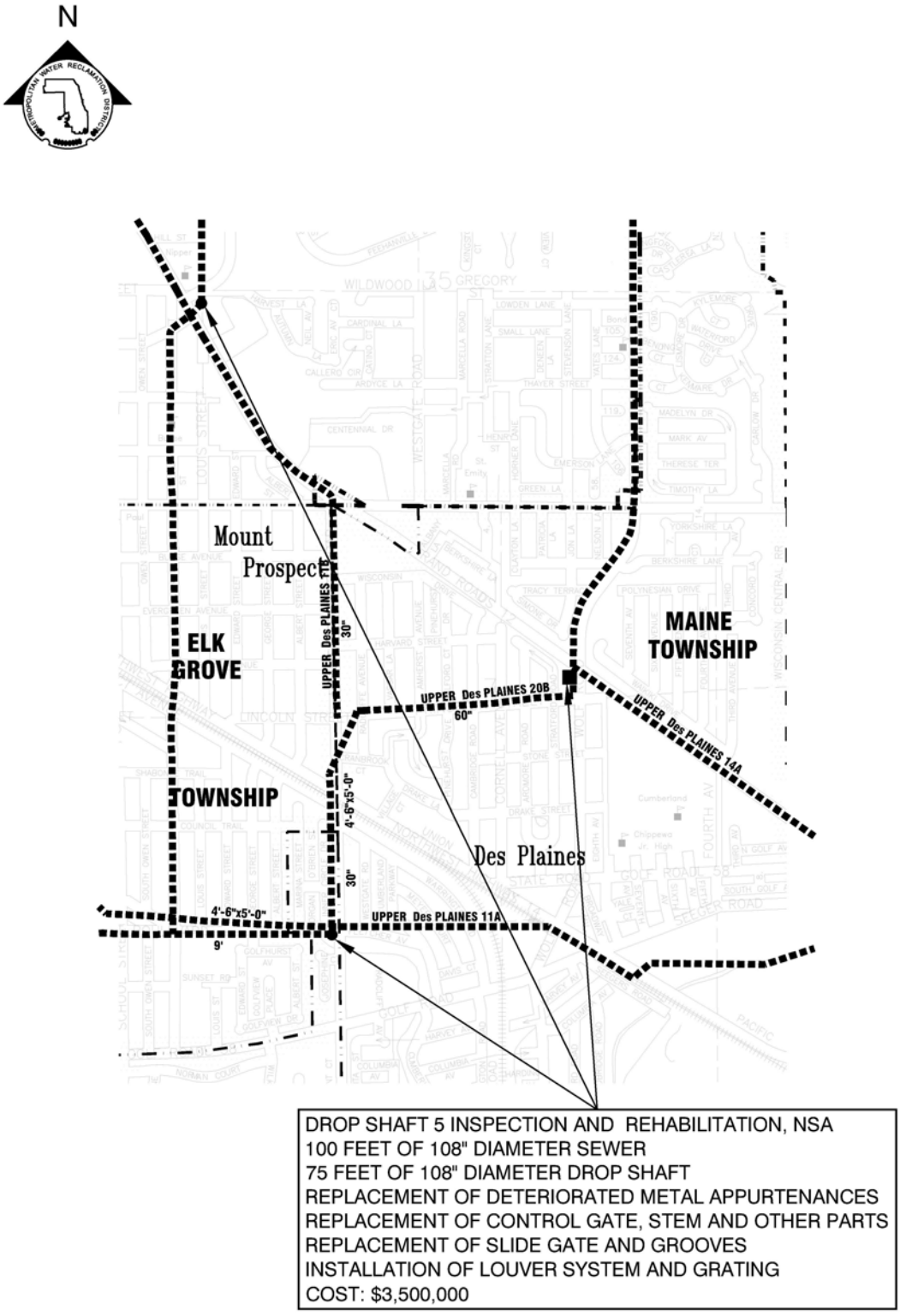


LOCATION MAP

LEGEND:

= SEWER TO BE REHABILITATED
= EXISTING SEWER
* = THIS PROJECT WILL BE FUNDED WITH PAY–AS–GO CAPITAL OUT OF THE CONSTRUCTION FUND

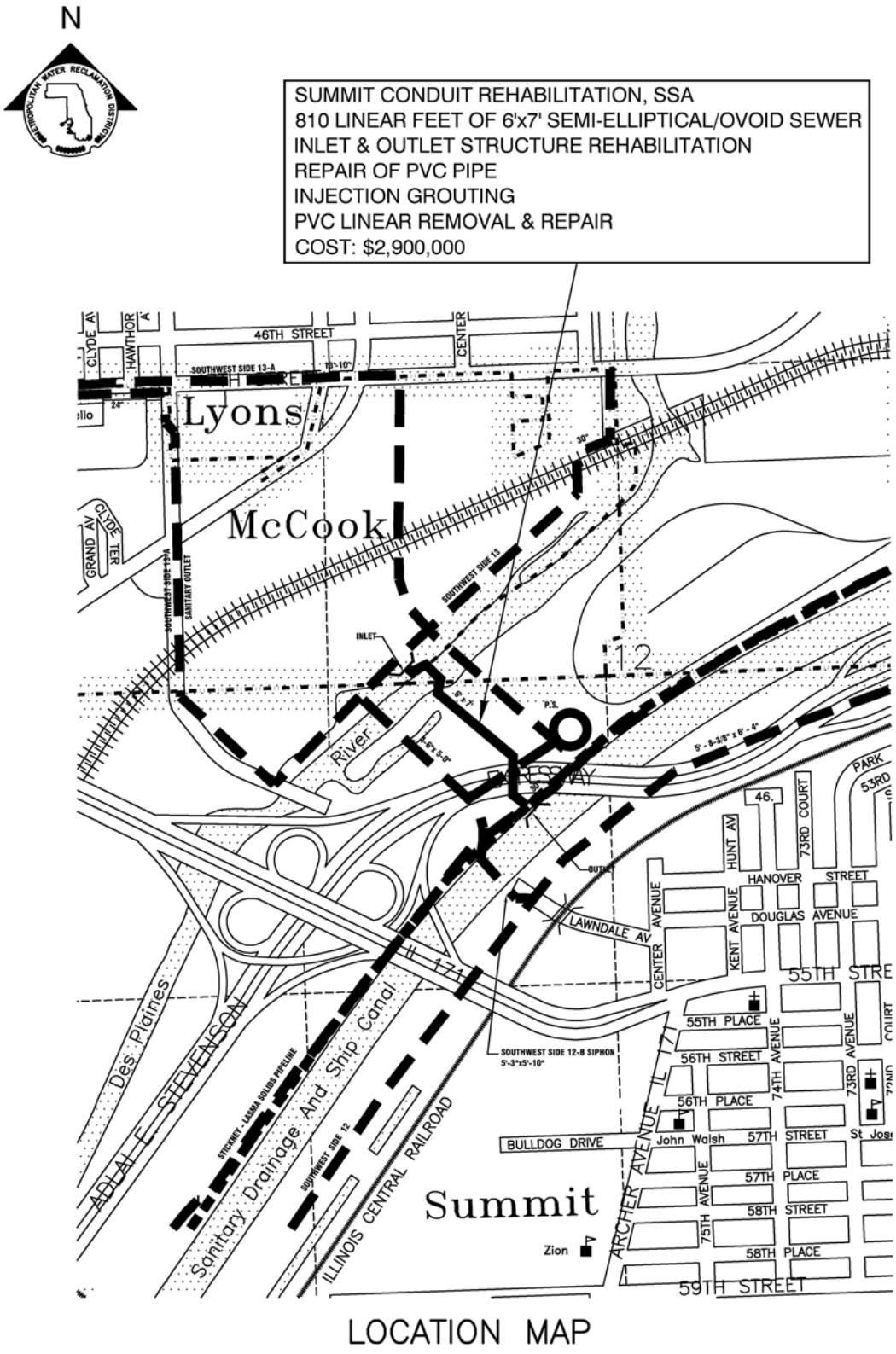
STICKNEY EFFLUENT REUSE LINE, SSA
CONTRACT 14-107-3S



LEGEND:

● = MANHOLE TO BE REHABILITATED
▬▬ = EXISTING SEWER

DROP SHAFT 5 INSPECTION AND REHABILITATION, NSA CONTRACT 14-372-3S

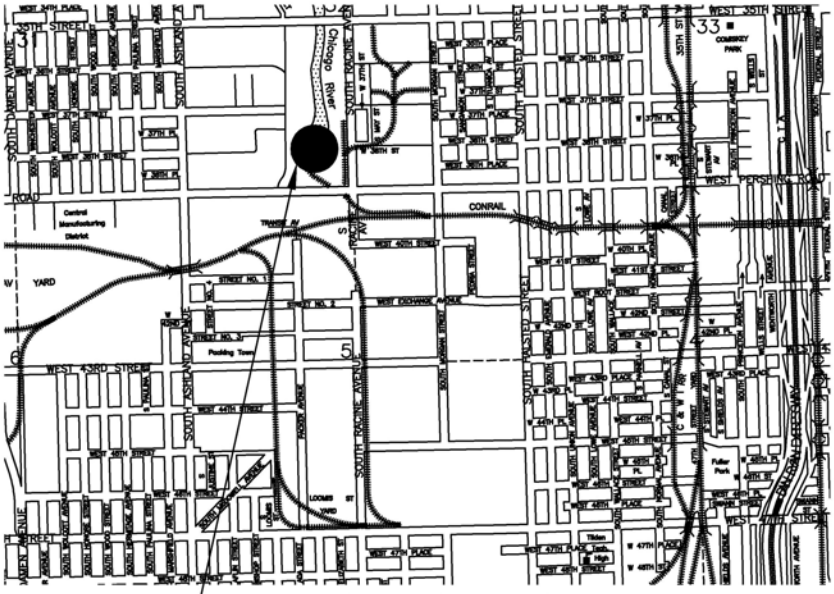


LEGEND:

▬▬ = SEWER TO BE REHABILITATED
▪▪▪▪▪▪▪ = EXISTING SEWER

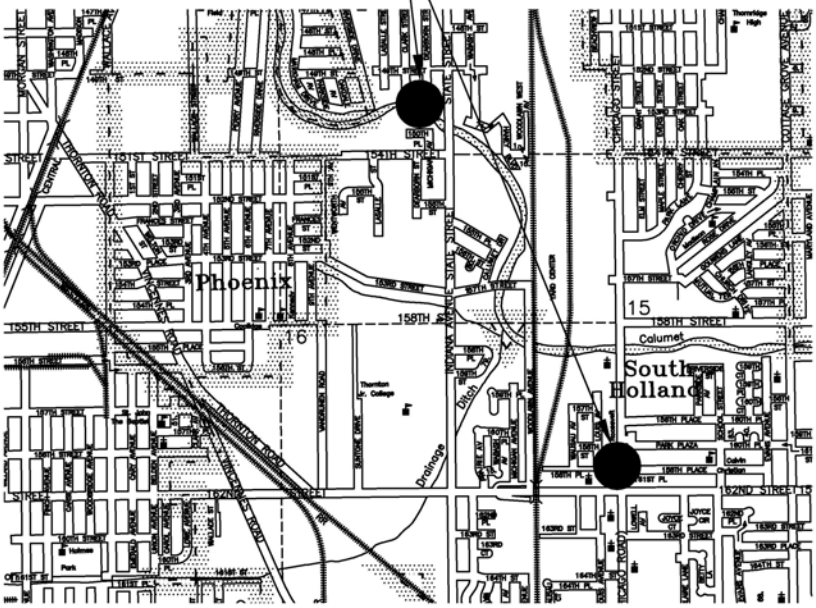
SUMMIT CONDUIT REHABILITATION, SSA
CONTRACT 16-126-3SR

N



LOCATION MAP

MODIFICATIONS TO TARP CONTROL STRUCTURES AND DROP SHAFTS
WEIR WALL MODIFICATIONS WORK AT DS-M27, DS-M28 AND DS-M29.
INSTALLATION OF DRY WEATHER DIVERSION BYPASS SEWERS AT
CDS-C1 AND CDS-45
COST: $3,500,000



LOCATION MAP

LEGEND:

▬▬ = SEWER TO BE REHABILITATED
▪▪▪▪▪▪▪ = EXISTING SEWER

MODIFICATIONS TO TARP CONTROL STRUCTURES AND DROP SHAFTS CONTRACT 17-842-3H

Stormwater Management Capital Improvements Bond Fund Program

Awards in 2019

	Project Name	Project Number	Est. Construction Cost	Duration (days)	Est. Award Date
	Streambank Stabilization Project on Melvina Ditch in Oak Lawn and Chicago Ridge, CSA	13-248-3F	$ 8,800	774	Jan 2019
	Land Acquisition for a Flood Control Project in the vicinity of 131 Street and Cypress Drive in Palos Heights, CSA	17-IGA-04	370	119	May 2019
*	Construction of a Levee along Thorn Creek at Arquilla Park, Glenwood, CSA	15-IGA-14	3,483	306	Jun 2019
	Streambank Stabilization Project on Tinley Creek, CSA	10-882-AF	3,806	1,412	Jul 2019
	Addison Creek Channel Improvements, SWRP	11-187-3F	42,608	1,048	Oct 2019
	Total 2019 Awards		$ 59,067		

*This project is funded by the Capital Improvements Bond Fund and the Stormwater Management Fund.

Refer to Section VI Stormwater Management Fund for more information about the Stormwater Management Capital Improvement Program.

Note: All cost figures are in thousands of dollars; inflation factor is 0 percent.

Method of Financing

State Revolving Fund Loans	Alternate Bonds	Grants	Total
$ 54,827	$ 4,240	$ —	$ 59,067

Projects Under Construction

Projects Under Construction in the Capital Improvements Bond Fund were appropriated in prior years using the full encumbrance (obligation) method of budgetary accounting. The construction contract award amount and the anticipated completion date are provided in this table.

	Project Name	Project Number	Est. Construction Cost	Award Date	Est. Substantial Completion Date
	Melvina Ditch Reservoir Improvements, SSA	14-263-3F	$ 14,245	Nov 2017	May 2021
*	Buffalo Creek Reservoir Expansion, NSA	13-370-3F	8,598	Feb 2018	Mar 2020
	Streambank Stabilization Project along Midlothian Creek in Tinley Park, CSA	10-882-CF	645	Nov 2018	Jan 2022
	Pilot Study for Investigating Technology to Address Basement Backups, CSA	16-IGA-20	400	Nov 2018	Dec 2020
	Addison Creek Reservoir, SSA	11-186-3F	95,155	Dec 2018	Dec 2021
	Total Projects Under Construction		$ 119,043		

*These projects are funded by the Capital Improvements Bond Fund and the Stormwater Management Fund.

Refer to Section VI Stormwater Management Fund for more information about the Stormwater Management Capital Improvement Program.

Note: All cost figures are in thousands of dollars; inflation factor is 0 percent.

50000 CAPITAL IMPROVEMENTS BOND FUND — OBJECTIVES AND PROGRAM SUMMARY

OBJECTIVES BY PRIORITY:	Cost	Percent
1. COLLECTION FACILITIES: Award five construction projects: North Shore 1 Rehabilitation, NSA, Upper Des Plaines Intercepting Sewer 14B Rehabilitation, NSA, and three other projects.	$ 37,250,000	15.7%
2. TREATMENT FACILITIES: Award eight construction projects: Two Phosphorus Removal Projects, Roof Replacement of the Lue-Hing M&R Complex, SWRP, Energy Efficiency Improvements, SWRP, Sidestream Enhanced Biological Phosphorus Removal Pilot Study, CWRP, and three other projects.	$ 40,553,000	17.2%
3. SOLIDS PROCESSING AND DISPOSAL FACILITIES: Award three construction projects: Digester Rehabilitation and Gas Piping Replacement, SWRP, Digester Sludge Heating System Upgrade and Boiler Removal, CWRP, and one other project.	$ 42,577,000	18.0%
4. FLOOD AND POLLUTION CONTROL: Award nine construction projects: Addison Creek Channel Improvements, SWRP, Rehabilitation of TARP Pumps, MSPS, and six other projects.	$ 78,584,000	33.2%
5. LAND AND RIGHT-OF-WAY ACQUISITION COSTS: Acquisition of land for the expansion of reservoir projects and payments for land easements.	$ 2,050,000	0.9%
6. PROJECT SUPPORT: Administration, design, and construction inspection for current and future contracts, funding support, and construction services, such as concrete and soil testing.	$ 35,417,900	15.0%
Total	$ 236,431,900	100.0%

MEASURABLE GOAL:	2017 Actual	2018 Estimated	2019 Proposed
Award contracts for the continued implementation of the District's Capital Improvement Program.			
Number of projects proposed	16	40	25
Number of contracts awarded	10	40	25

The projects proposed for each year are based upon the requirements dictated by the Capital Improvement Program. The number of actual projects awarded may not, on face value, quantify performance. There are several factors that could either increase or decrease the number of projects awarded. Some of these factors are project size, project complexity, and unforeseen obstacles. These numbers are provided only as a general indicator of performance.

50000 CAPITAL IMPROVEMENTS BOND FUND OBJECTIVES AND PROGRAM SUMMARY

PROGRAMS BY PRIORITY:		2017		Budgeted		Change	
Number	Name	Actual		FTEs	Dollars	Dollars	Percent
1700	Collection Design	$ 110,871	2019	—	$ —	$ —	—
			2018	—	$ —		
1800	Collection Construction	$ 32,304,699	2019	—	$ 40,712,500	$ (3,783,800)	(8.5)
			2018	—	$ 44,496,300		
2700	Treatment Design	$ 1,229,095	2019	—	$ —	$ —	—
			2018	—	$ —		
2800	Treatment Construction	$ 107,014,465	2019	—	$ 47,427,500	$ (16,640,500)	(26.0)
			2018	—	$ 64,068,000		
3700	Solids Processing Design	$ 2,231,948	2019	—	$ —	$ (3,000,000)	(100.0)
			2018	—	$ 3,000,000		
3800	Solids Processing Construction	$ 3,758,475	2019	—	$ 41,843,300	$ 12,660,000	43.4
			2018	—	$ 29,183,300		
4341	Flood Mitigation Projects Planning and Design	$ 3,903,628	2019	—	$ 5,170,000	$ 5,170,000	100.0
			2018	—	$ —		
4343	Flood Mitigation Projects Construction	$ 4,840,626	2019	—	$ 64,011,100	$ (70,917,200)	(52.6)
			2018	—	$ 134,928,300		
4344	Flood Mitigation Projects Contracted with Other Governments	$ 17,037,189	2019	—	$ 370,000	$ (30,000)	(7.5)
			2018	—	$ 400,000		
4345	Flood Mitigation Projects Land and Easements	$ 2,369,515	2019	—	$ —	$ (3,338,000)	(100.0)
			2018	—	$ 3,338,000		
4600	Monitoring	$ —	2019	—	$ —	$ (299,000)	(100.0)
			2018	—	$ 299,000		
4700	Flood and Pollution Control Design	$ 880,472	2019	—	$ 2,000,000	$ 750,000	60.0
			2018	—	$ 1,250,000		
4800	Flood and Pollution Control Construction	$ 64,315,700	2019	—	$ 31,260,000	$ 5,665,000	22.1
			2018	—	$ 25,595,000		
5800	Solids Disposal Construction	$ 4,969,665	2019	—	$ 3,387,500	$ (1,287,500)	(27.5)
			2018	—	$ 4,675,000		
7740	Land and Easements	$ 62,041	2019	—	$ 250,000	$ (1,500,000)	(85.7)
			2018	—	$ 1,750,000		
	Totals	$ 245,028,389	2019	—	$ 236,431,900	$ (76,551,000)	(24.5)%
			2018	—	$ 312,982,900		

Projects budgeted in the Capital Improvements Bond Fund are prioritized based on operational needs, design time frames, and available funding. Year-over-year variances in program area budgets are the result of project timing within the five-year capital planning cycle. The Capital Improvements Bond Fund is budgeted on an obligation basis, meaning the projects are budgeted at their full value in the year they are awarded, whether the project expenditures occur in the same budget year or not.

401	Fund: Capital Improvements Bond	LINE ITEM ANALYSIS						
50000	Department: Engineering							
		2017	2018				2019	
Account Number	Account Name	Expenditure	Original Appropriation *	Adjusted Appropriation 09/30/18 **	Expenditure (Committed Budget plus Disbursement) 09/30/18	Estimated Expenditure 12/31/18	Proposed by Executive Director	Recommended by Committee on Budget and Employment
612090	Reprographic Services	$ —	$ 10,000	$ 10,000	$ 10,000	$ —	$ 10,000	$ —
612240	Testing and Inspection Services	274,760	—	145,585	84,585	42,000	—	—
612250	Court Reporting Services	—	25,000	25,000	25,000	3,700	25,000	—
612400	Intergovernmental Agreements	17,939,689	3,888,000	40,674,195	32,927,933	18,523,700	12,302,500	—
612430	Payments for Professional Services	1,067,679	1,199,000	2,460,154	1,514,400	873,800	400,000	—
612440	Preliminary Engineering Reports and Studies	325,602	250,000	313,945	63,945	500	2,820,000	—
612450	Professional Engineering Services for Construction Projects	6,720,063	4,000,000	11,610,296	9,558,963	5,014,600	4,500,000	—
612470	Personal Services for Post-Award Engineering for Construction Projects	2,253,622	—	10,773,686	10,772,518	2,132,300	—	—
612490	Contractual Services, N.O.C.	254,892	—	—	—	—	—	—
612780	Safety Repairs and Services	—	100,000	100,000	—	—	100,000	—
200	TOTAL CONTRACTUAL SERVICES	28,836,306	9,472,000	66,112,862	54,957,343	26,590,600	20,157,500	—
634600	Equipment for Collection Facilities	—	645,000	636,800	—	200,000	—	—
634620	Equipment for Waterway Facilities	—	—	8,200	8,151	8,200	—	—
634650	Equipment for Process Facilities	579,900	—	—	—	—	—	—
634820	Computer Software	—	150,000	150,000	—	—	—	—
400	TOTAL MACHINERY AND EQUIPMENT	579,900	795,000	795,000	8,151	208,200	—	—
645600	Collection Facilities Structures	9,571,866	4,210,000	15,504,884	11,524,366	7,355,600	5,015,000	—
645620	Waterway Facilities Structures	5,746,486	127,539,900	156,325,228	156,319,541	15,385,600	66,687,000	—
645630	Army Corps of Engineers Services	54,005,694	7,500,000	63,993,681	59,408,567	26,134,500	800,000	—
645650	Process Facilities Structures	95,280,035	58,060,000	101,457,262	80,010,991	45,773,100	11,450,000	—
645680	Buildings	4,036,392	7,413,000	14,521,006	13,645,884	600,000	6,320,000	—
645690	Capital Projects, N.O.C.	—	5,302,000	1,845,400	1,845,325	1,150,800	—	—
645700	Preservation of Collection Facility Structures	27,497,524	31,555,000	46,270,456	19,555,988	15,144,500	58,493,800	—
645720	Preservation of Waterway Facility Structures	3,769,065	25,148,400	28,567,643	16,008,365	4,081,100	2,927,800	—
645750	Preservation of Process Facility Structures	9,786,302	15,963,300	25,654,725	9,887,663	6,290,800	42,318,300	—
645780	Preservation of Buildings	—	17,974,300	27,553,000	19,848,332	3,700,000	20,212,500	—
500	TOTAL CAPITAL PROJECTS	209,693,362	300,665,900	481,693,285	388,055,022	125,616,000	214,224,400	—
656010	Land	1,467,015	300,000	300,000	1,254	290,000	300,000	—
600	TOTAL LAND	1,467,015	300,000	300,000	1,254	290,000	300,000	—

401	Fund: Capital Improvements Bond	LINE ITEM ANALYSIS						
50000	Department: Engineering							
		2017	2018				2019	
Account Number	Account Name	Expenditure	Original Appropriation *	Adjusted Appropriation 09/30/18 **	Expenditure (Committed Budget plus Disbursement) 09/30/18	Estimated Expenditure 12/31/18	Proposed by Executive Director	Recommended by Committee on Budget and Employment
667340	Payments for Easements	62,041	1,750,000	1,750,000	270,000	796,000	1,750,000	—
727102	Principal Expense - Capital Lease	2,473,480	—	40,194,458	40,194,458	2,594,900	—	—
727112	Interest Expense - Capital Lease	1,916,284	—	12,389,516	12,389,516	1,795,000	—	—
700	TOTAL FIXED AND OTHER CHARGES	4,451,806	1,750,000	54,333,974	52,853,974	5,185,900	1,750,000	—
TOTAL CAPITAL IMPROVEMENTS BOND		$245,028,389	$ 312,982,900	$ 603,235,121	$ 495,875,745	$157,890,700	$236,431,900	$ —

* The Capital Improvements Bond Fund is budgeted and accounted for on an obligation basis.

** The appropriation in the Capital Improvements Bond Fund is adjusted to carry forward open value of contracts from the prior year.

NOTES: 1. Amounts may not add up due to rounding.

2. Estimated Expenditure may exceed Adjusted Appropriation when transfers of funds are anticipated or be less than Expenditure (Committed Budget plus Disbursement) when not all commitments are anticipated to be completed by year-end.

3. The Capital Improvements Bond Fund appropriation is controlled on the Summary Object level.