

# 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 200 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 2017 Capital Improvement Program places the 2017 program within the context of our long-range plan. Information is provided on the levels of funding in 2017 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 2017 is presented in the Capital Improvement Program narrative.

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Metropolitan Water Reclamation District of Greater Chicago

100 EAST ERIE STREET

CHICAGO, ILLINOIS 60611-3154

312.751.5600

September 7, 2016

Mr. David St. Pierre  
Executive Director  
OFFICE

Dear Sir:

Subject: 2017 Program for the Capital Funds

The Capital Funds' program for 2017, as prepared in detail, is transmitted herewith. The budget presentation supports the request for funding of the District's 2017 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 narratives by fund provide a summary of the 2017 major initiatives and challenges and 2016 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 2017.

Respectfully submitted,

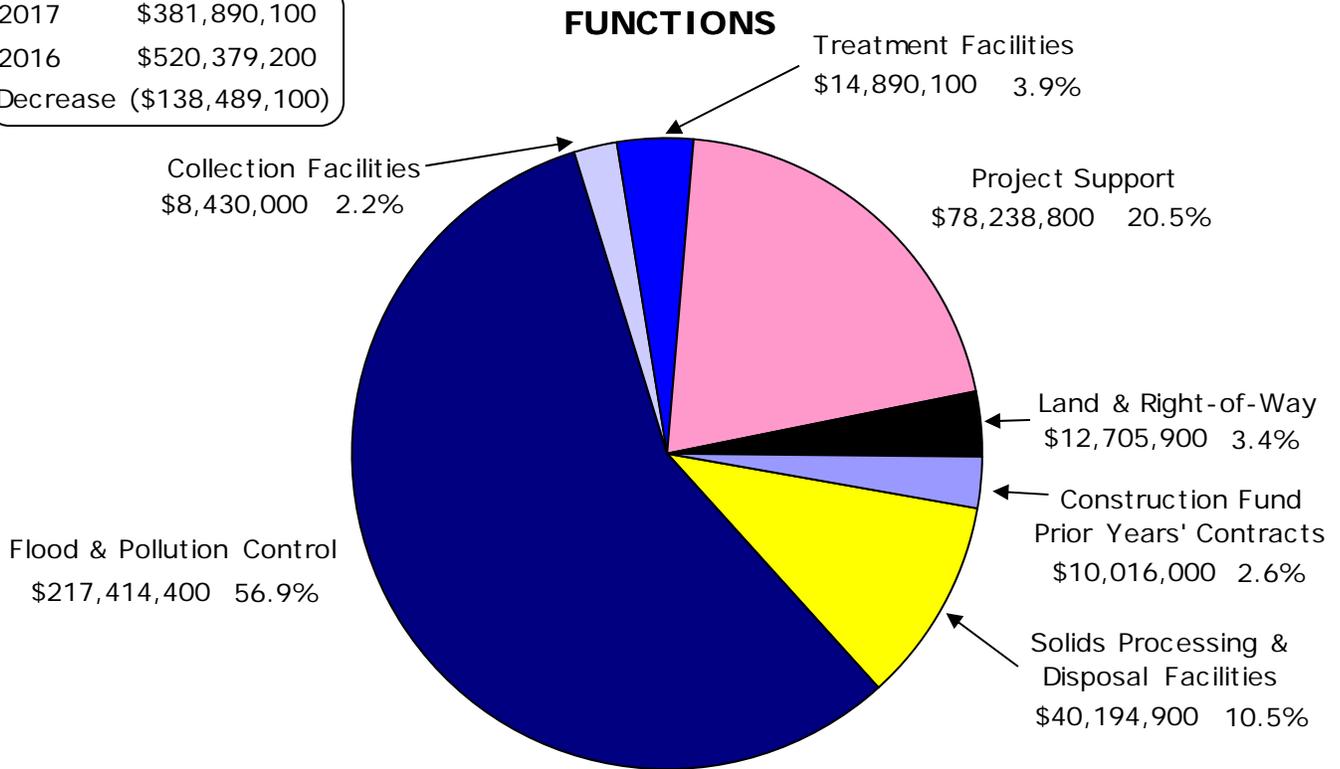
Catherine A. O'Connor  
Director of Engineering

John P. Murray  
Acting Director of Maintenance & Operations

Thomas C. Granato  
Director of Monitoring & Research

# CAPITAL IMPROVEMENT PROGRAM CONSTRUCTION AND CAPITAL IMPROVEMENTS BOND FUNDS

|          |                 |
|----------|-----------------|
| 2017     | \$381,890,100   |
| 2016     | \$520,379,200   |
| Decrease | (\$138,489,100) |



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 (USEPA) and the Illinois Environmental Protection Agency, and pursuing funding for capital projects from the United States Army Corps of Engineers.

**Budget Highlights**

The 2017 Capital Improvement Program (Construction and Capital Improvements Bond Funds) totals \$381,890,100, a decrease of \$138,489,100, or 26.6 percent, from 2016. The decrease is primarily due to a decrease in the total value of capital projects budgeted in 2017. A total of 114 projects funded by the Construction or Capital Improvements Bond Funds will be under planning, design, or construction in 2017. There are 14 flood control and streambank stabilization projects planned for award in 2017.

**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 (GASB) 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.

GASB 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 monies 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, 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 USEPA 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 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 at least \$200.0 million annually in SRF loans through 2020.

**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 are cost effective improvements. Finer tune automation is required to enhance the biological phosphorous removal process. Implementation of finer tune automation also reduces air demand by 5.0 to 7.0 percent, saving approximately \$600,000 in electrical energy annually.

Specific tables are provided later in the narrative to show the estimated cost impacts on the operating budget of capital improvement projects under construction, scheduled for award, and under development.

The operating cost impact tables are designed to give a range of cost impacts on the most significant cost elements, specifically, manpower, energy, and chemicals. The cost impact ranges are defined as no impact, minor impact, or major impact. These estimated cost impacts are reviewed once the specific projects are completed to guide in the preparation of operating budgets and to evaluate if planned efficiencies are realized.

Included in the operating cost impact tables is a categorization of the justification for a particular capital project. As discussed above, projects must be built to meet regulatory requirements, but they may also be built to obtain operating efficiencies, provide a safer operating environment, or extend useful life. The specific categories used are capacity needs, useful life, economic benefit, and safety/regulatory. Projects are often justified by more than one criterion.

**Overall Capital Improvement Program Costs**

The District’s 2017 overall Capital Improvement Program includes 2017 project awards, program support, and projects under construction, with a total estimated construction cost of approximately \$827.3 million. A breakdown of these projects (in millions of dollars) is as follows:

|   |              |
|---|--------------|
| 2017 project awards   | \$ 282.5     |
| 2017 program support (project support and land)                           | 90.9         |
| Projects currently under construction                                     | <u>453.9</u> |
| Total   | \$ 827.3     |
| ◆ A breakdown of projects scheduled for 2017 award by fund is as follows: |              |
| Construction Fund projects  | \$ 17.8      |
| Capital Improvements Bond Fund projects                                   | <u>264.7</u> |
| Total   | \$ 282.5     |
| ◆ A breakdown of projects under construction by fund is as follows:       |              |
| Construction Fund projects  | \$ 16.9      |
| Capital Improvements Bond Fund projects                                   | <u>437.0</u> |
| Total   | \$ 453.9     |

**10-YEAR CAPITAL IMPROVEMENT PROGRAM SUMMARY**

**2012 - 2021 CAPITAL PROJECT CONSTRUCTION COST**

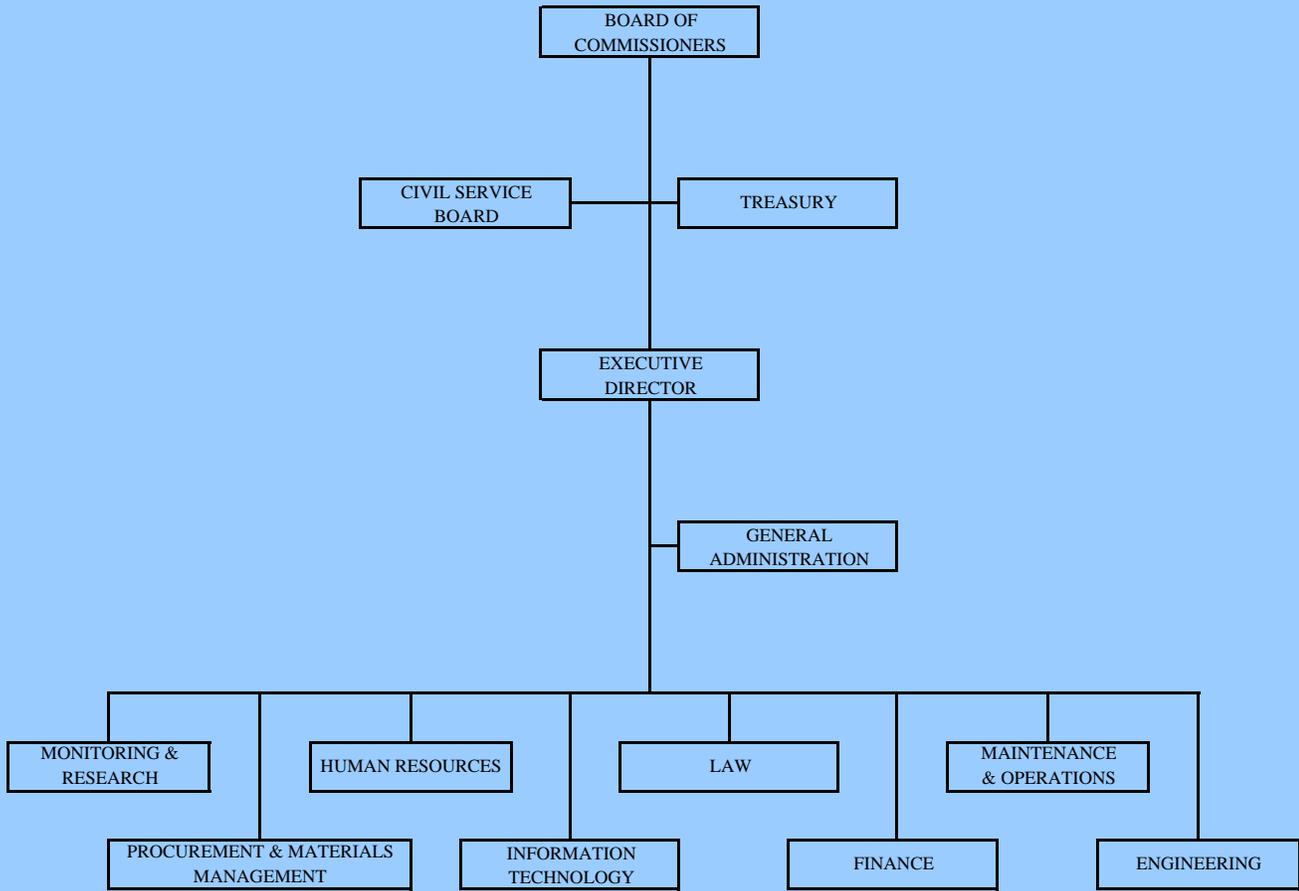
|  | ACTUAL CASH DISBURSEMENTS |                 |                 |                 |                 | ESTIMATED CASH DISBURSEMENTS |                 |                 |                 |                 | TOTAL DISBURSEMENTS |
|--|---------------------------|-----------------|-----------------|-----------------|-----------------|------------------------------|-----------------|-----------------|-----------------|-----------------|---------------------|
|  | 2012                      | 2013            | 2014            | 2015            | 2016*           | 2017                         | 2018            | 2019            | 2020            | 2021            | 2012-2021           |
|  | <u>BY CATEGORY</u>        |                 |                 |                 |                 |                              |                 |                 |                 |                 |                     |
| Water Reclamation Plants and Solids Management | \$58.96                   | \$51.54         | \$65.99         | \$144.40        | \$106.93        | \$105.28                     | \$66.30         | \$63.53         | \$47.29         | \$44.20         | \$754.42            |
| Replacement of Facilities                      | 37.33                     | 31.77           | 40.17           | 26.65           | 42.10           | 55.90                        | 46.89           | 42.41           | 38.49           | 34.84           | \$396.55            |
| Collection Facilities                          | 69.99                     | 32.32           | 44.66           | 14.94           | 10.63           | 8.49                         | 3.88            | 6.64            | 11.71           | 11.14           | \$214.40            |
| Stormwater Management                          | 4.54                      | 19.37           | 5.27            | 5.85            | 7.02            | 12.76                        | 104.29          | 114.57          | 74.60           | 51.30           | \$399.57            |
| Tunnel and Reservoir Plan                      | 29.36                     | 35.99           | 37.49           | 75.18           | 62.84           | 54.34                        | 46.23           | 36.73           | 5.54            | 5.23            | \$388.93            |
| <b>TOTAL</b>                                   | <b>\$200.18</b>           | <b>\$170.99</b> | <b>\$193.58</b> | <b>\$267.02</b> | <b>\$229.52</b> | <b>\$236.77</b>              | <b>\$267.59</b> | <b>\$263.88</b> | <b>\$177.63</b> | <b>\$146.71</b> | <b>\$2,153.87</b>   |
| <u>BY FUND</u>                                 |                           |                 |                 |                 |                 |                              |                 |                 |                 |                 |                     |
| Stormwater Management Fund                     | \$4.54                    | \$19.37         | \$5.27          | \$5.00          | \$5.87          | \$4.01                       | \$19.82         | \$29.96         | \$16.76         | \$8.47          | \$119.07            |
| Construction Fund                              | 5.24                      | 10.78           | 16.57           | 13.34           | 18.10           | 20.44                        | 11.82           | 9.28            | 7.99            | 4.21            | \$117.77            |
| Capital Improvements Bond Fund                 | 190.40                    | 140.84          | 171.74          | 248.68          | 205.55          | 212.32                       | 235.95          | 224.64          | 152.88          | 134.03          | \$1,917.03          |
| <b>TOTAL</b>                                   | <b>\$200.18</b>           | <b>\$170.99</b> | <b>\$193.58</b> | <b>\$267.02</b> | <b>\$229.52</b> | <b>\$236.77</b>              | <b>\$267.59</b> | <b>\$263.88</b> | <b>\$177.63</b> | <b>\$146.71</b> | <b>\$2,153.87</b>   |

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.

\* PROJECTED CASH DISBURSEMENTS

**NOTE PAGE**



# 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 2016 Accomplishments

Significant accomplishments include:

- Completed the first year of a two-year upgrade of the Foxboro input/output modules for the distributed control system at the Calumet Water Reclamation Plant (WRP). The system is an integral component of the wastewater treatment process in the Calumet Service Area;
- Awarded a contract to furnish, deliver, and install communication conduit at the Lockport Powerhouse. The conduit is a critical piece of infrastructure that, among other things, operates the gates and controls the level of the channels at the Lockport Powerhouse;
- Awarded a two-year contract to furnish, deliver, and install boiler controls at the Stickney WRP. The new control system will enable full utilization of the available digester gas produced at the plant;
- Completed a contract for odor mitigation experts to assist in the development of a District Odor Master Plan;
- Installed two raw sewage pumps at the Kirie WRP in order to prevent costly equipment damage, flooding, and lengthy pump shutdowns;
- Entered into an agreement with ReadSoft, Inc. to upgrade the Finance Department's electronic invoice processing software;
- Awarded a contract to perform gas analysis of odorous compounds, the data from which will be used to assist in the selection of appropriate odor mitigation technologies for District facilities;
- Awarded a contract to remodel the north half of the first floor of the General Administration Building at the Calumet WRP to accommodate the needs of the Industrial Waste Division in the Monitoring & Research Department and the Construction Division in the Engineering Department;
- Awarded a contract to install an upgraded vacuum system at the 95th Street Pumping Station, which will increase the dependability of the vacuum system and reduce the risk of flooding during rain events;
- Implemented system as part of a project to demonstrate the recapture of nutrient runoff to enhance watershed health. In order to facilitate this project, two drainage water management systems and three denitrifying bioreactor systems were installed, covering 82 acres of farmland at the District's Prairie Plan Site in Fulton County;
- Issued a Request for Proposal for an electronic management system with document management, workflow management, budget and cost management capabilities specific to capital project planning, design, and construction of projects;
- As part of the District's intergovernmental agreement with the Illinois Department of Natural Resources, contributed to the Chi-Cal Rivers Fund for the purpose of providing grant money for green infrastructure projects throughout the District's service area;
- Began an energy conservation project for the installation of new boilers at the 125th Street Pumping Station in the Calumet Service Area;
- Began the project to renovate the existing parking lot at the Egan WRP with a new permeable parking lot. The permeable pavement will provide several green benefits, including improved water quality, ground water recharge, and delayed discharge of stormwater into the receiving waterway;
- Completed the renovation of the Laramie Avenue boat dock to provide safer boarding and loading of equipment for the Monitoring & Research Department's new research boat.

## Budget Highlights

The 2017 appropriation for the Construction Fund is \$33,852,900, a decrease of \$2,761,500, or 7.5 percent, from 2016. The 2017 value of the Construction Fund Program includes \$10,808,200 for projects under construction and \$11,472,000 for projects scheduled for award in 2017. An additional \$11,572,700 is appropriated for purposes not specifically associated with listed project costs, including \$5,437,600 for testing, inspecting, and consulting services, \$2,913,800 for a multi-year sole source agreement to upgrade the distributed control system at the Calumet WRP, \$1,766,300 for the purchase of capital machinery and equipment, \$831,200 for contract contingencies, \$250,000 for in-development building improvement projects, \$190,000 for sewer support relocation services, \$100,000 for a contribution to the Chi-Cal Rivers Fund, a public-private partnership working to restore the health, vitality, and accessibility of the waterways in the Chicago and Calumet region, and \$100,000 for a contribution to DuPage County Stormwater Management for green infrastructure projects.

**2017 Initiatives in Support of the Strategic Business Plan Include the Following:****• Add Value**

- Increase the use of the in-house trades for the completion of rehabilitation projects;
- Continue to use the Construction Fund to execute the Asset Maintenance Plan, the purpose of which is to rehabilitate and maintain facilities to ensure the long-term viability of assets;
- Continue to implement the District's Odor Master Plan through the evaluation of the various technologies available for wastewater odor control and through the purchase of odor monitoring equipment;
- Provide funds for the Intergovernmental Agreement with DuPage County Stormwater Management to modify the Fawell Dam on the West Branch of the DuPage River for the purpose of increasing fish biodiversity upstream of the dam. Since the Hanover Park WRP's effluent discharges into the West Branch of the DuPage River, the District has been asked to support the project by sharing the construction costs, estimated at \$850,000, of which the District would contribute no more than \$425,000;
- Continue the development of a native prairie landscape and tree nursery at the Hanover Park WRP's Fischer Farm. The project will not only demonstrate the usefulness of biosolids-based compost as a growing media, but will increase public awareness of the need to restore the tree canopy, which has been decimated by the emerald ash borer and other pests and diseases;
- Partner with the City of Chicago through its Departments of Water Management and Transportation to conduct a pilot study to evaluate potential runoff reduction and flood protection alternatives. The results of the study will provide valuable information that can be used to accomplish the District's mission to prevent flooding in the region.

**• Excellence**

- Continue to develop and refine the Asset Maintenance Plan with the goal of reducing emergency sewer collapses and sludge line breaks and the high costs associated with them;
- Continue to use District personnel to develop, design, and implement construction projects;
- Continue to pursue research programs focused on addressing impending or anticipated future regulatory actions, achieving energy neutrality and resource recovery, or generating cost savings.

**• Resource Recovery**

- Complete the rehabilitation of the digester gas turbine at the Stickney WRP. Digester gas will be consumed in the combustor of a three-megawatt electric generator, and the generated electricity will, in turn, be delivered back to the grid and distributed throughout the plant, resulting in reduced electrical demand;
- Begin a research project utilizing algae technology for the recovery of phosphorus and nitrogen from wastewater, which includes the installation of a pilot-scale flow-through reactor with augmented artificial light sources. The District is conducting leading edge research in this field to drive the development of algae nutrient recovery technology as a practical and sustainable approach to nutrient management for urban wastewater treatment plants. The benefit of using algae to remove phosphorus from wastewater is that algae naturally absorbs phosphorus and nitrogen as key nutrients for growth. Algae can also be harvested and used in a variety of sustainable and economically beneficial applications across the agriculture, medical, nutraceutical, and cosmetic industries;
- Continue the development of a native prairie landscape and tree nursery at the Hanover Park WRP's Fischer Farm;
- Begin phosphorus removal feasibility studies for the Egan, Hanover Park, Lemont, and Kirie WRPs;
- Implement a pilot study at the Hanover Park WRP using membrane aerated biofilm technology to demonstrate its applicability for the biological removal process and its potential for energy savings.

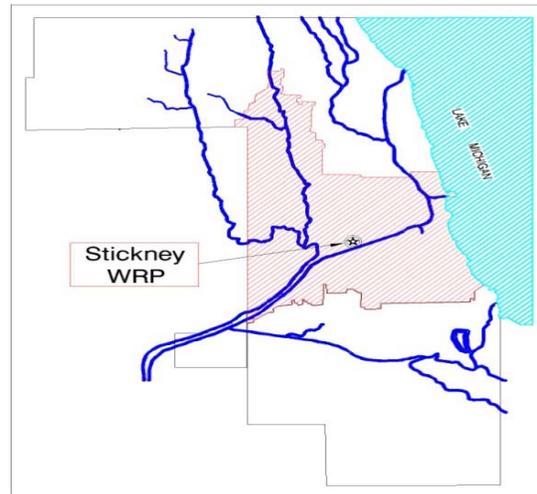
**• Technology**

- In support of the District's goal to provide reliable and high quality information and systems, the Information Technology Department will continue the District-wide installation of upgraded infrastructure and the assessment of voice over internet protocol, information technology security, and document management systems.

**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 and projects for 2017 award.

**STICKNEY  
SERVICE  
AREA (SSA)**



**Stickney Water Reclamation Plant (SWRP)**

**Projects Under Construction (with estimated completion dates)**

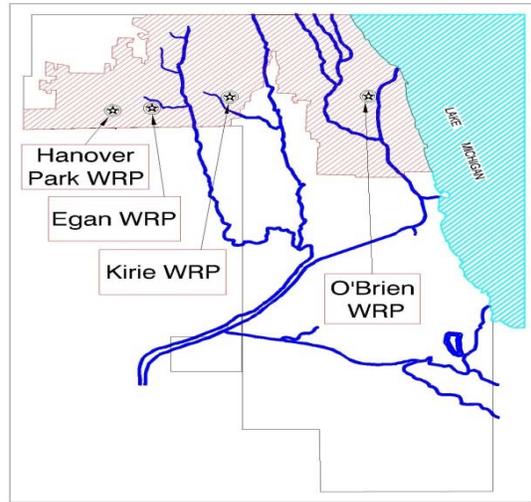
**Estimated Construction Cost**

|           |   |                     |
|-----------|---|---------------------|
| 13-805-2S | Television Inspection and Recording of Sewer and Manholes, District-wide (9/2017) | \$ 1,496,000        |
| 15-913-21 | Rehabilitate the Digester Gas Turbine, SWRP (9/2017)                              | 2,038,000           |
| 16-419-21 | Rehabilitation of Elevators, MOB (3/2017)   | 425,000             |
| 16-901-21 | FD&I Boiler Controls, SWRP (6/2018)   | 1,300,000           |
| 16-902-21 | Pavement Rehabilitation, District-wide (12/2017)                                  | 1,147,000           |
| 16-IGA-20 | Pilot Study to Investigate Basement Backup Solutions, Various Locations (10/2017) | 400,000             |
|           | <b>Total</b>  | <b>\$ 6,806,000</b> |

**Projects for 2017 Award**

|              |   |                      |
|--------------|---|----------------------|
| 13-806-2S    | Television Inspection and Recording of Sewer and Manholes, District-wide                          | \$ 1,800,000         |
| 14-107-2J    | Stickney Effluent Reuse Line, SSA   | 600,000              |
| 16-1xx-21    | F&D One Volute Dewatering Press, SWRP   | 1,000,000            |
| 17-601-21    | Painting of Final Tanks, District-wide  | 1,632,000            |
| 17-602-21    | F&D Programmable Logic Controllers, Chicago River Controlling Works                               | 90,000               |
| 17-603-21    | F&D Windrow Turner, LASMA   | 650,000              |
| 17-604-21    | FD&I Headrace Handrail, LPH   | 50,000               |
| 17-605-21    | Cofferdam Services, Lockport Powerhouse   | 375,000              |
| 17-901-21    | F&D Interoperable Distributed Control System Workstations and TARP Controllers, Various Locations | 125,000              |
| 17-902-21    | FD&I Grit Screw Conveyors, SWRP   | 2,400,000            |
| J69943-029.A | Coarse Screen Area Beam Restoration, RAPS   | 100,000              |
|              | <b>Total</b>  | <b>\$ 8,822,000</b>  |
|              | <b>Stickney Service Area Grand Total</b>  | <b>\$ 15,628,000</b> |

# NORTH SERVICE AREA (NSA)



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

### Projects Under Construction (with estimated completion dates)

|           |  |                         |
|-----------|--|-------------------------|
| 15-711-21 | Restoration of Process Control Building, OWRP (6/2017)         | \$ 484,000              |
| 16-705-21 | Rebuild Two Raw Sewage Pump Rotating Assemblies, OWRP (3/2017) | 219,000                 |
|           |  | <b>Total \$ 703,000</b> |

### Projects for 2017 Award

|           |  |                           |
|-----------|--|---------------------------|
| 15-074-2D | Installation of Baffle Plates in Final Settling Tanks, OWRP                          | \$ 1,600,000              |
| 16-078-2J | Algae Biomass Nutrient Recovery Demonstration Project Installation, OWRP             | 500,000                   |
| 16-704-21 | FD&I Upgraded Coarse Screen Conveyor System at the North Branch Pumping Station, NSA | 150,000                   |
| 17-701-21 | F&D Storm Pump for the Deerfield Reservoir, NSA                                      | 100,000                   |
| 17-706-21 | F&D Dump Truck, OWRP   | 175,000                   |
| 17-707-21 | Re-pipe Devon Avenue Instream Aeration Station Air Main, OWRP                        | 1,500,000                 |
|           |  | <b>Total \$ 4,025,000</b> |

## John E. Egan Water Reclamation Plant (EWRP)

### Project Under Construction (with estimated completion dates)

|           |  |                           |
|-----------|--|---------------------------|
| 14-714-21 | Parking Lot Replacement, EWRP (1/2017) | \$ 1,462,000              |
|           |  | <b>Total \$ 1,462,000</b> |

### Projects for 2017 Award

|           |                            |                         |
|-----------|----------------------------|-------------------------|
| 17-703-21 | F&D Stake Body Truck, EWRP | \$ 82,000               |
| 17-704-21 | F&D Air Lift Blower, EWRP  | 100,000                 |
|           |                            | <b>Total \$ 182,000</b> |

## James C. Kirie Water Reclamation Plant (KWRP)

### Project Under Construction (with estimated completion dates)

|           |  |                         |
|-----------|--|-------------------------|
| 16-708-21 | Repair and Rehabilitation of the Gloria Alitto Majewski Reservoir, KWRP (4/2018) | \$ 223,000              |
|           |  | <b>Total \$ 223,000</b> |

### Projects for 2017 Award

|           |   |                         |
|-----------|---|-------------------------|
| 17-705-21 | Touhy Avenue Reservoir Rehabilitation, NSA                        | \$ 450,000              |
| 17-709-21 | F&D Bar Screens, KWRP   | 300,000                 |
| 17-710-21 | Overhaul Motor and Magnetic Drive for Raw Sewage Pump No. 3, KWRP | 120,000                 |
|           |   | <b>Total \$ 870,000</b> |

**Hanover Park Water Reclamation Plant (HPWRP)**

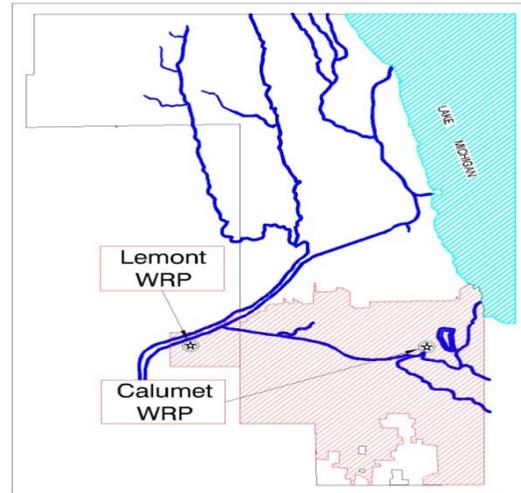
**Project Under Construction (with estimated completion dates)**

|           |   | <b>Estimated Construction Cost</b> |
|-----------|---|------------------------------------|
| 16-RFP-09 | Design and Build a Native Plant and Tree Nursery at the Hanover at Fischer Farm, HPWRP (3/2018) | \$ 3,000,000                       |
|           |   | Total \$ <u><b>3,000,000</b></u>   |

**Projects for 2017 Award**

|                                |  |                                    |
|--------------------------------|--|------------------------------------|
| 15-534-2C                      | Procurement of Membrane Aerated Biofilm Reactor Cassettes for Pilot Plant, HPWRP | \$ 800,000                         |
| 15-534-2J                      | Membrane Aerated Biofilm Reactor Pilot Plant, HPWRP                              | 500,000                            |
| 17-708-21                      | FD&I Disc Filters, HPWRP   | 1,500,000                          |
|                                |  | Total \$ <u><b>2,800,000</b></u>   |
| North Service Area Grand Total |  | \$ <u><u><b>13,265,000</b></u></u> |

**CALUMET  
SERVICE  
AREA (CSA)**



**Calumet Water Reclamation Plant (CWRP)**

**Projects Under Construction (with estimated completion dates)**

|           |  | <b>Estimated Construction Cost</b> |
|-----------|--|------------------------------------|
| 15-802-21 | Rehabilitation of Hydraulic Operator at TARP Gate Structure 1, CSA (5/2017)      | \$ 1,324,000                       |
| 16-268-2V | IWD and Construction Office Renovation, CWRP (12/2017)                           | 2,200,000                          |
| 16-806-21 | F&D Vacuum Pump Priming System at the 95th Street Pumping Station, CSA (11/2017) | 200,000                            |
|           |  | <b>Total \$ 3,724,000</b>          |

**Projects for 2017 Award**

|           |  |                         |
|-----------|--|-------------------------|
| 16-802-21 | FD&I an Upgraded Sludge Concentration Conveyor, CWRP | \$ 250,000              |
| 16-803-21 | HVAC Improvements, CWRP                              | 180,000                 |
| 16-805-21 | FD&I Boiler for Equipment Garage, CWRP               | 240,000                 |
| 16-815-21 | F&D a Replacement Gearbox for SEPA 4, CSA            | 225,000                 |
|           |  | <b>Total \$ 895,000</b> |

**Lemont Water Reclamation Plant (LWRP)**

**Project Under Construction (with estimated completion date)**

|           |                                     |                         |
|-----------|-------------------------------------|-------------------------|
| 14-806-21 | FD&I New Tank Drives, LWRP (9/2017) | \$ 975,000              |
|           |                                     | <b>Total \$ 975,000</b> |

**Project for 2017 Award**

|           |                        |                         |
|-----------|------------------------|-------------------------|
| 17-802-21 | F&D Turbo Blower, LWRP | 170,000                 |
|           |                        | <b>Total \$ 170,000</b> |

Calumet Service Area Grand Total **\$ 5,764,000**

Capital Projects Grand Total - All Service Areas **\$ 34,657,000**

**Construction Fund Program**

| <b><u>Projects Under Construction</u></b> |  |                       | <b>Est.</b>                        | <b>MWRD</b>                        | <b>Award</b>                     |                                  |
|---|--|-----------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|
| <b>#</b>                                  | <b>Project Name</b>  | <b>Project Number</b> | <b>Construc-<br/>tion<br/>Cost</b> | <b>2017<br/>Appro-<br/>piation</b> | <b>Dura-<br/>tion<br/>(days)</b> | <b>/ Est.<br/>Award<br/>Date</b> |
| 1   | Television Inspection and Recording of Sewer and Manholes, District-wide             | 13-805-2S             | \$ 1,496                           | \$ 157                             | 1,096                            | Sep-14                           |
| 2   | FD&I New Tank Drives, LWRP   | 14-806-21             | 975                                | 300                                | 1,114                            | Sep-14                           |
| 3   | Parking Lot Replacement, EWRP  | 14-714-21             | 1,462                              | 300                                | 458                              | Oct-15                           |
| 4   | Rehabilitation of Hydraulic Operator at TARP Gate Structure 1, CSA                   | 15-802-21             | 1,324                              | 1,000                              | 551                              | Nov-15                           |
| 5   | Restoration of Process Control Building, OWRP  | 15-711-21             | 484                                | 484                                | 396                              | May-16                           |
| 6   | Rehabilitate the Digester Gas Turbine, SWRP  | 15-913-21             | 2,038                              | 759                                | 484                              | May-16                           |
| 7   | Rebuild Two Raw Sewage Pump Rotating Assemblies, OWRP                                | 16-705-21             | 219                                | 219                                | 209                              | Aug-16                           |
| 8   | Pavement Rehabilitation, District-wide   | 16-902-21             | 1,147                              | 697                                | 487                              | Aug-16                           |
| 9   | Rehabilitation of Elevators, MOB   | 16-419-21             | 425                                | 300                                | 181                              | Oct-16                           |
| 10  | F&D Vacuum Pump Priming System at the 95th Street Pumping Station, CSA               | 16-806-21             | 200                                | 150                                | 406                              | Oct-16                           |
| 11  | Pilot Study to Investigate Basement Backup Solutions, Various Locations              | 16-IGA-20             | 400                                | 400                                | 365                              | Oct-16                           |
| 12  | Design and Build a Native Plant and Tree Nursery at Fischer Farm, HPWRP              | 16-RFP-09             | 3,000                              | 2,500                              | 546                              | Oct-16                           |
| 13  | IWD and Construction Office Renovation, CWRP   | 16-268-2V             | 2,200                              | 2,000                              | 395                              | Nov-16                           |
| 14  | Repair and Rehabilitation of the Gloria Alitto Majewski Reservoir, KWRP              | 16-708-21             | 223                                | 100                                | 486                              | Dec-16                           |
| 15  | FD&I Boiler Controls, SWRP   | 16-901-21             | 1,300                              | 650                                | 576                              | Dec-16                           |
| Total Projects Under Construction         |  |                       | \$ 16,893                          | \$ 10,016                          |                                  |                                  |
| <b><u>Awards in 2017</u></b>              |  |                       | <b>Est.</b>                        | <b>MWRD</b>                        | <b>Dura-<br/>tion<br/>(days)</b> | <b>Est.<br/>Award<br/>Date</b>   |
| <b>#</b>                                  | <b>Project Name</b>  | <b>Project Number</b> | <b>Construc-<br/>tion<br/>Cost</b> | <b>2017<br/>Appro-<br/>piation</b> | <b>Dura-<br/>tion<br/>(days)</b> | <b>Est.<br/>Award<br/>Date</b>   |
| 1   | Procurement of Membrane Aerated Biofilm Reactor Cassettes for Pilot Plant, HPWRP     | 15-534-2C             | \$ 800                             | \$ 400                             | 516                              | Jan-17                           |
| 2   | FD&I an Upgraded Sludge Concentration Conveyor, CWRP                                 | 16-802-21             | 250                                | 250                                | 364                              | Jan-17                           |
| 3   | F&D Windrow Turner, LASMA  | 17-603-21             | 650                                | 650                                | 59                               | Jan-17                           |
| 4   | FD&I Disc Filters, HPWRP   | 17-708-21             | 1,500                              | 1,200                              | 449                              | Jan-17                           |
| 5   | Stickney Effluent Reuse Line, SSA  | 14-107-2J             | 600                                | 600                                | 212                              | Feb-17                           |
| 6   | Installation of Baffle Plates in Final Settling Tanks, OWRP                          | 15-074-2D             | 1,600                              | 640                                | 758                              | Feb-17                           |
| 7   | F&D a Replacement Gearbox for SEPA 4, CSA  | 16-815-21             | 225                                | 225                                | 333                              | Feb-17                           |
| 8   | Re-pipe Devon Avenue Instream Aeration Station Air Main, OWRP                        | 17-707-21             | 1,500                              | 1,500                              | 286                              | Feb-17                           |
| 9   | Overhaul Motor and Magnetic Drive for Raw Sewage Pump No. 3, KWRP                    | 17-710-21             | 120                                | 120                                | 119                              | Feb-17                           |
| 10  | F&D Turbo Blower, LWRP   | 17-802-21             | 170                                | 170                                | 255                              | Feb-17                           |
| 11  | F&D One Volute Dewatering Press, SWRP  | 16-1xx-21             | 1,000                              | 1,000                              | 305                              | Mar-17                           |
| 12  | FD&I Upgraded Coarse Screen Conveyor System at the North Branch Pumping Station, NSA | 16-704-21             | 150                                | 150                                | 305                              | Mar-17                           |
| 13  | Painting of Final Tanks, District-wide   | 17-601-21             | 1,632                              | 776                                | 974                              | Mar-17                           |
| 14  | F&D Stake Body Truck, EWRP   | 17-703-21             | 82                                 | 82                                 | 305                              | Mar-17                           |
| 15  | F&D Air Lift Blower, EWRP  | 17-704-21             | 100                                | 100                                | 209                              | Mar-17                           |
| 16  | F&D Dump Truck, OWRP   | 17-706-21             | 175                                | 175                                | 305                              | Mar-17                           |

**Awards in 2017 (continued)**

| #                   | Project Name  | Project Number | Est. Construction Cost | MWRD 2017 Appropriation | Duration (days) | Est. Award Date |
|---------------------|---|----------------|------------------------|-------------------------|-----------------|-----------------|
| 17                  | FD&I Headrace Handrail, LPH   | 17-604-21      | \$ 50                  | \$ 50                   | 91              | Apr-17          |
| 18                  | Cofferdam Services, LPH   | 17-605-21      | 375                    | 375                     | 274             | Apr-17          |
| 19                  | FD&I Grit Screw Conveyors, SWRP   | 17-902-21      | 2,400                  | 600                     | 1,272           | Apr-17          |
| 20                  | Coarse Screen Area Beam Restoration, RAPS   | J69943-029.A   | 100                    | 100                     | 182             | Apr-17          |
| 21                  | FD&I Boiler for Equipment Garage, CWRP  | 16-805-21      | 240                    | 240                     | 152             | May-17          |
| 22                  | F&D Storm Pump for the Deerfield Reservoir, NSA   | 17-701-21      | 100                    | 100                     | 244             | May-17          |
| 23                  | Algae Biomass Nutrient Recovery Demonstration Project Installation, OWRP                          | 16-078-2J      | 500                    | 500                     | 183             | Jun-17          |
| 24                  | F&D Interoperable Distributed Control System Workstations and TARP Controllers, Various Locations | 17-901-21      | 125                    | 125                     | 213             | Jun-17          |
| 25                  | HVAC Improvements, CWRP   | 16-803-21      | 180                    | 180                     | 152             | Jul-17          |
| 26                  | F&D Programmable Logic Controllers, Chicago River Controlling Works                               | 17-602-21      | 90                     | 90                      | 178             | Jul-17          |
| 27                  | Touhy Avenue Reservoir Rehabilitation, NSA  | 17-705-21      | 450                    | 450                     | 153             | Jul-17          |
| 28                  | F&D Bar Screens, KWRP   | 17-709-21      | 300                    | 300                     | 122             | Aug-17          |
| 29                  | Television Inspection and Recording of Sewer and Manholes, District-wide                          | 13-806-2S      | 1,800                  | 600                     | 1,096           | Sep-17          |
| 30                  | Membrane Aerated Biofilm Reactor Pilot Plant,   | 15-534-2J      | 500                    | 500                     | 123             | Oct-17          |
| Total 2017 Awards   |   |                | <u>\$ 17,764</u>       | <u>\$ 12,248</u>        |                 |                 |
| TOTAL 2017 PROJECTS |   |                | \$ 34,657              | \$ 22,264               |                 |                 |

**Note: All cost figures are in thousands of dollars.**

### Construction Fund Program Operating Impacts

| <b>Projects Under Construction</b> |  | <i>Capacity Needs</i> | <i>Useful Life</i> | <i>Economic Benefit</i> | <i>Safety/Regulatory</i> | <i>Manpower</i> | <i>Energy</i> | <i>Chemical</i> |   |
|------------------------------------|--|-----------------------|--------------------|-------------------------|--------------------------|-----------------|---------------|-----------------|---|
| #                                  | Project Name   | Project Number        |                    |                         |                          |                 |               |                 |   |
| 1                                  | Television Inspection and Recording of Sewer and Manholes, District-wide             | 13-805-2S             |                    | X                       |                          | X               | =             | +               | = |
| 2                                  | FD&I New Tank Drives, LWRP   | 14-806-21             |                    | X                       |                          | X               | =             | +               | = |
| 3                                  | Parking Lot Replacement, EWRP  | 14-714-21             |                    | X                       |                          | X               | =             | =               | = |
| 4                                  | Rehabilitation of Hydraulic Operator at TARP Gate Structure 1, CSA                   | 15-802-21             |                    | X                       |                          | X               | =             | =               | = |
| 5                                  | Restoration of Process Control Building, OWRP  | 15-711-21             |                    | X                       | X                        |                 | =             | =               | = |
| 6                                  | Rehabilitate the Digester Gas Turbine, SWRP  | 15-913-21             |                    |                         | X                        |                 | =             | ++              | = |
| 7                                  | Rebuild Two Raw Sewage Pump Rotating Assemblies, OWRP                                | 16-705-21             |                    | X                       |                          | X               | =             | =               | = |
| 8                                  | Pavement Rehabilitation, District-wide   | 16-902-21             |                    | X                       |                          |                 | =             | =               | = |
| 9                                  | Rehabilitation of Elevators, MOB   | 16-419-21             |                    | X                       |                          | X               | =             | =               | = |
| 10                                 | F&D Vacuum Pump Priming System at the 95th Street Pumping Station, CSA               | 16-806-21             |                    | X                       |                          |                 | =             | =               | = |
| 11                                 | Pilot Study to Investigate Basement Backup Solutions, Various Locations              | 16-IGA-20             |                    | X                       |                          |                 | =             | =               | = |
| 12                                 | Design and Build a Native Plant and Tree Nursery at Fischer Farm, HPWRP              | 16-RFP-09             |                    | X                       |                          |                 | =             | =               | = |
| 13                                 | IWD and Construction Office Renovation, CWRP   | 16-268-2V             |                    |                         | X                        |                 | =             | =               | = |
| 14                                 | Repair and Rehabilitation of the Gloria Alitto Majewski Reservoir, KWRP              | 16-708-21             | X                  |                         |                          |                 | --            | --              | = |
| 15                                 | FD&I Boiler Controls, SWRP   | 16-901-21             | X                  |                         |                          | X               | =             | =               | = |
| <b>Awards in 2017</b>              |  |                       |                    |                         |                          |                 |               |                 |   |
| 1                                  | Procurement of Membrane Aerated Biofilm Reactor Cassettes for Pilot Plant, HPWRP     | 15-534-2C             |                    |                         |                          | X               | =             | +               | = |
| 2                                  | FD&I an Upgraded Sludge Concentration Conveyor, CWRP                                 | 16-802-21             | X                  |                         | X                        | X               | =             | =               | = |
| 3                                  | F&D Windrow Turner, LASMA  | 17-603-21             |                    |                         | X                        |                 | --            | --              | = |
| 4                                  | FD&I Disc Filters, HPWRP   | 17-708-21             | X                  |                         |                          |                 | =             | +               | = |
| 5                                  | Stickney Effluent Reuse Line, SSA  | 14-107-2J             |                    |                         | X                        |                 | =             | =               | = |
| 6                                  | Installation of Baffle Plates in Final Settling Tanks, OWRP                          | 15-074-2D             |                    |                         |                          | X               | =             | =               | = |
| 7                                  | F&D a Replacement Gearbox for SEPA 4, CSA  | 16-815-21             |                    | X                       |                          |                 | =             | =               | = |
| 8                                  | Re-pipe Devon Avenue Instream Aeration Station Air Main, OWRP                        | 17-707-21             |                    | X                       | X                        |                 | =             | +               | = |
| 9                                  | Overhaul Motor and Magnetic Drive for Raw Sewage Pump No. 3, KWRP                    | 17-710-21             |                    | X                       |                          | X               | =             | =               | = |
| 10                                 | F&D Turbo Blower, LWRP   | 17-802-21             |                    |                         | X                        |                 | =             | =               | = |
| 11                                 | F&D One Volute Dewatering Press, SWRP  | 16-1xx-21             |                    |                         | X                        |                 | ++            | ++              | = |
| 12                                 | FD&I Upgraded Coarse Screen Conveyor System at the North Branch Pumping Station, NSA | 16-704-21             |                    | X                       |                          |                 | =             | =               | = |
| 13                                 | Painting of Final Tanks, District-wide   | 17-601-21             |                    | X                       |                          |                 | =             | =               | = |
| 14                                 | F&D Stake Body Truck, EWRP   | 17-703-21             |                    | X                       |                          |                 | =             | =               | = |
| 15                                 | F&D Air Lift Blower, EWRP  | 17-704-21             |                    |                         | X                        |                 | =             | +               | = |
| 16                                 | F&D Dump Truck, OWRP   | 17-706-21             |                    | X                       |                          |                 | =             | =               | = |

| <b>Construction Fund Operating Impacts<br/>for Awards in 2017 (continued)</b> |   | <b>Justification</b>  |                    |                         |                          | <b>Impact</b>   |               |                 |   |
|---|---|-----------------------|--------------------|-------------------------|--------------------------|-----------------|---------------|-----------------|---|
|   |   | <i>Capacity Needs</i> | <i>Useful Life</i> | <i>Economic Benefit</i> | <i>Safety/Regulatory</i> | <i>Manpower</i> | <i>Energy</i> | <i>Chemical</i> |   |
| <b>#</b>  | <b>Project Name</b>   | <b>Project Number</b> |                    |                         |                          |                 |               |                 |   |
| 17  | FD&I Headrace Handrail, LPH   | 17-604-21             |                    |                         |                          | x               | =             | =               | = |
| 18  | Cofferdam Services, LPH   | 17-605-21             |                    | x                       |                          |                 | =             | =               | = |
| 19  | FD&I Grit Screw Conveyors, SWRP   | 17-902-21             |                    |                         | x                        |                 | +             | =               | = |
| 20  | Coarse Screen Area Beam Restoration, RAPS   | J69943-029.A          |                    | x                       |                          |                 | =             | =               | = |
| 21  | FD&I Boiler for Equipment Garage, CWRP  | 16-805-21             |                    | x                       |                          |                 | =             | =               | = |
| 22  | F&D Storm Pump for the Deerfield Reservoir, NSA   | 17-701-21             |                    | x                       |                          |                 | =             | =               | = |
| 23  | Algae Biomass Nutrient Recovery Demonstration Project Installation, OWRP                | 16-078-2J             |                    |                         |                          | x               | =             | +               | = |
| 24  | F&D Interoperable Distributed Control System Workstations and TARP Controllers, Various | 17-901-21             |                    | x                       |                          |                 | =             | =               | = |
| 25  | HVAC Improvements, CWRP   | 16-803-21             |                    | x                       |                          |                 | =             | =               | = |
| 26  | F&D Programmable Logic Controllers, Chicago River Controlling Works                     | 17-602-21             |                    | x                       |                          |                 | =             | =               | = |
| 27  | Touhy Avenue Reservoir Rehabilitation, NSA  | 17-705-21             |                    | x                       |                          | x               | =             | =               | = |
| 28  | F&D Bar Screens, KWRP   | 17-709-21             |                    | x                       |                          | x               | =             | =               | = |
| 29  | Television Inspection and Recording of Sewer and Manholes, District-wide                | 13-806-2S             |                    | x                       |                          | x               | =             | =               | = |
| 30  | Membrane Aerated Biofilm Reactor Pilot Plant, HPWRP                                     | 15-534-2J             |                    |                         |                          | x               | =             | +               | = |

| <b>LEGEND</b>  |          |   |
|--|----------|---|
| Under " <b>Justification</b> ," the marked columns note the categories of benefits expected from each project.   |          |   |
| <b>Manpower</b>  |          |   |
| + or - Labor savings (+) or increases (-) expected to result in redirecting existing manpower away from or toward facility or process to other tasks with no net change in total position costs. | ++ or -- | Labor impact significant enough to ultimately result in reduction (++) or increase (--) in personnel. See additional cost details contained in the Project Fact Sheets.   |
| <b>Energy</b>  |          |   |
| + or - Minor energy savings (+) or costs (-) having a negligible impact on the District's overall energy budget.   | ++ or -- | Major energy savings (++) or costs (--) expected to result in significant revisions to a facility's energy budget. See additional cost details contained in the Project Fact Sheets.                                      |
| <b>Chemical</b>  |          |   |
| + or - Chemical savings (+) or costs (-) having a negligible impact on the District's overall chemical costs.  | ++ or -- | Major chemical savings (++) or costs (--) expected to result in significant revisions to the budgeted chemical expenditures for the associated process. See additional cost details contained in the Project Fact Sheets. |
| = No budgetary impact expected.  |          |   |

## Coarse Screen Area Beam Restoration, RAPS

**Project Number:** J69943-029.A

**Service Area:** Stickney

**Location:** Racine Avenue Pumping Station

**Engineering Consultant:** In-house design

**General Contractor:** Meccor Industries, Ltd.

**Estimated Construction Cost:** \$100,000

**Contract Award Date:** April 2017\*

**Substantial Completion Date:** September 2017\*



**Project Description:** Remove all loose, disintegrated, scaled, and spalled concrete with a lightweight, hand-held, and pneumatic, chipping hammer of 15 pounds or less. Concrete edges shall be saw cut for a minimum depth of 1/2 inch. Remove concrete around exposed rebar for a depth of one inch or more. Sandblast exposed rebar and concrete surfaces and sandblast steel to white metal. Double coat steel surface with Zincrich or approved equal coating. Splice rebars that have lost 15 percent or more of cross section area by corrosion. Install galvanic anodes per manufacturer's written recommendations. Provide shoring of beams and form work as required to support the existing structures under repair. Form and pour LA40, Sikacrete 211, or approved equal pre-bagged/pre-mixed concrete. Apply concrete sealant along repair patch perimeter.

**Project Justification:** Efflorescence, cracks, spalls, delamination, and discoloration due to corrosion were visually noticed at several isolated locations of the concrete slab and several beams. Delamination was also noticed around the previously repaired areas. The protective paint that covers the concrete beams and the underside of the slabs was observed to be disintegrated and debonded.

**Project Status:** Project initiation.

\*Information shown is estimated.

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

**Project Number:** 13-805-2S

**Service Area:** North, Calumet, and Stickney

**Location:** District-wide

**Engineering Consultant:** In-house design

**General Contractor:** National Power Rodding Corporation

**Estimated Construction Cost:** \$1,496,000

**Contract Award Date:** September 2014

**Substantial Completion Date:** September 2017\*



**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, disposal, and hourly video inspection 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:** In progress.

\*Information shown is estimated.

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

**Project Number:** 13-806-2S

**Service Area:** North, Calumet, and Stickney

**Location:** District-wide

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$1,800,000

**Contract Award Date:** September 2017\*

**Substantial Completion Date:** September 2020\*



**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, disposal, and hourly video inspection 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:** Design phase.

\*Information shown is estimated.

## Stickney Effluent Reuse Line, SSA

**Project Number:** 14-107-2J

**Service Area:** Stickney

**Location:** Stickney Township

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$600,000

**Contract Award Date:** February 2017\*

**Substantial Completion Date:** September 2017\*



**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.

**Project Justification:** This project provides a source of treated effluent water for use in process applications in the immediate vicinity of the Stickney WRP and represents the first of the effluent water reuse opportunities to be constructed.

**Project Status:** Design phase.

\*Information shown is estimated.

## Parking Lot Replacement, EWRP

**Project Number:** 14-714-21

**Service Area:** North

**Location:** Egan WRP

**Engineering Consultant:** In-house design

**General Contractor:** Path Construction Company, Inc.

**Estimated Construction Cost:** \$1,462,000

**Contract Award Date:** October 2015

**Substantial Completion Date:** January 2017\*



**Project Description:** Demolition of the existing concrete parking lot, driveways, storm sewers, and other associated appurtenances. Installation of a new permeable paver parking lot, concrete driveways and walkways, underdrain system, bio-retention basin, landscaping, and energy-efficient parking lot lighting.

**Project Justification:** The existing 44-year old concrete parking lot has deteriorated significantly, developed many potholes, and is failing very rapidly, thus creating driving and pedestrian hazards. The proposed permeable paver parking lot will provide green benefits by promoting stormwater infiltration and groundwater recharge, improving receiving waterway water quality, and contributing to compliance with the green infrastructure requirements of the District's Consent Decree.

**Project Status:** Under construction.

\*Information shown is estimated.

## Furnish, Deliver, and Install New Tank Drives, LWRP

**Project Number:** 14-806-21

**Service Area:** Calumet

**Location:** Lemont WRP

**Engineering Consultant:** In-house design

**General Contractor:** Independent Mechanical Industries, Inc.

**Estimated Construction Cost:** \$975,000

**Contract Award Date:** September 2014

**Substantial Completion Date:** September 2017\*



**Project Description:** Furnish, deliver, and install new clarifier drives on four final tanks and new mixers on one digester and one concentration tank. Refurbish and paint the structural steel members of six tanks. Refurbish two tanks per year.

**Project Justification:** The original tank drives are in poor condition and require excessive maintenance. The structural steel also requires replacement of miscellaneous members due to rust. Replacement of the tank drives will ensure the tanks are available to meet the operational needs of the plant.

**Project Status:** In progress.

\*Information shown is estimated.

## Installation of Baffle Plates in Final Settling Tanks, OWRP

**Project Number:** 15-074-2D

**Service Area:** North

**Location:** O'Brien WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$1,600,000

**Contract Award Date:** February 2017\*

**Substantial Completion Date:** March 2019\*



**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, and 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 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:** Design phase.

\*Information shown is estimated.

## Procurement of Membrane Aerated Biofilm Reactor Cassettes for Pilot Plant, HPWRP

**Project Number:** 15-534-2C

**Service Area:** North

**Location:** Hanover Park WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$800,000

**Contract Award Date:** January 2017\*

**Substantial Completion Date:** June 2018\*



**Project Description:** Purchase of five membrane aerated biofilm reactors (MABR) cassettes for a pilot plant installation at the Hanover Park WRP. The purpose of this project is to provide proof-of-concept for the application of MABR technology to improve the nitrification rate, increase reactor capacity for enhanced biological phosphorus removal, improve operations under stressed conditions, and reduce energy consumption in the activated sludge process. The project includes engineering support from the MABR manufacturer for design and installation.

**Project Justification:** This project is the second phase of a research project to determine the benefits and prove the performance of MABR technology. The O'Brien WRP will be required to meet total phosphorus limits. The plant does not have the reactor capacity to implement enhanced biological phosphorus removal and still meet the ammonia permit requirements. This technology has the potential to increase existing reactor capacity, while also reducing energy demand through reduced air consumption. A pilot test will be done at the Hanover Park WRP because it has the reactor-clarifier configuration needed for a small-scale pilot test.

**Project Status:** Design phase.

\*Information shown is estimated.

## Membrane Aerated Biofilm Reactor Pilot Plant, HPWRP

**Project Number:** 15-534-2J

**Service Area:** North

**Location:** Hanover Park WRP

**Engineering Consultant:** In-house design

**General Contractor:** Meccor Industries, Ltd.

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

**Contract Award Date:** October 2017\*

**Substantial Completion Date:** February 2018\*



**Project Description:** Installation of membrane aerated biofilm reactor (MABR) system in Tank 2 of Battery D for the purpose of conducting a performance test of MABR technology to enable the creation of an anaerobic zone for application of the enhanced biological phosphorus removal process. MABR cassettes will be procured under a separate contract with the manufacturer. This project involves the installation of the cassettes and ancillary equipment including piping, valves, air blowers, and instrumentation.

**Project Justification:** In order to implement enhanced biological phosphorus removal at the Hanover Park WRP, an anaerobic zone must be created within the existing aeration tank. This anaerobic zone takes away capacity for the nitrification process. The MABR technology has the ability to accomplish nitrification in a smaller volume of tank, thus permitting the installation of the anaerobic zone without impacting nitrification. This project is the second phase in the evaluation of the performance of MABR technology. The first phase was a sidestream pilot plant of one MABR cassette at the O'Brien WRP. This project will evaluate a full-scale deployment of the MABR technology in one aeration tank for the purpose of evaluating the performance of the MABR in an actual-scale installation. Results from the pilot test will be used to evaluate if this technology could provide necessary phosphorus reduction if installed in all aeration tanks.

**Project Status:** Preliminary design phase.

\*Information shown is estimated.

## Restoration of Process Control Building, OWRP

**Project Number:** 15-711-21

**Service Area:** North

**Location:** O'Brien WRP

**Engineering Consultant:** In-house design

**General Contractor:** Dardon's Roofing, Ltd.

**Estimated Construction Cost:** \$484,000

**Contract Award Date:** May 2016

**Substantial Completion Date:** June 2017\*



**Project Description:** This contract provides for the restoration of the Process Control Building at the O'Brien WRP. The scope of the project includes grinding and recaulking the capstones and limestone, tuckpointing the entire structure, removing and replacing the sealant on all the doors and windows, replacing all the windows and glass blocks, and removing and replacing the roof. This project is expected to have a life expectancy of over 20 years.

**Project Justification:** The building is 85 years old and the building envelope is in poor condition and beginning to fail. Structural steel, in other buildings of the same age on the same site, has begun to rust badly due to envelope issues. The condition of the building, if not addressed now, will deteriorate further. Delaying the restoration will likely result in more extensive and expensive repairs in the future.

**Project Status:** In progress.

\*Information shown is estimated.

## Rehabilitation of Hydraulic Operator at TARP Gate Structure 1, CSA

**Project Number:** 15-802-21

**Service Area:** Calumet

**Location:** TARP Gate Structure 1

**Engineering Consultant:** In-house design

**General Contractor:** Ornelas Construction Company

**Estimated Construction Cost:** \$1,324,000

**Contract Award Date:** November 2015

**Substantial Completion Date:** May 2017\*



**Project Description:** This project will include the removal, rehabilitation, and installation of the hydraulic operator on the Tunnel and Reservoir Plan (TARP) Gate Structure 1 (GS-1) in the Calumet Service Area.

**Project Justification:** TARP GS-1 is a critical roller gate in the Calumet Service Area that isolates the Torrence Avenue leg of the Calumet TARP System, protecting the service area from localized flooding events and providing a buffer to prevent combined sewer overflows into Lake Michigan. The gate is 16'x25' and is located 300 feet underground.

The hydraulic operator, installed in 2003, controls the operation of the gate. Corrosion of the rod on TARP GS-1 has damaged the packing, causing a hydraulic oil leak in the cylinder that cannot be repaired in the field. As a result, the gate could fail in the closed position, preventing the Torrence Avenue leg of the Calumet TARP System from being dewatered after a fill event. The rehabilitation of the hydraulic operator will include an upgraded rod designed to withstand the highly corrosive environment in the drop shaft.

**Project Status:** In progress.

\*Information shown is estimated.

## Rehabilitate the Digester Gas Turbine, SWRP

**Project Number:** 15-913-21

**Service Area:** Stickney

**Location:** Central Heat Facility

**Engineering Consultant:** In-house design

**General Contractor:** Electrical Systems, Inc.

**Estimated Construction Cost:** \$2,038,000

**Contract Award Date:** May 2016

**Substantial Completion Date:** September 2017\*



**Project Description:** Furnish, deliver, and install all equipment, materials, and appurtenances necessary to rehabilitate the three-megawatt digester gas turbine at the Stickney WRP central heat facility

**Project Justification:** The purpose of the project is to rehabilitate the dormant digester gas turbine, as well as to install facility hazardous gas and fire detection systems. This project will contribute to the District's effort to achieve energy neutrality and help the District become more environmentally friendly by converting unused digester gas into useful energy.

**Project Status:** In progress.

\*Information shown is estimated.

## Algae Biomass Nutrient Recovery Demonstration Project Installation, OWRP

**Project Number:** 16-078-2J

**Service Area:** North

**Location:** O'Brien WRP

**Engineering Consultant:** In-house design

**General Contractor:** Meccor Industries, Ltd.

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

**Contract Award Date:** June 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** Installation of a pilot-scale flow-through reactor with augmented artificial light sources to develop a process for growing algae biomass for the purpose of recovering phosphorus and nitrogen from the liquid stream of the treatment plant. The scope of work includes installation of a 50,000 to 100,000 gallon flow-through reactor, wavelength-specific light-emitting diodes, piping and pumps, power supply, harvesting and dewatering equipment installation, and site work. Working with the support of experts from the Illinois Sustainable Technology Center, District staff will work to optimize the performance of the flow-through reactor to maximize phosphorus uptake. In addition, various means for harvesting and processing the algae for ultimate beneficial use will be evaluated. The goal of this project is to develop a process that is robust and scalable for eventual full-scale application at the O'Brien WRP.

**Project Justification:** This project is being done in compliance with the special provisions of the O'Brien WRP's National Pollutant Discharge Elimination System permit and of the District's long-term plan for controlling phosphorus discharge in the O'Brien WRP's effluent. The benefit of using algae to remove phosphorus from wastewater is that the algae will naturally absorb phosphorus and nitrogen as key nutrients for growth, and the algae can be harvested and used in a variety of sustainable and economically beneficial ways, such as feedstock for bioplastics, biofuels, aquaculture feed, and industrial dyes. The concept of using algae to remove nutrients from wastewater is not new. Traditional approaches use large algal ponds, which are not practical in an urban environment where land is scarce. The District is conducting leading-edge research in this field to drive the development of algae nutrient recovery technology as a practical and sustainable approach to nutrient management for urban wastewater treatment plants.

**Project Status:** Preliminary design phase.

\*Information shown is estimated.

**Industrial Waste Division (IWD) and Construction Office Renovation, CWRP****Project Number:** 16-268-2V**Service Area:** Calumet**Location:** Calumet WRP**Engineering Consultant:** In-house design**General Contractor:** To be determined**Estimated Construction Cost:** \$2,200,000**Contract Award Date:** November 2016\***Substantial Completion Date:** December 2017\*

**Project Description:** The purpose of this contract is to remodel the north half of the first floor of the General Administration Building to accommodate the needs of the Monitoring & Research Department's Industrial Waste Division and the Engineering Department's Construction Division. A section of a basement storeroom will be used by the Construction Division to accommodate its Troxler equipment. The existing roof on the entire building has reached its useful life and will be replaced.

Six existing trailers with associated accessories will be physically removed because they have reached the end of their useful lives. Utilities to these trailers will be terminated upon their removal.

Existing fume hood exhaust valves will be replaced in the Monitoring & Research Laboratory Building.

**Project Justification:** Industrial Waste Division and Construction Division staff require updated spaces. The abandoned laboratory areas are to be repurposed for other use.

**Project Status:** Pending advertisement.

\*Information shown is estimated.

## Rehabilitation of Elevators, MOB

**Project Number:** 16-419-21

**Service Area:** Stickney

**Location:** Chicago

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$425,000

**Contract Award Date:** October 2016\*

**Substantial Completion Date:** March 2017\*



**Project Description:** Modernize two Main Office Building (MOB) elevators by replacing direct current motors on two machines with alternating current motors with variable frequency drives 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 "Excellence" value of the District, 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 variable frequency drives are expected.

**Project Status:** Pending award.

\*Information shown is estimated.

## Furnish, Deliver, and Install Upgraded Coarse Screen Conveyor System at the North Branch Pumping Station, NSA

**Project Number:** 16-704-21

**Service Area:** North

**Location:** North Branch Pumping Station

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$150,000

**Contract Award Date:** March 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** This project will include work to furnish, deliver, and install an upgraded coarse screen conveyor system at the North Branch Pumping Station in the North Service Area.

**Project Justification:** The North Branch Pumping Station coarse screens remove debris from the incoming sewers to protect critical raw sewage pumps. The coarse screens utilize a conveyor system that was installed approximately 15 years ago to move the screenings to a dumpster. During severe rain events, the existing conveyor system has been overloaded with debris. This condition, which has led to two drive failures in the past year, results in a build-up of debris, interferes with the operation of the coarse screens, and presents safety concerns as the screenings spill on the floor.

**Project Status:** Under review.

\*Information shown is estimated.

## Rebuild Two Raw Sewage Pump Rotating Assemblies, OWRP

**Project Number:** 16-705-21

**Service Area:** North

**Location:** O'Brien WRP

**Engineering Consultant:** In-house design

**General Contractor:** HydroAire Service, Inc.

**Estimated Construction Cost:** \$219,000

**Contract Award Date:** August 2016

**Substantial Completion Date:** March 2017\*



**Project Description:** This project will include the complete rebuild of two main sewage pump rotating assemblies at the O'Brien 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 will include a new pump shaft, casing rings, impeller rings, shaft sleeves, and other parts for each rotating assembly. In addition, the contract work will require the reassembly and the balancing of the rotating assemblies to Internal Standards Organization Standard G6.3.

**Project Justification:** The O'Brien WRP has six main raw sewage pumps (RSPs) with various flow capabilities. RSPs #1 and #2 can each generate 97 million gallons 373per day (MGD), RSPs #3 and #4 can produce 65 MGD each, while RSPs #5 and #6 can each pump 130 MGD. During a rain event, five main sewage pumps are required to be in service to reach the maximum plant flow. Currently, the O'Brien WRP has one total spare rotating assembly for the 65 MGD pumps, but there are no spare rotating assemblies for the four larger capacity pumps.

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 increases, 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 two worn rotating assemblies removed from the main sewage pumps at the O'Brien WRP, one 130 MGD rotating assembly, and one 97 MGD rotating assembly. Having spare rotating assemblies on hand significantly reduces the downtime required to replace a main sewage pump rotating assembly in case of failure.

**Project Status:** In progress.

\*Information shown is estimated.

## Repair and Rehabilitation of the Gloria Alitto Majewski Reservoir, KWRP

**Project Number:** 16-708-21

**Service Area:** North

**Location:** Gloria Alitto Majewski Reservoir

**Engineering Consultant:** In-house design/MWH Americas, Inc.

**General Contractor:** To be determined

**Estimated Construction Cost:** \$223,000

**Contract Award Date:** December 2016\*

**Substantial Completion Date:** April 2018\*



**Project Description:** Miscellaneous repairs and rehabilitation of the Gloria Alitto Majewski Reservoir.

**Project Justification:** In 2011, the US Army Corps of Engineer inspection of the reservoir identified many deficiencies with the geo-membrane liner and under drainage system. Engineering Department Contract 06-363-3D implemented repairs based upon the 2011 inspection, and the repairs were completed in 2013. In 2015, a follow-up inspection by the District's Engineering Department identified additional needed repairs: drainage under liner, south of the intake structure, appears defective (most critical), liner connection issues, concrete toe block deficiencies, and roller compacted concrete repairs required.

**Project Status:** Pending award.

\*Information shown is estimated.

## Furnish, Deliver, and Install an Upgraded Sludge Concentration Conveyor, CWRP

**Project Number:** 16-802-21

**Service Area:** Calumet

**Location:** Calumet WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$250,000

**Contract Award Date:** January 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** Demolish and remove existing sludge conveyor and furnish, deliver, and install an upgraded sludge concentration conveyor and washer compactor.

**Project Justification:** The current system does not dewater properly. The inability to dewater properly causes operational difficulties, hazards to surrounding equipment, and safety hazards. The current system has excess water carryover from the screenings, which fills the belt compartments and is transported to the dumpster box. The additional weight of the water wears out the rollers and drive system components prematurely. Excess water in the dumpster requires the dumpster to be replaced more frequently due to the additional weight and the possibility of spillage. The spillage frequently clogs floor drains and is a slipping hazard.

Upgrading the sludge concentration conveyor will decrease future maintenance costs, ensure efficient debris removal, and alleviate safety hazards by removing the excess water from the screenings.

**Project Status:** Preliminary planning.

\*Information shown is estimated.

## HVAC Improvements, CWRP

**Project Number:** 16-803-21

**Service Area:** Calumet

**Location:** Calumet WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$180,000

**Contract Award Date:** July 2017\*

**Substantial Completion Date:** November 2017\*



**Project Description:** Demolish and remove five air conditioning systems and furnish, deliver, and install replacement systems. The systems include the Administration Building computer room HVAC and supplemental cooling, the Administration Building control room cooling, the digester control room cooling, and the Tunnel and Reservoir Plan control room cooling.

**Project Justification:** The five air conditioning units control air temperature for the computer and control rooms, which protect electrical equipment from overheating and causing equipment failure. The electrical equipment in these rooms consists of process monitors, distributed control system computers, phone systems, information technology networks, HVAC controls, computer workstations, and control cabinet input/output modules. These systems have been in service for over 20 years and various repairs have been made over the past several years, including compressor replacements, coil leak repairs, repair and replacement of condenser fans and fan motors, repair and replacement of solenoid expansion valves, and pneumatic control repairs. The corrective maintenance on these units is extensive, and reliability has become progressively worse over the past few years. Due to the corrosive gases and harsh environment, the evaporator coils, condenser coils, steam coils, compressors, fan drive components, refrigerant piping, and controls have experienced significant deterioration. Currently, the cooling system for the digester control room is no longer functional, and it is not economically feasible to repair it. Furthermore, the TARP control room does not have backup cooling, so unit reliability is vital to ensure reliability of the electrical equipment in this area.

The project will minimize future maintenance and ensure increased reliability to protect District assets.

**Project Status:** Preliminary planning.

\*Information shown is estimated.

## Furnish, Deliver, and Install Boiler for Equipment Garage, CWRP

**Project Number:** 16-805-21

**Service Area:** Calumet

**Location:** Calumet WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$240,000

**Contract Award Date:** May 2017\*

**Substantial Completion Date:** September 2017\*



**Project Description:** Furnish, deliver, and install a hot water boiler for the heavy equipment garage at the Calumet WRP.

**Project Justification:** The new heavy equipment garage at the Calumet WRP houses District equipment, such as snow plows, tractors, portable cranes, trailers, and excavators. The garage protects this equipment from inclement weather and freezing conditions, significantly increasing the longevity of the equipment and decreasing the maintenance costs. A boiler is needed to provide hot water for the radiant hydronic heat tubing incorporated into the building floor during construction.

The project will supply a cost effective means to provide heating for the building and allow for the control of air temperature and relative humidity to protect District assets and increase their useful life.

The project will minimize future maintenance costs and ensure increased reliability to protect District assets.

**Project Status:** Preliminary planning.

\*Information shown is estimated.

## Furnish and Deliver Vacuum Pump Priming System at the 95th Street Pumping Station, CSA

**Project Number:** 16-806-21

**Service Area:** Calumet

**Location:** Chicago

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$200,000

**Contract Award Date:** October 2016\*

**Substantial Completion Date:** November 2017\*



**Project Description:** Replace problematic equipment and install modern technology to ensure increased dependability of the vacuum pump priming systems at the 95th Street Pumping Station and reduce the risk of flooding during rain events. The installation will be performed by District pipefitters.

**Project Justification:** The wet-weather and dry-weather centrifugal pumps at the 95th Street Pumping Station require a functional vacuum system to raise the level of the wet well in order to initiate operation. The District has consistently followed the manufacturer's recommended maintenance schedule for the electrical equipment, motors, vacuum pumps, and control valves. Recently, however, the reliability of the vacuum systems has diminished and has caused significant operational difficulties during rain events.

**Project Status:** Pending award.

\*Information shown is estimated.

## Furnish and Deliver a Replacement Gearbox for SEPA 4, CSA

**Project Number:** 16-815-21

**Service Area:** Calumet

**Location:** Sidestream Elevated Pool Aeration (SEPA) 4

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$225,000

**Contract Award Date:** February 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** This project will furnish and deliver a replacement gearbox for SEPA Station #4 in the Calumet Service Area.

**Project Justification:** Due to changes in the permit that require average dissolved oxygen levels to be increased from 3.0 mg/L to 5.0 mg/L from March through July and 3.5 mg/L from August through February, normal operation may require all SEPA screw pumps to be operated.

The existing gearboxes at SEPA Station #4 have been in service for over 20 years. Two of the four existing gearboxes have failed due to broken gears within the last four years.

**Project Status:** Under review.

\*Information shown is estimated.

## Furnish, Deliver, and Install Boiler Controls, SWRP

**Project Number:** 16-901-21

**Service Area:** Stickney

**Location:** Stickney WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$1,300,000

**Contract Award Date:** December 2016\*

**Substantial Completion Date:** June 2018\*



**Project Description:** This 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 upgraded as well.

**Project Justification:** The existing control system is obsolete and parts are no longer available from the manufacturer.

**Project Status:** Pending award.

\*Information shown is estimated.

## Pavement Rehabilitation, District-wide

**Project Number:** 16-902-21

**Service Area:** North, Calumet, and Stickney

**Location:** District-wide

**Engineering Consultant:** In-house design

**General Contractor:** Pan-Oceanic Engineering Company, Inc.

**Estimated Construction Cost:** \$1,147,000

**Contract Award Date:** August 2016

**Substantial Completion Date:** December 2017\*



**Project Description:** Removal, replacement, and Illinois Department of Transportation Type B patch, overlay, and restoration of deteriorating concrete or asphalt pavements, curbs, gutters, and collapsed inlets in the North, Calumet, and Stickney Service Areas.

**Project Justification:** Roadway and parking lot pavements, some as much as 35 years old, show signs of deterioration in 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 yearly 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 employees' vehicles. This project will extend the useful life of the roadways and parking lots and provide safe driving conditions at the WRPs.

**Project Status:** In progress.

\*Information shown is estimated.

## Pilot Study to Investigate Basement Backup Solutions, Various Locations

**Project Number:** 16-IGA-20

**Service Area:** Calumet and Stickney

**Location:** Chatham Neighborhood on the South Side of Chicago

**Engineering Consultant:** Chicago Department of Transportation and Water Management with the Center for Neighborhood Technology

**General Contractor:** To be determined

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

**Contract Award Date:** October 2016\*

**Substantial Completion Date:** October 2017\*



**Project Description:** The District and the City of Chicago through its Departments of Transportation and Water Management and Center for Neighborhood Technology are partnering to conduct a pilot study to evaluate potential runoff reduction and flood protection alternatives. The proposed dataset will be comprised of approximately 40 residential properties in the Chatham neighborhood to evaluate the effectiveness of low-cost improvements in reducing basement backups, such as downspout disconnection and extension, rain gardens, and backflow preventers. Subject to an intergovernmental agreement to equally share the expense of the pilot study, the estimated contributions towards the cost of the pilot study for the District and the City of Chicago are \$400,000 for each party.

**Project Justification:** The results of the pilot study will provide valuable information for consideration in future efforts to address flooding in the region.

**Project Status:** Pending award.

\*Information shown is estimated.

## Furnish and Deliver One Volute Dewatering Press, SWRP

**Project Number:** 16-1XX-21

**Service Area:** Stickney

**Location:** Stickney WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

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

**Contract Award Date:** March 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** Furnish and deliver one Volute Dewatering Press for a full-scale test.

**Project Justification:** The District completed a small-scale pilot test at the Stickney WRP to test the Volute Dewatering Press as a possible replacement for centrifuges in the post-dewatering building. Initial data shows that the Volute Dewatering Press can achieve the same dewatered product as our current centrifuges at a fraction of the power consumption. Our current Sharples DS-706 centrifuges require 400 horsepower, and it is anticipated that the Volute Dewatering Press will only require 18 horsepower. Initial data on the maintenance of the machines indicate that the Volute Dewatering Press requires less maintenance. A full-scale test will confirm these facts and inform a decision to proceed. If successful, this improved process will help the District meet its energy neutrality goals.

**Project Status:** Design phase.

\*Information shown is estimated.

## Design and Build a Native Plant and Tree Nursery at Fischer Farm, HPWRP

**Project Number:** 16-RFP-09

**Service Area:** North

**Location:** Hanover Park WRP

**Engineering Consultant:** In house design

**General Contractor:** To be determined

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

**Contract Award Date:** October 2016\*

**Substantial Completion Date:** March 2018\*



**Project Description:** This project includes establishing a native prairie landscape and tree farm nursery at the Hanover Park WRP's Fischer Farm that will utilize the District's biosolids-based compost as a growing media. The plants and trees cultivated at the nursery are intended for use at District facilities as well as properties in the area. As production matures and expands, the program may also help meet the needs of local communities and government agencies.

**Project Justification:** The Chicago metropolitan region's tree population has been decimated by the emerald ash borer beetle and other pests and diseases. This project not only demonstrates the usefulness of biosolids-based compost as a growing media, but will increase public awareness of the need to restore the tree canopy in the region.

The project intends to recruit volunteers from the community to take an active role in growing the trees and shrubs from seed, as well as providing educational programs for both children and adults. This will create a precedent for other communities throughout the country for making viable use of this common wastewater treatment product.

**Project Status:** Pending award.

\*Information shown is estimated.

## Painting of Final Tanks, District-wide

**Project Number:** 17-601-21

**Service Area:** North, Calumet, and Stickney

**Location:** Calumet, O'Brien, and Stickney WRPs

**Engineering Consultant:** In-house design

**General Contractor:** TBD

**Estimated Construction Cost:** \$1,632,000

**Contract Award Date:** March 2017\*

**Substantial Completion Date:** October 2019\*



**Project Description:** Painting of final tanks including rake arms and walkways at the O'Brien, Calumet, and Stickney Water Reclamation Plants.

**Project Justification:** Paint is peeling and exposing the bare metal to rust which would lead to repairs that would exceed painting costs.

**Project Status:** Pending award.

\*Information shown is estimated.

## Furnish and Deliver Programmable Logic Controllers, Chicago River Controlling Works

**Project Number:** 17-602-21

**Service Area:** Stickney

**Location:** Waterways

**Engineering Consultant:** In-house design

**General Contractor:** Emerson Process Management

**Estimated Construction Cost:** \$90,000

**Contract Award Date:** July 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** Furnish and deliver programmable logic controllers for the Chicago River Controlling Works.

**Project Justification:** Furnish and deliver three new Emerson-Bristol ControlWave programmable logic controllers with local operator interface to replace the existing and outdated equipment. The distributed control system (DCS) group will provide all labor to perform the design/programming/integration of the existing logic into the new system and connect these units to the existing Waterways Control Section's Emerson DCS. District trades will perform the installation and testing with the DCS group.

**Project Status:** Under review.

\*Information shown is estimated.

## Furnish and Deliver Windrow Turner, LASMA

**Project Number:** 17-603-21

**Service Area:** Stickney

**Location:** LASMA

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$650,000

**Contract Award Date:** January 2017\*

**Substantial Completion Date:** March 2017\*



**Project Description:** Furnish and deliver a Backhus A65 windrow turner, or approved equal.

**Project Justification:** Wood chips and/or yard waste are mixed with the biosolids using a windrow turner and then composted for use as a substitute for fertilizer, compost, and soil amendment. The composted biosolids are odor free and meet the U.S. Environmental Protection Agency's Exceptional Quality Designation, which is a term given to biosolids that meet Class A pathogen reduction requirements with the most stringent metal limits and vector attraction standards.

**Project Status:** Under review.

\*Information shown is estimated.

## Furnish, Deliver, and Install Headrace Handrail, LPH

**Project Number:** 17-604-21

**Service Area:** Stickney

**Location:** Lockport Powerhouse

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$50,000

**Contract Award Date:** April 2017\*

**Substantial Completion Date:** July 2017\*



**Project Description:** The project consists of replacing damaged handrails at the Lockport Powerhouse.

**Project Justification:** Various sections of handrails on the headrace are in need of replacement. The handrails have been removed and replaced multiple times in the past to accommodate construction projects at the site. The handrails have also been bent and damaged over time. The handrails, which are essential for safety, are in poor condition.

**Project Status:** Design phase.

\*Information shown is estimated.

## Cofferdam Services, LPH

**Project Number:** 17-605-21

**Service Area:** Stickney

**Location:** Lockport Powerhouse

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$375,000

**Contract Award Date:** April 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** The purpose of the project is to furnish and deliver a cofferdam to assist District trades with the rehabilitation of Gate 5 at the Lockport Powerhouse.

**Project Justification:** This project is to provide a bulkhead/cofferdam to isolate Gate 0499 at the Lockport Powerhouse. Sluice Gate 6 needs to be isolated for in-house trades to overhaul the gate guides, which have deteriorated to the point where the gate has been rendered inoperable. The controlling work gates prevent the level of the Sanitary and Ship Canal from rising to flood levels.

**Project Status:** Preliminary planning.

\*Information shown is estimated.

## Furnish and Deliver Storm Pump for the Deerfield Reservoir, NSA

**Project Number:** 17-701-21

**Service Area:** North

**Location:** Deerfield Reservoir

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$100,000

**Contract Award Date:** May 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** This project will include work to furnish and deliver one replacement storm pump for the Deerfield Reservoir in the North Service Area.

**Project Justification:** The Deerfield Reservoir in the North Service Area was completed in 1992 and protects the Village of Deerfield from flood damage during a rain event by controlling the elevation of the West Fork of the North Branch of the Chicago River. Once the rain event passes and the West Fork of the North Branch of the Chicago River returns to a normal elevation, the Deerfield Reservoir's storm pumps dewater the reservoir and pump the water back to the river. Recently, water infiltration into the motor has caused one of the storm pumps to fail.

The subject contract will replace the failed storm pump at the Deerfield Reservoir, ensuring the reservoir has maximum dewatering capabilities and reducing the risk of flooding during a rain event.

**Project Status:** Under review.

\*Information shown is estimated.

## Furnish and Deliver Stake Body Truck, EWRP

**Project Number:** 17-703-21

**Service Area:** North

**Location:** Egan WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$82,000

**Contract Award Date:** March 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** Purchase a new stake body truck with a lift gate.

**Project Justification:** This contract is to procure a replacement stake body truck for the Egan WRP. There are only two large stake body trucks in the North Service Area. The truck will provide for in-plant and inter-plant transportation of equipment and material for all four North Service Area plants.

The existing truck is a GMC Model C2500, purchased in 2000 with 24,000 logged miles. Current total maintenance costs are \$6,000, but future costs are anticipated to increase significantly due to the age of the vehicle. The frame and body of the existing truck are heavily rusted and will need to be repainted. Hoses and belts will also need to be replaced, and the lift gate will need mechanical repairs.

**Project Status:** Planning phase.

\*Information shown is estimated.

## Furnish and Deliver Air Lift Blower, EWRP

**Project Number:** 17-704-21

**Service Area:** North

**Location:** Egan WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$100,000

**Contract Award Date:** March 2017\*

**Substantial Completion Date:** October 2017\*



**Project Description:** Furnish and deliver an air lift blower to the Egan WRP.

**Project Justification:** The purpose of this project is to purchase a dedicated air lift blower for the Egan WRP air lifts. The air main currently operates at 8.9 pounds per square inch gauge. Air pressure is required to operate the air lifts for the south aeration battery. Based on calculations, if one small blower was installed and dedicated to operating the air lifts, the air main pressure could be reduced to 6.7 pounds per square inch gauge and still provide the desired dissolved oxygen in the aeration tanks. This would reduce operating costs by \$44,000 per year.

**Project Status:** Under review.

\*Information shown is estimated.

## Touhy Avenue Reservoir Rehabilitation, NSA

**Project Number:** 17-705-21

**Service Area:** North

**Location:** Touhy Avenue Reservoir

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$450,000

**Contract Award Date:** July 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** Restore eroded slopes, spillways, outflow channels, gabions, damaged concrete, and joints at the Touhy Avenue Reservoir in accordance with 2011 to 2015 inspection reports and permit requirements.

**Project Justification:** Per the District's Dam and Reservoir Permit guidelines and per Section 3702.160 "Rules for Construction and Maintenance of Dams and Reservoirs," the District is required to properly maintain its dams and reservoirs. The 2008, 2011, and 2014 Dam and Reservoir Annual Inspection Reports outlined a list of deficiencies and provided restoration recommendations. It is recommended that the District restore these deficiencies to prevent accelerated deterioration of structural components.

**Project Status:** Pending advertisement.

\*Information shown is estimated.

## Furnish and Deliver Dump Truck, OWRP

**Project Number:** 17-706-21

**Service Area:** North

**Location:** O'Brien WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$175,000

**Contract Award Date:** March 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** Purchase a new dump truck with a snow plow and salt spreader for the O'Brien WRP.

**Project Justification:** The existing dump truck was purchased in 2003. Current total maintenance costs are \$46,902. The frame of the truck is heavily rusted and in need of extensive mechanical and safety repairs. The exhaust pipe needs to be replaced, and the suspension is worn. The truck is a critical piece of equipment as it is used for hauling construction materials, salting, and snow plowing.

**Project Status:** Design phase.

\*Information shown is estimated.

## Re-pipe Devon Avenue Instream Aeration Station Air Main, OWRP

**Project Number:** 17-707-21

**Service Area:** North

**Location:** Devon Instream Aeration Station

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$1,500,000

**Contract Award Date:** February 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** Re-pipe the air main at the Devon Avenue Instream Aeration Station.

**Project Justification:** The Devon Avenue Instream Aeration Station is used to maintain the dissolved oxygen level in the North Shore Channel per the National Pollutant Discharge Elimination System Permit. The station is located at Devon Avenue and the North Shore Channel, two miles south of the O'Brien WRP. The original piping layout consisted of a 36-inch steel air main that ran from the station to a 36-inch downcomer. From the downcomer, a 24-inch steel line feeds an 18-inch steel main. From this line, 12 valves feed manifolds connected to eight aeration tubs each. Another 24-inch line runs underneath the channel to feed a similar arrangement on the east bank where it feeds 13 manifolds. The section of air main that runs from the station to the west side of the North Shore Channel was replaced in 2016. Upon excavating the existing riser, which connects the air to the aeration tubs on the east side, it was found that the riser was too corroded to connect the new pipe. Additional contract funding was made available to connect the new air main to the existing 18-inch air main located on the west side of the channel. Maintenance & Operations trades and engineers completed a temporary connection to feed the east bank.

**Project Status:** Pending award.

\*Information shown is estimated.

## Furnish, Deliver, and Install Disc Filters, HPWRP

**Project Number:** 17-708-21

**Service Area:** North

**Location:** Hanover Park WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$1,500,000

**Contract Award Date:** January 2017\*

**Substantial Completion Date:** April 2018\*



**Project Description:** Furnish, deliver, and install disc filters at the Hanover Park WRP.

**Project Justification:** The designed maximum capacity of the secondary treatment is 22 million gallons per day (MGD). The maximum tertiary capacity is 17 MGD. Filter Beds 5 and 6 have a current capacity of 2.6 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 five percent. The enclosed disc filters will also reduce the flying insects in the filter building.

**Project Status:** Pending award.

\*Information shown is estimated.

## Furnish and Deliver Bar Screens, KWRP

**Project Number:** 17-709-21

**Service Area:** North

**Location:** Kirie WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$300,000

**Contract Award Date:** August 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** Furnish and deliver bar screens to the Kirie WRP.

**Project Justification:** The screens are 35 years old and screen capture has diminished. Switching to a smaller screen opening will reduce the amount of rags and debris in the return activated sludge (RAS) channel. This debris prevents the RAS butterfly valves from operating properly. Under this contract, one screen will be installed as a pilot test to determine if this will reduce the amount of the debris in the RAS channels.

**Project Status:** Design phase.

\*Information shown is estimated.

## Overhaul Motor and Magnetic Drive for Raw Sewage Pump #3, KWRP

**Project Number:** 17-710-21

**Service Area:** North

**Location:** Kirie WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$120,000

**Contract Award Date:** February 2017\*

**Substantial Completion Date:** May 2017\*



**Project Description:** Overhaul of motor and magnetic drives for raw sewage pump (RSP) #3 at the Kirie WRP.

**Project Justification:** There is an overhaul need. The motors/drives for RSP #1 and #2 were overhauled in 2000, which was the first overhaul since they were put into operation in 1980; the overhaul of the motor/drive for RSP #3 was cancelled due to Contract 01-353-2M, in which only two of three pumps were overhauled. Recent vibration analysis shows higher vibrations associated with the RSP #3 system versus the RSP #1 and #2 systems. Brush attachments for RSP #3 appear to be original, which confirms that no overhaul was ever performed. Direct current power transfer to the RSP #3 clutch (magnetic drive) is impacted due to significant wear.

The overhaul of the RSP #3 motor/magnetic drive system would coincide with the installation of new RSPs #2 and #3. This would allow for improved accessibility during the installation of the pumps.

At this time, overhauling RSP #1 and #2 is not recommended until additional numerical justification has been collected (both are similar since they were overhauled around 2000). Currently, new temperature and vibrations sensors are being installed on all three RSPs. The data from these will be used to justify future needs.

**Project Status:** Design phase.

\*Information shown is estimated.

## Furnish and Deliver Turbo Blower, LWRP

**Project Number:** 17-802-21

**Service Area:** Calumet

**Location:** Lemont WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$170,000

**Contract Award Date:** February 2017\*

**Substantial Completion Date:** November 2017\*



**Project Description:** Furnish and deliver a turbo blower to the Lemont WRP.

**Project Justification:** The Lemont WRP has three Hoffman centrifugal blowers for low pressure air. Two blowers are operated at a time. The cost to operate these two blowers is \$69,000 per year. One high-speed turbo blower could handle the plant needs at a cost of \$52,600 per year. This will reduce the electrical cost by approximately 25 percent. The turbo blower will replace one of the Hoffman blowers giving 100 percent redundancy. Electrical modifications are minimal because the turbo blower has the same horsepower rating as the existing blowers. Piping modifications are minimal as well. The blower will be installed by District trades. The estimated return on investment is 11 years.

**Project Status:** Pending award.

\*Information shown is estimated.

## Furnish and Deliver Interoperable Distributed Control System Workstations and TARP Controllers, Various Locations

**Project Number:** 17-901-21

**Service Area:** Stickney

**Location:** Mainstream and Racine Avenue Pumping Stations

**Engineering Consultant:** In-house design

**General Contractor:** Emerson Process Mangement

**Estimated Construction Cost:** \$125,000

**Contract Award Date:** June 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** This project will furnish and deliver two distributed control systems workstations for the control rooms at the Mainstream and Racine Avenue Pumping Stations. The addition of two workstations at each pumping station will enable interoperable control of the alternate pumping station or control of the Stickney WRP in the event of a catastrophic failure at a remote control room. District trades will install all equipment associated with the project. One mobile single channel autonomous trunking unit will also be provided for each pumping station to enable control of the Stickney Service Area Tunnel and Reservoir Plan structures during a loss of control at the control room.

**Project Justification:** Concerns were raised in 2015 over the lack of alternate site control over each plant. These concerns led to an internal study of the interoperability of major District plants and pumping stations, particularly for a scenario where the loss of local control room facilities/functionality would require remote control from an alternate location. This project provides the equipment needed to enable plant and pumping station interoperability for the Stickney Service Area.

**Project Status:** Under development.

\*Information shown is estimated.

## Furnish, Deliver, and Install Grit Screw Conveyors, SWRP

**Project Number:** 17-902-21

**Service Area:** Stickney

**Location:** Stickney WRP

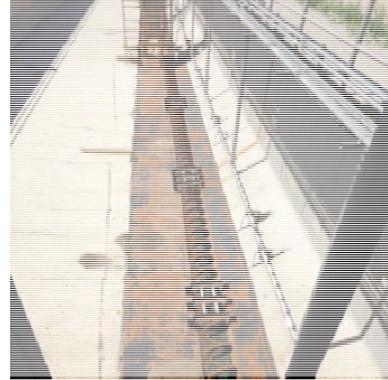
**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$2,400,000

**Contract Award Date:** April 2017\*

**Substantial Completion Date:** October 2020\*



**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 then replaced in 2008. The average annual maintenance cost for the chain and flight tanks since 1998 is \$30,530. The average annual cost for the screw conveyor tank is \$22,800.

**Project Status:** Pending award.

\*Information shown is estimated.

**50000 CONSTRUCTION FUND**

**OBJECTIVES AND PROGRAM SUMMARY**

| OBJECTIVES BY PRIORITY:   | Cost                 | Percent       |
|---|----------------------|---------------|
| 1. TREATMENT FACILITIES: Award projects, such as the procurement of a high-speed turbo blower for the Lemont Water Reclamation Plant (WRP), which will reduce operation and maintenance costs and/or provide facility improvements. | \$ 8,890,100         | 26.3%         |
| 2. COLLECTION FACILITIES: Award projects, such as the installation of a coarse screen conveyor system at the North Branch Pumping Station, which will reduce operation and maintenance costs and/or provide facility improvements.  | \$ 2,530,000         | 7.5%          |
| 3. SOLIDS PROCESSING AND DISPOSAL FACILITIES: Award projects, such as the procurement of a windrow turner for the Solids Management Section, which will reduce costs and/or provide facility improvements.                          | \$ 2,194,900         | 6.5%          |
| 4. FLOOD AND POLLUTION CONTROL: Provide funding for construction projects addressing flood control.   | \$ 2,600,000         | 7.7%          |
| 5. CONSTRUCTION FUND PROJECT COST: Provide funding for contracts awarded prior to 2017.   | \$ 10,016,000        | 29.4%         |
| 6. PROJECT SUPPORT: Development, design, and administration of current and future contracts, funding support, construction materials, and utility support services.   | \$ 7,621,900         | 22.6%         |
| <b>Total</b>  | <b>\$ 33,852,900</b> | <b>100.0%</b> |

MEASURABLE GOAL:

|  | 2015<br>Actual | 2016<br>Estimated | 2017<br>Proposed |
|--|----------------|-------------------|------------------|
|--|----------------|-------------------|------------------|

Award contracts for the continued implementation of the District's Capital Improvement Program.

|                                     |    |    |    |
|-------------------------------------|----|----|----|
| Number of projects proposed         | 33 | 39 | 30 |
| Number of contracts awarded         | 24 | 29 | 30 |
| Number of plans available for award | 24 | 29 | 30 |

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: |                                | 2015<br>Actuals | Budgeted  |                 | Change         |         |    |
|-----------------------|--------------------------------|-----------------|-----------|-----------------|----------------|---------|----|
| Number                | Name                           |                 | Positions | Dollars         | Dollars        | Percent |    |
| 1110                  | Interceptor Systems            | \$ 506,938      | 2017      | - \$ 757,400    | \$ (15,200)    | (2.0)   |    |
|                       |                                |                 | 2016      | - \$ 772,600    |                |         |    |
| 1300                  | Pumping Station Facilities     | \$ 1,777,194    | 2017      | - \$ -          | \$ (300,000)   | (100.0) | a) |
|                       |                                |                 | 2016      | - \$ 300,000    |                |         |    |
| 1530                  | Local Sewer Permit Activity    | \$ -            | 2017      | - \$ 50,000     | \$ -           | -       |    |
|                       |                                |                 | 2016      | - \$ 50,000     |                |         |    |
| 1700                  | Collection Design              | \$ 119,953      | 2017      | - \$ -          | \$ -           | -       |    |
|                       |                                |                 | 2016      | - \$ -          |                |         |    |
| 1800                  | Collection Construction        | \$ 1,852,776    | 2017      | - \$ 2,945,600  | \$ 446,800     | 17.9    | b) |
|                       |                                |                 | 2016      | - \$ 2,498,800  |                |         |    |
| 2211                  | Aeration Basin/Clarifiers      | \$ 27,706       | 2017      | - \$ -          | \$ -           | -       |    |
|                       |                                |                 | 2016      | - \$ -          |                |         |    |
| 2700                  | Treatment Design               | \$ 425,025      | 2017      | - \$ 400,000    | \$ (1,855,000) | (82.3)  | c) |
|                       |                                |                 | 2016      | - \$ 2,255,000  |                |         |    |
| 2800                  | Treatment Construction         | \$ 6,449,618    | 2017      | - \$ 16,383,100 | \$ 1,936,900   | 13.4    | d) |
|                       |                                |                 | 2016      | - \$ 14,446,200 |                |         |    |
| 2900                  | Treatment Processes            | \$ -            | 2017      | - \$ 100,000    | \$ 100,000     | 100.0   | e) |
|                       |                                |                 | 2016      | - \$ -          |                |         |    |
| 3700                  | Solids Processing Design       | \$ 75,970       | 2017      | - \$ 1,072,000  | \$ (277,600)   | (20.6)  | f) |
|                       |                                |                 | 2016      | - \$ 1,349,600  |                |         |    |
| 3800                  | Solids Processing Construction | \$ 4,223,884    | 2017      | - \$ 472,900    | \$ (4,372,800) | (90.2)  | g) |
|                       |                                |                 | 2016      | - \$ 4,845,700  |                |         |    |
| 4600                  | Monitoring                     | \$ 1,785,353    | 2017      | - \$ 4,781,900  | \$ 867,400     | 22.2    | h) |
|                       |                                |                 | 2016      | - \$ 3,914,500  |                |         |    |

- a) Decrease is due to the anticipated 2016 completion of 14-821-21, Rotating Assemblies for 95th and 125th Street Pumping Stations.
- b) Increase is primarily due to the additional funding provided for the final year of 16-902-21, Pavement Rehabilitation, District-wide (\$441,600).
- c) Decrease is due to the anticipated 2016 completion of 15-073-2C, Algae Reactor System Pilot Plant, OWRP (\$1,400,000) and 15-119-2C, Sustainable Energy Management, SWRP (\$55,000) and reduced funding for 15-534-2C, Procurement of Membrane Aerated Biofilm, HPWRP (\$400,000).
- d) Increase is primarily due to additional funding for 15-074-2D, Installation of Baffle Plates in Final Settling Tanks, OWRP (\$640,000), 17-601-21, Painting of Final Tanks, District-wide (\$362,700), 16-802-21, FD&I an Upgraded Sludge Concentration Conveyor, CWRP (\$250,000), 16-805-21, FD&I Boiler for Equipment Garage, CWRP (\$240,000), 17-706-21, F&D Dump Truck, OWRP (\$175,000), 17-802-21, F&D Turbo Blower, LWRP (\$170,000), and 17-703-21, F&D Stake Body Truck, EWRP (\$82,000).
- e) Increase is due to the Intergovernmental Agreement with DuPage County Stormwater to modify the Fawell Dam on the West Branch of the DuPage River for the purpose of improving the aquatic ecosystem.
- f) Decrease is due to reduced requests for 14-250-3P, Digester Gas Utilization, CWRP (\$234,200) and 14-816-2P, Legal Advisor for Renewable Energy Projects (\$43,400).
- g) Decrease is due to reduced funding for 11-403-2P, Membrane Gas Holder Replacement and Digester Cleaning, EWRP (\$2,557,800), the deferral of 14-410-2P, Deammonification Pilot Study, EWRP (\$1,200,000), the anticipated 2016 completion of 12-932-21, Rehabilitation of Sludge Heat Exchangers, SWRP (\$460,000) and 16-907-21, FD&I Hot Water Converter Bundles, SWRP (\$100,000), and the cancellation of 16-906-21, FD&I Hot Water Tank, SWRP (\$55,000).
- h) Increase is due additional funding for professional services related to a number of initiatives, including nutrient removal (\$398,200), the mid-system hydrologic separation of the Great Lakes and Mississippi River Basin in the Chicago Area Waterways (\$316,400), university master agreements (\$271,300), and new funding for a dewatering press to test its viability as a replacement for the centrifuges in the dewatering building at the Stickney WRP (\$1,000,000), offset by reduced funding for the rehabilitation of the old Monitoring & Research laboratory building at the Calumet WRP (\$1,000,000), and research related to plant hydraulic modeling (\$150,000).

**50000 CONSTRUCTION FUND**

**OBJECTIVES AND PROGRAM SUMMARY**

| PROGRAMS BY PRIORITY: |   | 2015<br>Actuals | Budgeted  |              | Change       |         |    |
|-----------------------|---|-----------------|-----------|--------------|--------------|---------|----|
| Number                | Name  |                 | Positions | Dollars      | Dollars      | Percent |    |
| 4344                  | Flood Mitigation Projects Contracted with Other Governments | \$ -            | 2017 -    | \$ 400,000   | \$ 400,000   | 100.0   | i) |
|                       |   |                 | 2016 -    | \$ -         |              |         |    |
| 4800                  | Flood and Pollution Control Construction                    | \$ -            | 2017 -    | \$ 2,700,000 | \$ 818,000   | 43.5    | j) |
|                       |   |                 | 2016 -    | \$ 1,882,000 |              |         |    |
| 5100                  | Disposal of Primary Solids                                  | \$ -            | 2017 -    | \$ 650,000   | \$ 650,000   | 100.0   | k) |
|                       |   |                 | 2016 -    | \$ -         |              |         |    |
| 5800                  | Solids Disposal Construction                                | \$ 1,114,292    | 2017 -    | \$ -         | \$ (150,000) | (100.0) | l) |
|                       |   |                 | 2016 -    | \$ 150,000   |              |         |    |
| 7252                  | Management and Organization Studies                         | \$ -            | 2017 -    | \$ 1,237,700 | \$ 1,237,700 | 100.0   | m) |
|                       |   |                 | 2016 -    | \$ -         |              |         |    |
| 7284                  | Store Operations and Issue                                  | \$ 485,042      | 2017 -    | \$ -         | \$ -         | -       |    |
|                       |   |                 | 2016 -    | \$ -         |              |         |    |
| 7350                  | General Legal Matters                                       | \$ -            | 2017 -    | \$ 100,000   | \$ 100,000   | 100.0   | n) |
|                       |   |                 | 2016 -    | \$ -         |              |         |    |
| 7367                  | Real Estate Asset Management                                | \$ 386,462      | 2017 -    | \$ -         | \$ (270,000) | (100.0) | o) |
|                       |   |                 | 2016 -    | \$ 270,000   |              |         |    |
| 7380                  | Information Technology and Telecommunications               | \$ 1,146,224    | 2017 -    | \$ 412,300   | \$ (819,700) | (66.5)  | p) |
|                       |   |                 | 2016 -    | \$ 1,232,000 |              |         |    |
| 7399                  | Accounting and Financial Reporting                          | \$ -            | 2017 -    | \$ -         | \$ (50,000)  | (100.0) | q) |
|                       |   |                 | 2016 -    | \$ 50,000    |              |         |    |
| 7461                  | Main Office Building Complex Operations                     | \$ 870,862      | 2017 -    | \$ 300,000   | \$ (880,000) | (74.6)  | r) |
|                       |   |                 | 2016 -    | \$ 1,180,000 |              |         |    |
| 7480                  | Safety Program  | \$ -            | 2017 -    | \$ -         | \$ (118,000) | (100.0) | s) |
|                       |   |                 | 2016 -    | \$ 118,000   |              |         |    |
| 7491                  | Automotive Fleet Procurement                                | \$ 177,995      | 2017 -    | \$ 900,000   | \$ -         | -       |    |
|                       |   |                 | 2016 -    | \$ 900,000   |              |         |    |

- i) Increase is due to the Intergovernmental Agreement with the City of Chicago to develop a pilot study for basement backup solutions.
- j) Increase is primarily due to a new request for 17-707-21, Re-pipe Devon Avenue Instream Aeration Station Air Main, OWRP (\$1,500,000), offset by the anticipated 2016 completion of 16-602-21, Waterways Telemetry Replacement (\$323,000) and 16-609-21, Pool Access Improvements at SEPA 3, CSA (\$240,000), and reduced funding for 17-705-21, Touhy Avenue Reservoir Rehabilitation, the award of which, at a reduced estimate, was rescheduled from 2016 to 2017 (\$89,000).
- k) Increase is due to the anticipated award of 17-603-21, F&D Windrow Turner, LASMA.
- l) Decrease is due to the anticipated 2016 completion of 16-605-21, Installation of Drain Tiles and Bioreactors, Fulton County.
- m) Increase is due to funding provided for non-core business projects, which will be distributed to different program numbers once specific projects are identified.
- n) Increase is due to a planned contribution to the Chi-Cal Rivers Fund to provide funds for green infrastructure projects within the District service area.
- o) Decrease is due to the anticipated 2016 completion of the geographic information system project.
- p) Decrease is due to reduced funding for infrastructure upgrades (\$419,700), single sign-on software (\$100,000), and consulting services related to management dashboards (\$100,000), SAP simplification (\$100,000), and system and security assessments (\$100,000).
- q) Decrease is due to the anticipated 2016 completion of the project to upgrade ReadSoft software used District-wide for payment routing, approval, and processing.
- r) Decrease is due to the anticipated 2016 completion of various building improvement projects, including painting and replacing carpeting at the Main Office Building (\$425,000), improving the HVAC system at the Main Office Building Annex (\$85,000), and installing new emergency public address and building automation systems (\$70,000), as well as reduced funding for the elevator rehabilitation project scheduled for award in late 2016 (\$300,000).
- s) Decrease is due to the 2016 receipt of outdoor electronic signs for the plant facilities.

**50000 CONSTRUCTION FUND**

**OBJECTIVES AND PROGRAM SUMMARY**

| PROGRAMS BY PRIORITY: |                              | 2015          | Budgeted  |                 | Change         |         |    |
|-----------------------|------------------------------|---------------|-----------|-----------------|----------------|---------|----|
| Number                | Name                         | Actuals       | Positions | Dollars         | Dollars        | Percent |    |
| 7745                  | Utility Review               | \$ -          | 2017      | - \$ 190,000    | \$ 90,000      | 90.0    | t) |
|                       |                              |               | 2016      | - \$ 100,000    |                |         |    |
| 7900                  | M&O General Support Services | \$ 477,984    | 2017      | - \$ -          | \$ (300,000)   | (100.0) | u) |
|                       |                              |               | 2016      | - \$ 300,000    |                |         |    |
| Totals                |                              | \$ 21,903,278 | 2017      | - \$ 33,852,900 | \$ (2,761,500) | (7.5%)  |    |
|                       |                              |               | 2016      | - \$ 36,614,400 |                |         |    |

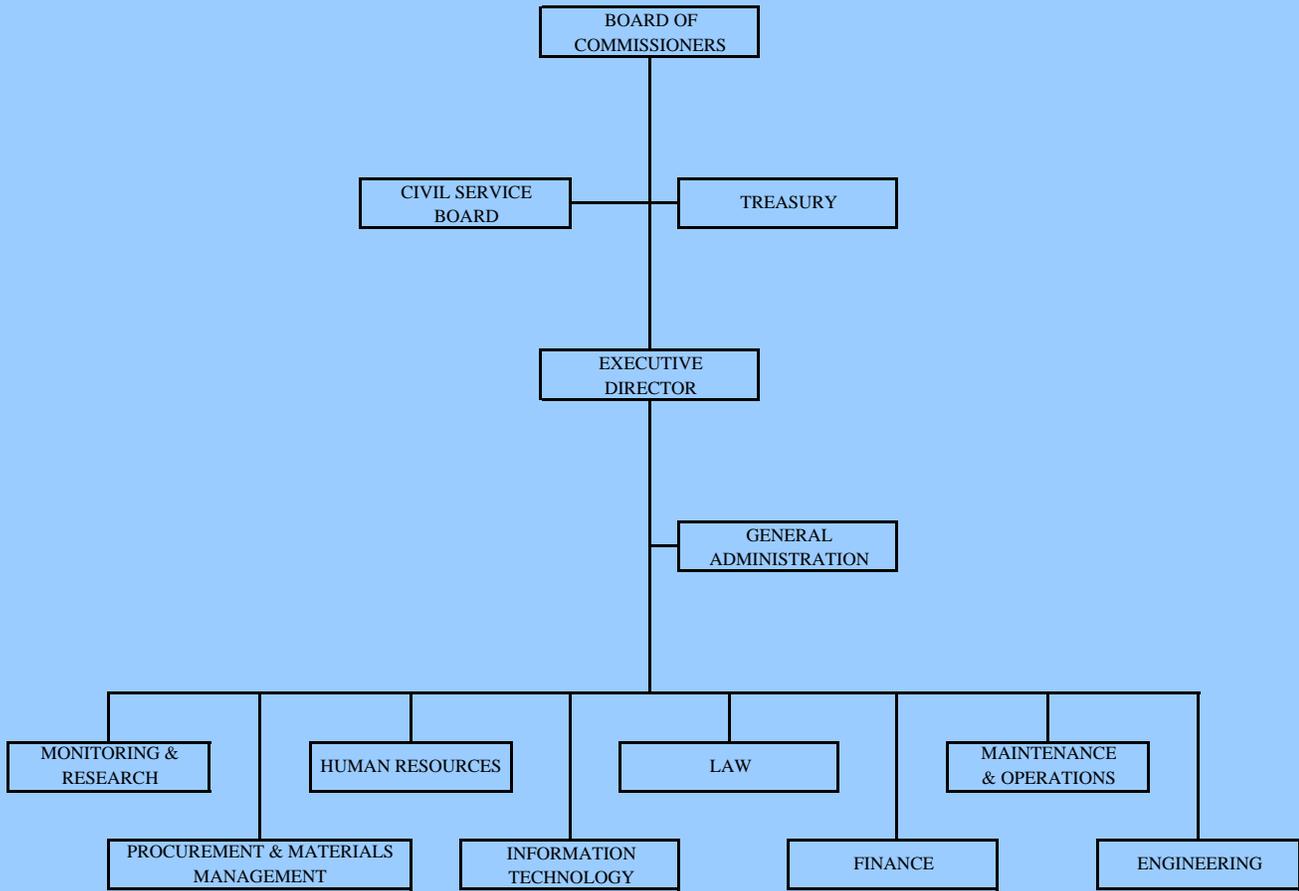
- t) Increase is due to additional funding for the Illinois Department of Transportation sewer support relocation services.
- u) Decrease is due to the anticipated 2016 completion of the project to replace the fertilizer building roof at the Stickney WRP.

| 201<br>50000   | Fund: Construction<br>Department: Engineering<br>Division:    | LINE ITEM ANALYSIS |                        |                                 |   |                                |                                |   |
|----------------|---|--------------------|------------------------|---------------------------------|---|--------------------------------|--------------------------------|---|
|                |   | 2015               | 2016                   |                                 |   |                                | 2017                           |   |
| Account Number | Account Name  | Expenditure        | Original Appropriation | Adjusted Appropriation 09/30/16 | Expenditure (Committed Budget plus Disbursement) 09/30/16 | Estimated Expenditure 12/31/16 | Proposed by Executive Director | Recommended by Committee on Budget and Employment |
| 601170         | Payments for Professional Services                            | \$ 2,252,522       | \$ -                   | \$ -                            | \$ -  | \$ -                           | \$ -                           | \$ -  |
| 601410         | Personal Services Exp for Prelim Engineering Rpts and Studies | 425,025            | -                      | -                               | -   | -                              | -                              | -   |
| 601440         | Personal Svcs for Post-Award Engr for Construction Projects   | 119,953            | -                      | -                               | -   | -                              | -                              | -   |
| 100            | TOTAL PERSONAL SERVICES                                       | 2,797,500          | -                      | -                               | -   | -                              | -                              | -   |
| 612240         | Testing and Inspection Services                               | 871                | -                      | -                               | -   | -                              | 600,000                        | -   |
| 612250         | Court Reporting Services                                      | 485                | -                      | -                               | -   | -                              | -                              | -   |
| 612400         | Intergovernmental Agreements                                  | -                  | -                      | -                               | -   | -                              | 500,000                        | -   |
| 612430         | Payments for Professional Services                            | -                  | 3,832,100              | 2,877,100                       | 2,064,227   | 2,087,400                      | 4,368,600                      | -   |
| 612440         | Preliminary Engineering Reports and Studies                   | -                  | 55,000                 | 114,900                         | 14,849  | 14,900                         | -                              | -   |
| 612450         | Professional Engineering Services for Construction Projects   | -                  | 1,253,200              | 1,723,200                       | 1,253,202   | 1,041,900                      | 1,019,000                      | -   |
| 612490         | Contractual Services, N.O.C.                                  | 151,564            | 208,000                | 208,000                         | 59,321  | 167,000                        | 50,000                         | -   |
| 612600         | Repairs to Collection Facilities                              | 486,938            | 772,600                | 773,700                         | 773,606   | 773,700                        | 157,400                        | -   |
| 612680         | Repairs to Buildings  | -                  | 100,000                | 100,000                         | -   | -                              | -                              | -   |
| 612760         | Repairs to Material Handling and Farming Equipment            | 201,479            | -                      | -                               | -   | -                              | -                              | -   |
| 200            | TOTAL CONTRACTUAL SERVICES                                    | 841,337            | 6,220,900              | 5,796,900                       | 4,165,205   | 4,084,900                      | 6,695,000                      | -   |
| 623270         | Mechanical Repair Parts                                       | 1,777,196          | 300,000                | -                               | -   | -                              | -                              | -   |
| 623570         | Laboratory Testing Supplies, Small Equipment, and Chemicals   | 18,696             | 31,000                 | 31,000                          | 30,965  | 31,000                         | -                              | -   |
| 300            | TOTAL MATERIALS AND SUPPLIES                                  | 1,795,892          | 331,000                | 31,000                          | 30,965  | 31,000                         | -                              | -   |
| 634600         | Equipment for Collection Facilities                           | -                  | -                      | 90,000                          | 86,460  | -                              | 125,000                        | -   |
| 634620         | Equipment for Waterway Facilities                             | 118,737            | 408,000                | 408,000                         | 407,777   | 183,000                        | 315,000                        | -   |
| 634650         | Equipment for Process Facilities                              | 1,373,523          | 3,522,800              | 2,932,800                       | 1,099,809   | 1,170,000                      | 1,920,000                      | -   |
| 634780         | Safety and Medical Equipment                                  | -                  | 50,000                 | 50,000                          | 28,456  | 17,000                         | -                              | -   |
| 634810         | Computer Equipment  | 730,602            | 642,000                | 642,000                         | 419,708   | 429,700                        | 212,300                        | -   |
| 634820         | Computer Software   | -                  | 150,000                | 213,000                         | 63,000  | 213,000                        | 50,000                         | -   |
| 634860         | Vehicle Equipment   | 492,985            | 900,000                | 837,000                         | 191,910   | 192,000                        | 1,157,000                      | -   |
| 634990         | Machinery and Equipment, N.O.C.                               | 408,931            | 1,088,000              | 848,000                         | 352,341   | 619,200                        | 1,404,000                      | -   |
| 400            | TOTAL MACHINERY AND EQUIPMENT                                 | 3,124,779          | 6,760,800              | 6,020,800                       | 2,649,461   | 2,823,900                      | 5,183,300                      | -   |

| 201<br>50000                   | Fund: Construction<br>Department: Engineering<br>Division: | LINE ITEM ANALYSIS |                        |                                 |   |                                |                                |   |
|--------------------------------|--|--------------------|------------------------|---------------------------------|---|--------------------------------|--------------------------------|---|
|                                |  | 2015               | 2016                   |                                 |   |                                | 2017                           |   |
| Account Number                 | Account Name   | Expenditure        | Original Appropriation | Adjusted Appropriation 09/30/16 | Expenditure (Committed Budget plus Disbursement) 09/30/16 | Estimated Expenditure 12/31/16 | Proposed by Executive Director | Recommended by Committee on Budget and Employment |
| 645600                         | Collection Facilities Structures                           | 301,850            | 3,190,000              | 2,863,000                       | 2,538,149   | 1,189,900                      | 2,339,000                      | -   |
| 645620                         | Waterway Facilities Structures                             | -                  | 523,000                | 1,023,000                       | 935,900   | 989,900                        | 475,000                        | -   |
| 645650                         | Process Facilities Structures                              | 3,009,977          | 4,727,200              | 4,940,500                       | 4,289,506   | 4,073,300                      | 4,879,300                      | -   |
| 645680                         | Buildings  | 3,367,508          | 2,580,100              | 2,790,000                       | 2,454,894   | 1,728,500                      | 2,361,600                      | -   |
| 645690                         | Capital Projects, N.O.C.                                   | -                  | 3,174,200              | 4,209,200                       | 4,154,217   | 3,275,100                      | 7,587,700                      | -   |
| 645700                         | Preservation of Collection Facility Structures             | 805,944            | 1,053,800              | 1,306,800                       | 1,305,700   | 1,217,300                      | -                              | -   |
| 645720                         | Preservation of Waterway Facility Structures               | -                  | 539,000                | 325,800                         | 308,101   | 103,000                        | 600,000                        | -   |
| 645750                         | Preservation of Process Facility Structures                | 4,977,831          | 4,637,400              | 4,393,400                       | 3,981,962   | 3,474,000                      | 1,248,900                      | -   |
| 645780                         | Preservation of Buildings                                  | 779,284            | 1,407,000              | 1,379,000                       | 1,003,969   | 594,000                        | 2,110,000                      | -   |
| 645790                         | Preservation of Capital Projects, N.O.C.                   | 101,377            | 1,470,000              | 1,535,000                       | 1,534,995   | 1,486,100                      | 373,100                        | -   |
| 500                            | TOTAL CAPITAL PROJECTS                                     | 13,343,770         | 23,301,700             | 24,765,700                      | 22,507,391  | 18,131,100                     | 21,974,600                     | -   |
| TOTAL ENGINEERING CONSTRUCTION |  | \$ 21,903,278      | \$ 36,614,400          | \$ 36,614,400                   | \$ 29,353,023   | \$ 25,070,900                  | \$ 33,852,900                  | \$ -  |

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.  
 3. Effective 01/01/2016, professional services previously included in Personal Services (accounts 601170, 601410, 601420, 601430, and 601440) were reclassified to Contractual Services (accounts 612430, 612440, 612450, 612460, and 612470 respectively).

**NOTE PAGE**



# 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) mission critical, improve environmental quality, (b) preserve/rehabilitate existing infrastructure to maintain service levels, or (c) provide a commitment to the 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 2016 Accomplishments

The District's Capital Improvements Bond Fund are grouped into three categories: mission critical, preservation of infrastructure, and commitment to community.

### Mission Critical, Improve Environmental Quality

- Completed mining of the McCook Reservoir's Stage 1;
- Awarded a contract to construct the Des Plaines Inflow Tunnel, which improves conveyance of combined sewer overflows from the Tunnel And Reservoir Plan's (TARP) Des Plaines tunnel system to the McCook Reservoir, relieving flooding along the Des Plaines River;
- Completed construction of a phosphorus recovery facility at the Stickney WRP;
- Awarded construction to install Waste Activated Sludge Stripping to Remove Internal Phosphorus (WASSTRIP®) process, which will increase the amount of phosphorus that will be recoverable by the phosphorus recovery facility and provide a more sustainable biosolids product.

### Preservation of Infrastructure

- Completed the rehabilitation of the Glenbrook Sanitary Sewer, North Shore Intercepting Sewer No. 2, and Des Plaines River Intercepting Sewer;
- Completed construction of air piping and airlift modifications and installation of diffuser plates at the Stickney WRP;
- Awarded a construction contract to rehabilitate the Calumet Intercepting Sewer 19F.

### Commitment to Community

- Awarded an engineering design for a digester gas cleaning facility at the Calumet WRP which is essential to achieve energy neutrality;
- Completed construction of the ANITA™ Mox (Nitrogen Removal in Centrate) system at the Egan WRP, which reduces air demand by 20 percent;
- Awarded an engineering study to look at the feasibility of achieving energy neutrality at the Egan and Hanover Park WRPs.

## Budget Highlights

The Capital Improvements Bond Fund's 2017 appropriation is \$348,037,200, a decrease of \$135,727,600, or 28.1 percent, from 2016. There are no staff positions budgeted in the Capital Improvements Bond Fund. The 2017 appropriation includes construction costs for capital projects to be awarded in 2017 in the amount of \$264,714,000, including funding for stormwater management capital projects. The remaining \$83,323,200 includes funding for acquisition of land and easements, allowances for contract change orders, and legal and other support services relating to capital projects.

Significant features of the 2017 budget are:

### Mission Critical, Improve Environmental Quality

- Complete several McCook Reservoir projects and place reservoir in service at the end of 2017;
- Continue construction of the Des Plaines Inflow Tunnel contract at the McCook Reservoir;
- Continue mining of the McCook Reservoir's Stage 2;
- Award a contract for the automation of air valves to allow better control of air usage for the enhanced biological phosphorus removal treatment process at the Stickney WRP;
- Continue construction of a process to recover phosphorus from the centrate waste stream at the Stickney WRP;
- Continue construction of nine new primary settling tanks and aerated grit removal facilities at the Stickney WRP.

**Preservation of Infrastructure**

- Award a construction contract for Phase 2 of rehabilitating of the service and connecting tunnels at the Stickney WRP;
- Continue construction to replace the aging coarse screens and raw sewage pump slide gates at the Egan WRP;
- Continue construction to replace the medium voltage switchgear in the D799 substation at the Stickney WRP;
- Continue construction to replace the TARP pumps, motors, variable frequency drives, and screens at the Calumet WRP;
- Continue construction to rehabilitate Pump #8 at the Mainstream Pumping Station;
- Continue construction to replace the TARP pumping station screens, which require manual cleaning with a fully automated self-cleaning screen system at the Calumet WRP;
- Continue to upgrade and improve the HVAC system for the Monitoring & Research Laboratory to meet the evolving needs of the Monitoring & Research personnel and regulatory compliance;
- Award a construction contract to rehabilitate corroded portions of the Upper Des Plaines Drop Shaft 5.

**Commitment to Community**

- Award construction contract for an organic waste receiving facility at the Calumet WRP, which is essential to achieve energy neutrality;
- Award a construction contract to provide a covered composting system to produce a high quality composted biosolids product at the Calumet WRP;
- Award a construction project to convert two gravity concentration tanks into primary fermenters at the Stickney WRP;
- Award an engineering design contract for the development of a digester gas utilization facility at the Stickney WRP;
- Complete the energy neutrality feasibility study for the Egan and Hanover Park WRPs.

**2017 Initiatives in Support of the Strategic Business Plan Include the Following:****• Add Value**

- Place Stage 1 of the McCook Reservoir in service to capture combined sewer overflows and flood water;
- Recover valuable resources and reduce the consumption of energy by improving treatment processes;
- Stabilize Capital Improvement Program project expenditures;
- Fully utilize digester gas to reduce the energy demand from outside sources and reduce the carbon footprint and air pollutants associated with conventional energy sources;
- Develop a program for receiving organic waste streams for co-digestion that both increases energy production and reduces waste products going to landfills;
- Promote the ongoing work of effluent disinfection at the Calumet and O'Brien WRPs;
- Identify new projects to move toward energy neutrality at the Egan and Hanover Park WRPs.

**• Excellence**

- Strive to achieve best-in-class performance for budgeting and scheduling of all capital improvement projects;
- Review contracts after construction is completed to document best practices and foster continuous improvement;
- Apply comprehensive metrics to manage Capital Improvement Program projects for best-in-class performance;
- Continue to lead the industry and exceed contractor expectations by promptly processing and paying invoices for completed work within 30 days after submittal;
- Remove nutrients from the waste stream to benefit downstream receiving waters and ecosystems.

**• Resource Recovery**

- Achieve multiple environmental benefits by recovering and reusing phosphorus in the most cost-efficient manner, in lieu of phosphate rock, which must be mined and transported for use;
- Optimize the use of digester gas;
- Explore projects to supply effluent water to businesses that require non-potable water, replacing their dependence on Lake Michigan water;
- Complete construction of a biosolids composting facility at the Calumet WRP.

**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 2017 award, or under development.

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

**STICKNEY  
SERVICE  
AREA (SSA)**



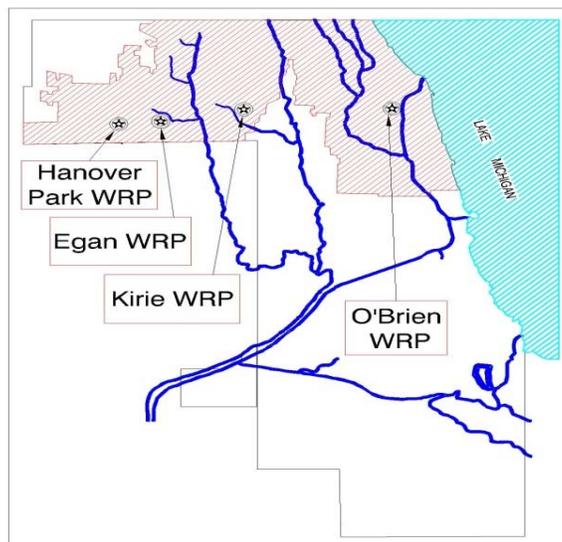
**Stickney Water Reclamation Plant (SWRP)**

**Projects Under Construction (with estimated completion dates)**

|             |   | <b>Estimated Construction Cost</b> |
|-------------|---|------------------------------------|
| 02-111-3M   | TARP Pump #8 Rehabilitation, MSPS (1/2017)  | \$ 4,533,000                       |
| 04-128-3P   | West Side Primary Settling Tanks 1-9 and Aerated Grit Facility, SWRP (6/2018)   | 226,208,000                        |
| 04-132-3D   | A/B and C/D Service Tunnel and Connecting Tunnel Rehabilitation - Phase II, SWRP (2/2019)   | 20,519,000                         |
| 06-155-3S   | Salt Creek Intercepting Sewer 2 Rehabilitation, SSA (12/2018)   | 43,878,000                         |
| 09-182-3E   | D799 Switchgear Replacement, SWRP (1/2019)  | 12,645,000                         |
| 15-120-3P   | Conversion of Old GCTs to the WASSTRIP® Process, SWRP (4/2018)  | 5,223,000                          |
| 15-IGA-16 ^ | Prairie/Washington Pumping Station Improvements, Brookfield (1/2017)  | 814,000                            |
| 15-IGA-18 ^ | Acquisition, Conversion to, and Maintenance of Open Space of Certain Flood Prone Parcels of Real Property Located along the Des Plaines River, Des Plaines (12/2017)    | 950,000                            |
| 16-IGA-06 ^ | Acquisition, Conversion to, and Maintenance of Open Space of Certain Flood Prone Parcels of Real Property Located along the Des Plaines River, Riverside Lawn (12/2017) | 8,000,000                          |
| 16-IGA-11 ^ | Acquisition, Conversion to, and Maintenance of Open Space of Certain Flood Prone Parcels of Real Property Located along the Des Plaines River, Des Plaines (12/2019)    | 3,700,000                          |
| 16-IGA-13 ^ | Acquisition, Conversion to, and Maintenance of Open Space of Certain Flood Prone Parcels of Real Property Located along Silver Creek, Franklin Park (12/2019)           | 4,700,000                          |
| 16-IGA-14 ^ | Acquisition, Conversion to, and Maintenance of Open Space of Certain Flood Prone Parcels of Real Property Located along Addison Creek, Northlake (12/2018)              | 1,350,000                          |
| 16-IGA-15 ^ | Acquisition, Conversion to, and Maintenance of Open Space of Certain Flood Prone Parcels of Real Property Located along Addison Creek, Stone Park (12/2019)             | 2,700,000                          |

| <b>Projects Under Construction (with estimated completion dates continued)</b> |  | <b>Estimated Construction Cost</b>  |
|--|--|-------------------------------------|
| 16-IGA-16 ^  | Acquisition, Conversion to, and Maintenance of Open Space of Certain Flood Prone Parcels of Real Property Located along the Des Plaines River, Wheeling Township (12/2018) | \$ 1,410,000                        |
|  |  | Total \$ <u><b>336,630,000</b></u>  |
| <br><b>Projects for 2017 Award</b>   |  |                                     |
| 11-186-3F ^  | Addison Creek Reservoir  | \$ 109,542,000                      |
| 13-199-3F ^  | Lyons Levee Flood Control Improvements, Lyons  | 6,500,000                           |
| 14-108-3F *^   | Streambank Stabilization Projects for Addison Creek [CIBF = \$478,000; Stormwater Management Fund = \$517,000]   | 478,000                             |
| 15-124-3P  | Conversion of Two New GCTs to Primary Sludge Fermenters and Installation of a Gas Detection System in the New GCT Building, SWRP   | 3,000,000                           |
| 16-125-4F  | <b>McCook Reservoir Expanded Stage 2 Slope Stabilization and Retaining Walls</b>   | 11,200,000                          |
| 16-126-3S  | Summit Conduit Rehabilitation, SSA   | 1,700,000                           |
|  |  | Total \$ <u><b>132,420,000</b></u>  |
| <br><b>Projects Under Development</b>  |  |                                     |
| 01-103-AS  | 39th Street Conduit Rehabilitation - Phase II, SSA   | \$ 24,700,000                       |
| 11-187-3F ^  | Addison Creek Channel Improvements   | 48,133,000                          |
| 11-189-3P  | Digester Gas Utilization Facilities, SWRP  | 17,000,000                          |
| 13-101-3P  | Deammonification System, SWRP  | 30,000,000                          |
| 14-114-3M  | Odor Control Facilities, SWRP  | 12,767,000                          |
| 14-117-3P  | Organic Waste Receiving Station, SWRP  | 10,000,000                          |
| 16-127-3D  | A/B and C/D Service Tunnel Rehabilitation - Phase III  | 17,000,000                          |
|  |  | Total \$ <u><b>159,600,000</b></u>  |
| Stickney Service Area Grand Total  |  | <u><u><b>\$ 628,650,000</b></u></u> |

## NORTH SERVICE AREA (NSA)



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

#### Projects Under Construction (with estimated completion dates)

|  | <b>Estimated Construction Cost</b> |
|--|------------------------------------|
| 11-052-3F ^ Streambank Stabilization Project for the West Fork of the North Branch of the Chicago River (4/2017) | \$ 413,000                         |
| 14-066-3F # ^ Albany Park Stormwater Diversion Tunnel (5/2018)   | 24,750,000                         |
| 15-IGA-02 ^ Construction of Cleveland Street Relief Sewer, Niles (6/2017)  | 2,000,000                          |
| <b>Total</b>   | <b>\$ 27,163,000</b>               |

#### Projects for 2017 Award

|   |                      |
|---|----------------------|
| 12-056-3F ^ Flood Control Project on Farmers and Prairie Creeks                             | \$ 14,100,000        |
| 16-077-3E Devon IAS Switchgear Replacement and Wilmette Pumping Station Conduit Replacement | 1,000,000            |
| 16-079-3D Rehabilitation of North Branch Pumping Station, NSA                               | 1,500,000            |
| <b>Total</b>  | <b>\$ 16,600,000</b> |

#### Projects Under Development

|  |                      |
|--|----------------------|
| 10-047-3S North Shore 1 Rehabilitation, NSA  | \$ 21,500,000        |
| 12-055-3F ^ Flood Control Project for the West Fork of the North Branch of the Chicago River, Glenview | 25,000,000           |
| <b>Total</b>   | <b>\$ 46,500,000</b> |

### John E. Egan Water Reclamation Plant (EWRP)

#### Project Under Development

|  |                     |
|--|---------------------|
| 11-404-3S Upper Des Plaines Intercepting Sewer 11D, Ext. C Rehabilitation, NSA | \$ 5,500,000        |
| <b>Total</b>   | <b>\$ 5,500,000</b> |

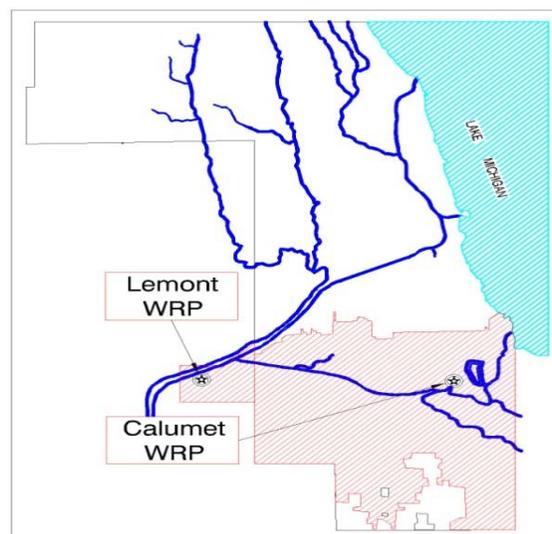
### James C. Kirie Water Reclamation Plant (KWRP)

#### Projects for 2017 Award

|  |                      |
|--|----------------------|
| 13-370-3F *^ Buffalo Creek Reservoir Expansion [CIBF = \$19,300,000; Stormwater Management Fund = \$1,830,700] | \$ 19,300,000        |
| 14-372-3S Drop Shaft 5 Inspection and Rehabilitation, NSA  | 2,700,000            |
| 16-373-3P Furnish, Deliver, and Install Odor Control Systems, KWRP   | 1,000,000            |
| <b>Total</b>   | <b>\$ 23,000,000</b> |

| <b>Projects Under Development</b>                   |  | <b>Estimated Construction Cost</b> |
|---|--|------------------------------------|
| 06-358-3M   | Upgrade Gate Control Equipment at TARP Control Structures, KWRP, NSA | \$ 2,200,000                       |
| 06-360-3S   | Upper Des Plaines Intercepting Sewer 14B Rehabilitation, NSA         | 6,700,000                          |
| 12-369-3S   | Upper Des Plaines Intercepting Sewer 11D Rehabilitation, NSA         | 5,500,000                          |
|   | Total  | <b>\$ 14,400,000</b>               |
| <br>  |  |                                    |
| <b>Hanover Park Water Reclamation Plant (HPWRP)</b> |  |                                    |
| <b>Project for 2017 Award</b>                       |  |                                    |
| 16-537-3P   | Furnish, Deliver, and Install Odor Control Systems, HPWRP            | \$ 1,000,000                       |
| 16-538-3V   | Fischer Farms Horticultural Center, HPWRP                            | 3,500,000                          |
|   | Total  | <b>\$ 4,500,000</b>                |
|   | North Service Area Grand Total                                       | <b>\$ 137,663,000</b>              |

## CALUMET SERVICE AREA (CSA)



### Calumet Water Reclamation Plant (CWRP)

#### Projects Under Construction (with estimated completion dates)

|              |  | Estimated Construction Cost |
|--------------|--|-----------------------------|
| 06-212-3M    | Calumet TARP Pumping Station Improvements, CWRP (2/2018)   | \$ 35,288,000               |
| 10-237-3F ^  | Streambank Stabilization Project on Oak Lawn Creek (9/2017)  | 4,500,000                   |
| 11-239-3S    | Calumet Intercepting Sewer 19F Rehabilitation, CSA (11/2017)   | 12,306,000                  |
| 13-246-3M    | Calumet TARP Screens, CWRP (4/2019)  | 12,754,000                  |
| 16-PBC-MO    | Public Building Commission Guaranteed Energy Performance Contract (9/2017)   | 4,250,000                   |
| 15-IGA-14 *^ | Construction of a Levee along Thorn Creek at Arquilla Park, Glenwood [CIBF = \$3,483,000; Stormwater Management Fund = \$387,000] (10/2017)                    | 3,483,000                   |
| 16-IGA-12 ^  | Acquisition, Conversion to, and Maintenance of Open Space of Certain Flood Prone Parcels of Real Property Located along Butterfield Creek, Flossmoor (12/2017) | 640,000                     |
| <b>Total</b> |  | <b>\$ 73,221,000</b>        |

#### Projects for 2017 Award

|              |  |                      |
|--------------|--|----------------------|
| 10-882-CF ^  | Streambank Stabilization Project along Midlothian Creek, Tinley Park   | \$ 392,000           |
| 10-883-BF ^  | Flood Control Project at Arrowhead Lake, Palos Heights   | 1,200,000            |
| 10-883-CF *^ | Flood Control Project on the East Branch of Cherry Creek, Flossmoor [CIBF = \$3,810,000; Stormwater Management Fund = \$1,050,000] | 3,810,000            |
| 10-884-BF ^  | Flood Control Project for Deer Creek, Ford Heights   | 3,440,000            |
| 11-240-3P    | Organic Waste Receiving Facility and Digester Gas Flare Upgrade, CWRP  | 10,500,000           |
| 13-248-3F ^  | Streambank Stabilization Project on Melvina Ditch, Oak Lawn and Chicago Ridge  | 10,600,000           |
| 14-252-3F ^  | Flood Control Project on Natalie Creek, Oak Forest and Midlothian  | 8,300,000            |
| 14-263-3F ^  | Melvina Ditch Reservoir Improvements   | 21,452,000           |
| 15-IGA-04 ^  | Flood Control Project for Midlothian Turnpike at Lavergne Avenue, Crestwood  | 500,000              |
| 15-IGA-22 ^  | Flood Control Project on 103rd Street from Cicero Avenue to Central Avenue, Oak Lawn   | 3,000,000            |
| 16-270-3P    | Covered Composting System, CWRP  | 24,000,000           |
| 16-271-3P    | Furnish, Deliver, and Install Junction Chamber Odor Control System, CWRP   | 1,000,000            |
| <b>Total</b> |  | <b>\$ 88,194,000</b> |

| <b>Projects Under Development</b> |   | <b>Estimated Construction Cost</b> |
|-----------------------------------|---|------------------------------------|
| 09-230-3M                         | Screens and Conveyor Improvements at 125th Street Pumping Station, CSA            | \$ 3,825,000                       |
| 10-882-AF ^                       | Streambank Stabilization Project on Tinley Creek, Orland Park                     | 3,800,000                          |
| 11-242-3S                         | Palos Hills Pumping Station - Force Main, CSA                                     | 10,000,000                         |
| 12-245-3P                         | Phosphorus Recovery System, CWRP  | 10,000,000                         |
| 15-830-3D                         | Replacement of Tailrace Stop Logs, Equipment, and Headgates, Lockport Power House | 10,000,000                         |
| 16-269-3P                         | Fermenters, CWRP  | 3,000,000                          |
|                                   | Total   | <u>\$ 40,625,000</u>               |
|                                   | Calumet Service Area Grand Total  | <u>\$ 202,040,000</u>              |
|                                   | Capital Projects Grand Total - All Service Areas                                  | <u><u>\$ 968,353,000</u></u>       |

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

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

# This project is designed and built by the City of Chicago. The District is sharing the cost.

## Capital Improvements Bond Fund Program

| <b>Awards in 2017</b> |  | Project Number | Est. Construction Cost | Duration (days) | Est. Award Date |
|-----------------------|--|----------------|------------------------|-----------------|-----------------|
| 1                     | Devon IAS Switchgear Replacement and Wilmette Pumping Station Conduit Replacement  | 16-077-3E      | \$ 1,000               | 365             | Jan-17          |
| 2                     | Organic Waste Receiving Facility and Digester Gas Flare Upgrade, CWRP  | 11-240-3P      | 10,500                 | 540             | Jan-17          |
| 3                     | Drop Shaft 5 Inspection and Rehabilitation, NSA  | 14-372-3S      | 2,700                  | 260             | Jan-17          |
| 4                     | Conversion of Two New GCTs to Primary Sludge Fermenters and Installation of a Gas Detection System in the New GCT Building, SWRP | 15-124-3P      | 3,000                  | 545             | Jan-17          |
| 5                     | Covered Composting System, CWRP  | 16-270-3P      | 24,000                 | 365             | Apr-17          |
| 6                     | Summit Conduit Rehabilitation, SSA   | 16-126-3S      | 1,700                  | 250             | Apr-17          |
| 7                     | Furnish, Deliver, and Install Odor Control Systems, HPWRP  | 16-537-3P      | 1,000                  | 365             | Apr-17          |
| 8                     | <b>McCook Reservoir Expanded Stage 2 Slope Stabilization and Retaining Walls</b>   | 16-125-4F      | 11,200                 | 370             | May-17          |
| 9                     | Fischer Farms Horticultural Center, HPWRP  | 16-538-3V      | 3,500                  | 370             | Jun-17          |
| 10                    | Furnish, Deliver, and Install Junction Chamber Odor Control System, CWRP   | 16-271-3P      | 1,000                  | 365             | Jun-17          |
| 11                    | Rehabilitation of North Branch Pumping Station, NSA  | 16-079-3D      | 1,500                  | 365             | Oct-17          |
| 12                    | Furnish, Deliver, and Install Odor Control Systems, KWRP   | 16-373-3P      | 1,000                  | 365             | Oct-17          |
| Total 2017 Awards     |  |                | <u>\$ 62,100</u>       |                 |                 |

### Projects Under Development

| #  | Project Name  | Project Number | Est. Construction Cost | Duration (days) | Est. Award Date |
|----|---|----------------|------------------------|-----------------|-----------------|
| 13 | Fermenters, CWRP  | 16-269-3P      | \$ 3,000               | 370             | Jan-18          |
| 14 | Upper Des Plaines Intercepting Sewer 11D, Ext. C Rehabilitation, NSA              | 11-404-3S      | 5,500                  | 450             | Feb-18          |
| 15 | Upper Des Plaines Intercepting Sewer 14B Rehabilitation, NSA                      | 06-360-3S      | 6,700                  | 360             | Mar-18          |
| 16 | Replacement of Tailrace Stop Logs, Equipment, and Headgates, Lockport Power House | 15-830-3D      | 10,000                 | 720             | Mar-18          |
| 17 | 39th Street Conduit Rehabilitation - Phase II, SSA                                | 01-103-AS      | 24,700                 | 770             | Jun-18          |
| 18 | Upper Des Plaines Intercepting Sewer 11D Rehabilitation, NSA                      | 12-369-3S      | 5,500                  | 450             | Aug-18          |
| 19 | Upgrade Gate Control Equipment at TARP Control Structures, KWRP, NSA              | 06-358-3M      | 2,200                  | 540             | Oct-18          |
| 20 | Digester Gas Utilization Facilities, SWRP   | 11-189-3P      | 17,000                 | 1,095           | Jan-19          |
| 21 | North Shore 1 Rehabilitation, NSA   | 10-047-3S      | 21,500                 | 500             | Jan-19          |
| 22 | Phosphorus Recovery System, CWRP  | 12-245-3P      | 10,000                 | 1,095           | Jan-19          |
| 23 | Odor Control Facilities, SWRP   | 14-114-3M      | 12,767                 | 730             | Apr-19          |
| 24 | Organic Waste Receiving Station, SWRP   | 14-117-3P      | 10,000                 | 365             | Apr-19          |

**Projects Under Development (continued)**

| #                                 | Project Name   | Project Number | Est. Construction Cost | Duration (days) | Est. Award Date |
|-----------------------------------|--|----------------|------------------------|-----------------|-----------------|
| 25                                | Screens and Conveyor Improvements at 125th Street Pumping Station, CSA | 09-230-3M      | \$ 3,825               | 500             | Jul-19          |
| 26                                | A/B and C/D Service Tunnel Rehabilitation - Phase III                  | 16-127-3D      | 17,000                 | 1,095           | Oct-19          |
| 27                                | Palos Hills Pumping Station - Force Main, CSA                          | 11-242-3S      | 10,000                 | 500             | Feb-21          |
| 28                                | Deammonification System, SWRP  | 13-101-3P      | 30,000                 | 550             | Sep-21          |
| Total Future Awards               |  |                | <u>\$ 189,692</u>      |                 |                 |
| Cumulative 2017 and Future Awards |  |                | <u>\$ 251,792</u>      |                 |                 |

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

**Bold Type Indicates Unlimited Tax Bond Project**

|                            | <b>Method of Financing</b> |                   |                         |
|----------------------------|----------------------------|-------------------|-------------------------|
|                            | State Revolving            | General           |                         |
|                            |                            | <u>Fund Loans</u> | <u>Obligation Bonds</u> |
| Tunnel and Reservoir Plan  | \$ -                       | \$ 11,200         | \$ 11,200               |
| Water Reclamation Plant    | 45,767                     | 3,000             | 48,767                  |
| Expansion and Improvements |                            |                   |                         |
| Solids Management          | 74,500                     | 3,500             | 78,000                  |
| Collection Facilities      | 20,000                     | 14,700            | 34,700                  |
| Replacement of Facilities  | 49,425                     | 29,700            | 79,125                  |
|                            | <u>\$ 189,692</u>          | <u>\$ 62,100</u>  | <u>\$ 251,792</u>       |

### Capital Improvements Bond Fund Program Impacts

| #  | Project Name   | Project Number | Justification  |             |                  |                   | Impact   |        |          |
|--|--|----------------|----------------|-------------|------------------|-------------------|----------|--------|----------|
|  |  |                | Capacity Needs | Useful Life | Economic Benefit | Safety/Regulatory | Manpower | Energy | Chemical |
| <b><u>Awards in 2017</u></b>             |  |                |                |             |                  |                   |          |        |          |
| 1  | Devon IAS Switchgear Replacement and Wilmette Pumping Station Conduit Replacement  | 16-077-3E      |                | x           |                  |                   | =        | =      | =        |
| 2  | Organic Waste Receiving Facility and Digester Gas Flare Upgrade, CWRP  | 11-240-3P      |                |             | x                |                   | -        | ++     | =        |
| 3  | Drop Shaft 5 Inspection and Rehabilitation, NSA  | 14-372-3S      |                |             |                  | x                 | =        | =      | =        |
| 4  | Conversion of Two New GCTs to Primary Sludge Fermenters and Installation of a Gas Detection System in the New GCT Building, SWRP | 15-124-3P      |                |             |                  | x                 | =        | -      | =        |
| 5  | Covered Composting System, CWRP  | 16-270-3P      |                |             | x                |                   | -        | =      | =        |
| 6  | Summit Conduit Rehabilitation, SSA   | 16-126-3S      |                | x           |                  |                   | =        | =      | =        |
| 7  | Furnish, Deliver, and Install Odor Control Systems, HPWRP  | 16-537-3P      |                |             |                  | x                 | =        | =      | =        |
| 8  | McCook Reservoir Expanded Stage 2 Slope Stabilization and Retaining Walls  | 16-125-4F      |                |             | x                |                   | =        | =      | =        |
| 9  | Fischer Farms Horticultural Center, HPWRP  | 16-538-3V      | x              |             |                  |                   | =        | =      | =        |
| 10                                       | Furnish, Deliver, and Install Junction Chamber Odor Control System, CWRP   | 16-271-3P      |                |             |                  | x                 | +        | =      | +        |
| 11                                       | Rehabilitation of North Branch Pumping Station, NSA  | 16-079-3D      |                | x           |                  |                   | =        | =      | =        |
| 12                                       | Furnish, Deliver, and Install Odor Control Systems, KWRP   | 16-373-3P      |                |             |                  | x                 | =        | =      | =        |
| <b><u>Projects Under Development</u></b> |  |                |                |             |                  |                   |          |        |          |
| 13                                       | Fermenters, CWRP   | 16-269-3P      |                |             |                  | x                 | =        | =      | =        |
| 14                                       | Upper Des Plaines Intercepting Sewer 11D, Ext. C Rehabilitation, NSA   | 11-404-3S      |                | x           |                  |                   | =        | =      | =        |
| 15                                       | Upper Des Plaines Intercepting Sewer 14B Rehabilitation, NSA   | 06-360-3S      |                | x           |                  |                   | =        | =      | =        |
| 16                                       | Replacement of Tailrace Stop Logs, Equipment, and Headgates, Lockport Power House  | 15-830-3D      |                | x           |                  | x                 | =        | =      | =        |
| 17                                       | 39th Street Conduit Rehabilitation - Phase II, SSA   | 01-103-AS      |                | x           | x                |                   | =        | =      | =        |
| 18                                       | Upper Des Plaines Intercepting Sewer 11D Rehabilitation, NSA   | 12-369-3S      |                | x           | x                |                   | =        | =      | =        |
| 19                                       | Upgrade Gate Control Equipment at TARP Control Structures, KWRP, NSA   | 06-358-3M      |                | x           |                  |                   | =        | =      | =        |
| 20                                       | Digester Gas Utilization Facilities, SWRP  | 11-189-3P      |                |             | x                |                   | -        | ++     | =        |
| 21                                       | North Shore 1 Rehabilitation, NSA  | 10-047-3S      |                | x           |                  |                   | =        | =      | =        |
| 22                                       | Phosphorus Recovery System, CWRP   | 12-245-3P      |                |             |                  | x                 | -        | -      | -        |
| 23                                       | Odor Control Facilities, SWRP  | 14-114-3M      |                |             |                  | x                 | -        | -      | -        |
| 24                                       | Organic Waste Receiving Station, SWRP  | 14-117-3P      |                |             | x                |                   | -        | ++     | =        |

| <b>Capital Improvements Bond Fund Program</b><br><b>Operating Impacts for Projects Under</b><br><b>Development (continued)</b> |  |                | Justification         |                    |                         |                          | Impact          |               |                 |
|--|--|----------------|-----------------------|--------------------|-------------------------|--------------------------|-----------------|---------------|-----------------|
|  |  |                | <i>Capacity Needs</i> | <i>Useful Life</i> | <i>Economic Benefit</i> | <i>Safety/Regulatory</i> | <i>Manpower</i> | <i>Energy</i> | <i>Chemical</i> |
| #  | Project Name   | Project Number |                       |                    |                         |                          |                 |               |                 |
| 25   | Screens and Conveyor Improvements at 125th Street Pumping Station, CSA | 09-230-3M      |                       | x                  |                         |                          | =               | =             | =               |
| 26   | A/B and C/D Service Tunnel Rehabilitation - Phase III                  | 16-127-3D      |                       | x                  |                         |                          | =               | =             | =               |
| 27   | Palos Hills Pumping Station - Force Main, CSA                          | 11-242-3S      |                       | x                  |                         |                          | =               | =             | =               |
| 28   | Deammonification System, SWRP  | 13-101-3P      | x                     |                    |                         |                          | =               | -             | =               |

**LEGEND**

Under "**Justification**," the marked columns note the categories of benefits expected from each project.

|        |   |                 |   |
|--------|---|-----------------|---|
|        |   | <b>Manpower</b> |   |
| + or - | Labor savings (+) or increases (-) expected to result in redirecting existing manpower away from or toward facility or process to other tasks with no net change in total position costs. | ++ or --        | Labor impact significant enough to ultimately result in reduction (++) or increase (--) in personnel. See additional cost details contained in the Project Fact Sheets.   |
|        |   | <b>Energy</b>   |   |
| + or - | Minor energy savings (+) or costs (-) having a negligible impact on the District's overall energy budget.   | ++ or --        | Major energy savings (++) or costs (--) expected to result in significant revisions to a facility's energy budget. See additional cost details contained in the Project Fact Sheets.                                      |
|        |   | <b>Chemical</b> |   |
| + or - | Chemical savings (+) or costs (-) having a negligible impact on the District's overall chemical costs.  | ++ or --        | Major chemical savings (++) or costs (--) expected to result in significant revisions to the budgeted chemical expenditures for the associated process. See additional cost details contained in the Project Fact Sheets. |
| =      | No budgetary impact expected.   |                 |   |

**TARP PHASE 2 PROJECT COSTS**

Though only partially complete, TARP has already been effective in reducing pollution and flooding. In order to substantially resolve the pollution and flooding problems in the Chicagoland combined sewer area, the reservoirs component of TARP must be completed. The Majewski Reservoir is completed and functional, and the Thornton Reservoir was made operational at the end of 2015. The last TARP reservoir, McCook, is under construction. McCook and Thornton Reservoir project costs are shown in the tables below.

**McCook Reservoir**

| Project Name                                   | Project Number | Estimated Cost (in thousands) |                  |                    |                  | Eligible for Federal Cost Sharing      | Status |
|--|----------------|-------------------------------|------------------|--------------------|------------------|--|--------|
|  |                | Outside Engineering           | Construction     | Total              |                  |  |        |
| McCook Reservoir - Army Corps Work             | 73-161-2H      | \$83,000                      | \$523,915        | \$606,915          | \$590,721        | Army Corps Projects, District pays 25% |        |
| Conveyance Tunnel                              | 73-161-AH      | 891                           | 4,537            | 5,428              | 0                | Completed                              |        |
| Site Preparation                               | 73-161-BH      | 0                             | 889              | 889                | 307              | Completed                              |        |
| Overburden Removal                             | 73-161-CH      | 500                           | 65,816           | 66,316             | 0                | Completed                              |        |
| Expanded Stage 2 Overburden Removal            | 73-161-DH      | 0                             | 18,696           | 18,696             | 0                | Completed                              |        |
| Vulcan Excavation Agreement Hard Costs         | 73-161-EH      | 35                            | 94,717           | 94,752             | 0                | Mining underway                        |        |
| Expanded Stage 2 Hard Costs                    | -              | 0                             | 8,200            | 8,200              | 0                | Future                                 |        |
| Expanded Stage 2 Slope Stab. & Retaining Walls | 16-125-4F      | 0                             | 11,200           | 11,200             | 0                | Under Design                           |        |
| Vulcan Conveyor and Maintenance Facilities     | 73-161-FH      | 1,817                         | 30,564           | 32,381             | 1,753            | Completed                              |        |
| Vulcan Miscellaneous Mining Vehicles           | 73-161-GH      | 0                             | 4,884            | 4,884              | 0                | Completed                              |        |
| Vulcan Mining Trucks and Loaders               | 73-161-HH      | 0                             | 11,105           | 11,105             | 0                | Completed                              |        |
| Stage 2 Misc. Overburden Removal               | 73-161-JH      | 0                             | 6,510            | 6,510              | 0                | Completed                              |        |
| Furnish and Deliver Primary Crusher            | PO3030920      | 0                             | 1,626            | 1,626              | 0                | Completed                              |        |
| Willow Springs Berm                            | 96-249-2P      | 0                             | 3,593            | 3,593              | 0                | Completed                              |        |
| 73rd Street Tunnel Relocation                  | 97-156-2H      | 129                           | 15,003           | 15,132             | 15,132           | Completed                              |        |
| Des Plaines Inflow Tunnel                      | 13-106-4F      | 2,071                         | 107,770          | 109,841            | 0                | Under Construction                     |        |
| District Engineering/PM                        | -              | 2,500                         | 0                | 2,500              | 2,500            | Ongoing                                |        |
| District Land Value                            | -              | 38                            | 5,375            | 5,413              | 5,413            | Completed                              |        |
| <b>Total Project Cost</b>                      |                | <b>\$90,981</b>               | <b>\$914,400</b> | <b>\$1,005,381</b> | <b>\$615,826</b> |  |        |

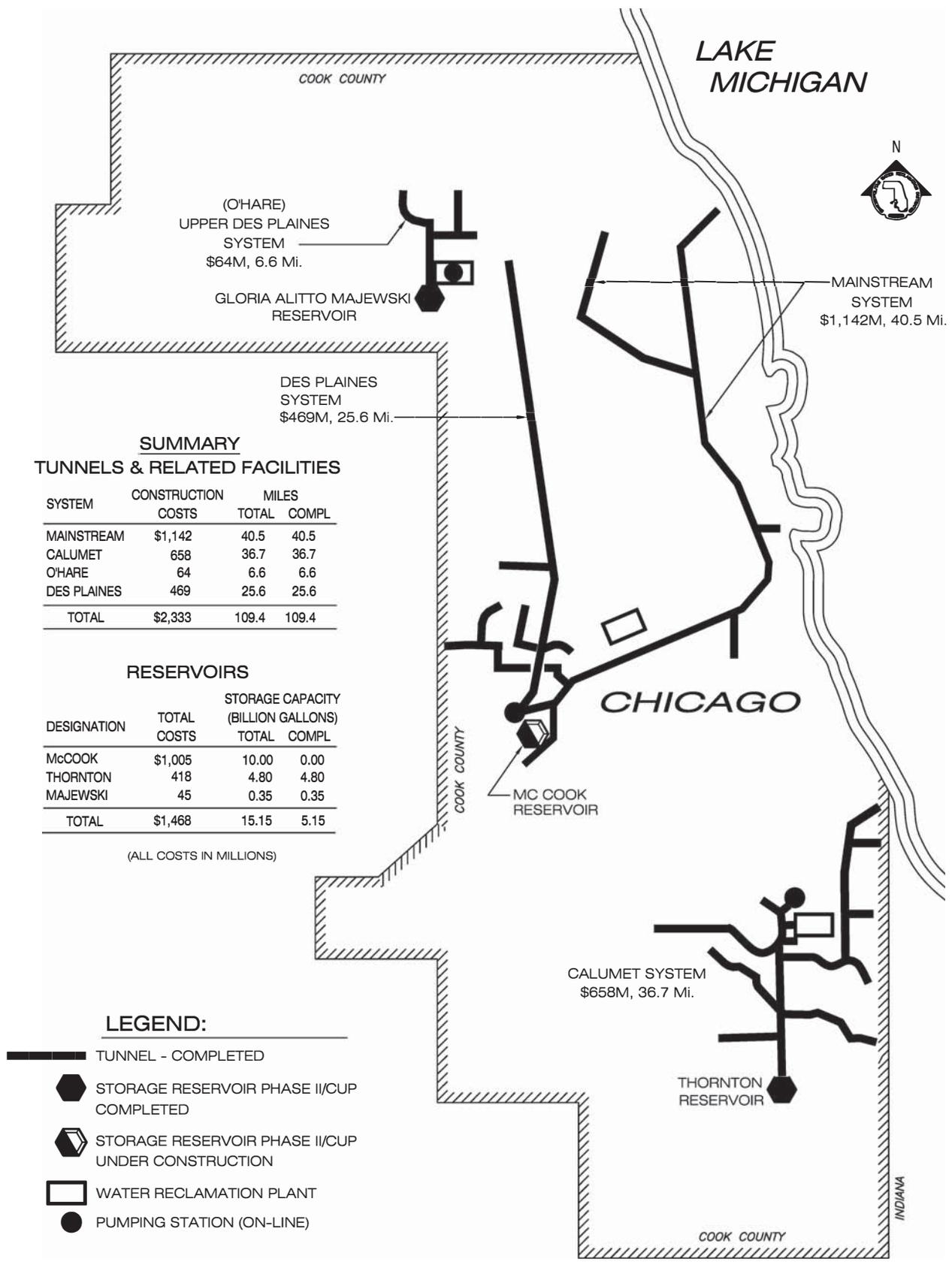
|   |                    |
|---|--------------------|
| <b>Total McCook Reservoir Project Costs</b> | <b>\$1,005,381</b> |
| -Amount Ineligible for Cost Sharing         | 389,555            |
| -Amount Eligible for Cost Sharing           | 615,826            |
| <i>Corps' Share (75%)</i>                   | 461,869            |
| <i>District's Share (25%)</i>               | 153,957            |
| District's Cash Payments to Date            | 124,019            |
| District's Estimated Credits                | 25,322             |
| Estimated Remaining Payments to Corps       | 4,616              |

Note: Through Q2 2016 the District has received \$13.9 million in royalty payments from Vulcan for the sale of rock mined from the site. It is estimated that the District will receive a total of \$36 million in royalties over the life of the project, offsetting some of the District's costs.

**Thornton Reservoir**

| Project Name                                 | Project Number | Estimated Cost (in thousands) |                  |                  |                  | Eligible for Federal Cost Sharing | Status |
|--|----------------|-------------------------------|------------------|------------------|------------------|-----------------------------------|--------|
|  |                | Outside Engineering           | Construction     | Total            |                  |                                   |        |
| Vincennes Avenue Relocation                  | 77-235-AF      | \$483                         | \$3,554          | \$4,037          | \$3,554          | Completed                         |        |
| Thornton Transitional Reservoir              | 77-235-BF      | 2,970                         | 51,737           | 54,707           | 0                | Completed                         |        |
| Transitional Reservoir GW Monitoring Wells   | 77-235-CF      | 0                             | 529              | 529              | 0                | Completed                         |        |
| Overburden Removal and Berm Construction     | JOC            | 0                             | 1,674            | 1,674            | 0                | Completed                         |        |
| Chain Link Fence                             | 77-235-2F      | 0                             | 140              | 140              | 0                | Completed                         |        |
| MSC Hard Costs                               | 77-235-2F      | 0                             | 25,647           | 25,647           | 0                | Completed                         |        |
| MSC Lost Reserves/Capital Costs              | 77-235-2F      | 0                             | 22,658           | 22,658           | 15,485           | Completed                         |        |
| Other Lands and Easements                    | 77-235-2F      | 0                             | 11,086           | 11,086           | 11,086           | Completed                         |        |
| Corps of Engineers LRR (Planning)            | 77-235-2F      | 6,345                         | 0                | 6,345            | 6,345            | Completed                         |        |
| Tollway Dam, Grout Curtain, and Quarry Plugs | 04-201-4F      | 12,807                        | 67,002           | 79,809           | 79,809           | Completed                         |        |
| Connecting Tunnels and Gates                 | 04-202-4F      | 10,069                        | 137,067          | 147,136          | 147,136          | Completed                         |        |
| Final Reservoir Preparation                  | 04-203-4F      | 9,958                         | 51,582           | 61,540           | 61,540           | Completed                         |        |
| Surface Aeration                             | 04-203-AF      | 365                           | 1,490            | 1,855            | 1,855            | Completed                         |        |
| Army Corps Review                            | -              | 1,000                         | 0                | 1,000            | 1,000            | Ongoing                           |        |
| <b>Total Project Costs</b>                   |                | <b>\$43,997</b>               | <b>\$374,166</b> | <b>\$418,163</b> | <b>\$327,810</b> |                                   |        |

|   |                  |
|---|------------------|
| <b>Total Thornton Reservoir Project Costs</b> | <b>\$418,163</b> |
| -Amount Ineligible for Cost Sharing           | 90,353           |
| -Amount Eligible for Cost Sharing             | 327,810          |
| <i>Corps' Share (75%)</i>                     | 245,858          |
| <i>District's Share (25%)</i>                 | 81,952           |



## TUNNEL and RESERVOIR PLAN PROJECT STATUS

## TARP Pump #8 Rehabilitation, MSPS

**Project Number:** 02-111-3M

**Service Area:** Stickney

**Location:** Mainstream Pumping Station

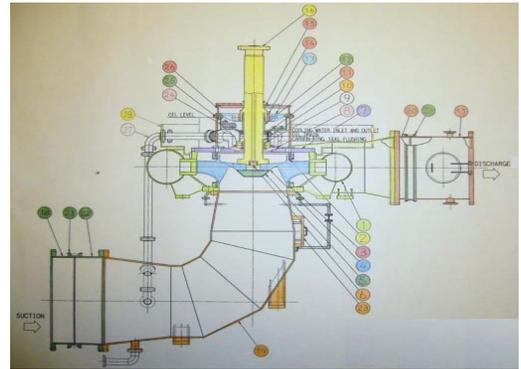
**Engineering Consultant:** In-house design

**General Contractor:** Broadway Electric, Inc.

**Estimated Construction Cost:** \$4,533,000

**Contract Award Date:** April 2015

**Substantial Completion Date:** January 2017\*



**Project Description:** The purpose of this project is to completely overhaul the pump and motor of main sewage pump No. 8 in the north pump house of the Mainstream Pumping Station. Also, the new inflatable seal design utilized on pumps No. 2 and No. 6 will be installed on pump No. 8. This contract will serve as the model for the overhaul of the other five original installations.

**Project Justification:** The complete overhaul of the pump and motor involves the installation of new parts and current technology components, which will reduce the maintenance labor required for both pieces of equipment and improve reliability. The new inflatable seal design will increase the life of the mechanical seal and decrease leakage. The pump and motor will operate more efficiently by pumping more liquid in less time, leading to reduced electricity usage. The overhaul will extend the useful life of the pump and motor which have been in service since May 1985.

**Project Status:** This project is under construction.

\*Information shown is estimated.

## West Side Primary Settling Tanks 1-9 and Aerated Grit Facility, SWRP

**Project Number:** 04-128-3P

**Service Area:** Stickney

**Location:** Stickney WRP

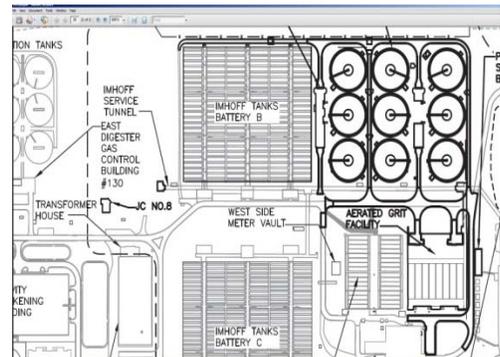
**Engineering Consultant:** Greeley and Hansen

**General Contractor:** IHC Construction Companies, LLC and F.H. Paschen, S.N. Nielsen Joint Venture

**Estimated Construction Cost:** \$226,208,000

**Contract Award Date:** December 2014

**Substantial Completion Date:** June 2018\*



**Project Description:** Construction of nine 160-foot diameter primary settling tanks (PST) and six 132-foot long aerated grit tanks, associated support facilities, service tunnels, and conduits. The aerated grit facility will include shaftless-screw conveyors, centrifugal and airlift pumps for grit removal, grit classifiers, and a dumpster-loading system. Grit tanks will be covered for odor control. Process air for the grit tanks and PSTs will be provided by new turbo blowers. The PST area will have tunnel access pump stations containing scum pumps, sludge airlifts, an electrical substation, odor control vessels and fans, and associated equipment. PST effluent weirs and troughs will be covered for odor control. The ability to bypass six PSTs will be provided. Additionally, modifications to the existing Monitoring & Research building at the Stickney Water Reclamation Plant are included in this project. The work involves the installation of new air handling units, an absorption chiller, heat exchangers, pumps, and strobic fans. Replacement of associated controls, intake, supply, and exhaust ductwork, piping, conduit, and wiring at the Monitoring & Research building is also included. Equipment will be provided by the District, but installed by the contractor. Piping will be installed in Mechanical Room LC-118 to bypass and abandon leaking underground condenser water piping.

**Project Justification:** The West Side Imhoff tanks are being decommissioned and replaced with more modern and effective treatment equipment. Imhoff battery A and skimming tanks 1-8 have already been demolished in preparation for this project. The Imhoff tanks that have been in service since 1928 are labor-intensive to operate and provide inferior treatment to PSTs. Valves for sludge withdrawal are difficult to operate and have resulted in injuries to personnel. Skimming scum from Imhoff tanks requires personnel to walk narrow walkways above open sewage without fall protection. Certain areas of the structures have exhibited structural cracking and leakage from conduits. Maintenance and repair supplies are not readily available for antiquated systems. Sludge solids are digested in the lower anaerobic zone of the Imhoff tanks and the methane gas byproduct of digestion is impossible to capture and is emitted to the atmosphere. A significant increase in digester gas production will result from this project, allowing the District to proceed on the path to energy neutrality. The aerated grit facility will replace the existing West Side skimming tanks and provide superior grit removal, thus protecting downstream piping and equipment from damage due to scouring by grit. The existing skimming tanks and grit concentration utilize maintenance-intensive chain-and-flight mechanisms. In addition, the skimming tanks and existing grit concentration create a recycle load of up to 100 million gallons per day. There will be minimal recycling from the new facilities. The existing Imhoff and skimming tanks are significant generators of odor. Odors from new facilities will be captured and removed, in keeping with the District's good-neighbor policy. The central portion of the Monitoring & Research building was constructed in 1963 and much of the existing equipment in this area is original to the facility. The supply and exhaust ventilation can no longer meet the testing and ventilation needs of the facility staff. Increased maintenance needs and the increased risk of failure necessitate that it be replaced to ensure a reliable and safe environment for the employees.

**Project Status:** This project is under construction.

\*Information shown is estimated.

## A/B and 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 and Consultant, RME

**General Contractor:** IHC Construction Companies, LLC and F.H. Paschen, S.N. Nielsen Joint Venture

**Estimated Construction Cost:** \$20,519,000

**Contract Award Date:** May 2016

**Substantial Completion Date:** February 2019\*



**Project Description:** This project will rehabilitate approximately 200 feet of the A/B service tunnel and 135 feet of the C/D service tunnel, and it will replace 150 feet of connecting tunnel between the A/B and C/D service tunnels.

**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:** This project is under construction.

\*Information shown is estimated.

## Salt Creek Intercepting Sewer 2 Rehabilitation, SSA

**Project Number:** 06-155-3S

**Service Area:** Stickney

**Location:** Proviso Township and Lyons Township

**Engineering Consultant:** In-house design

**General Contractor:** Kenny Construction Company

**Estimated Construction Cost:** \$43,878,000

**Contract Award Date:** December 2015

**Substantial Completion Date:** December 2018\*



**Project Description:** This project consists of rehabilitating approximately 32,800 feet of intercepting sewer with sizes ranging from 10" diameter to 7' x 7' semi-elliptic concrete pipe by using the cured-in-place pipe lining method, the channeline lining method, and/or the spray-on geopolymer lining system. This project also includes rehabilitating 81 manholes and two junction chambers by the spray-on lining system and/or the fiber wrap system, rebuilding and raising 11 manholes, constructing one manhole, and making control structure modifications.

**Project Justification:** The sewers were inspected by the Maintenance & Operations Department in 2003 with a closed-circuit television inspection system. The video inspection tapes show cracks (circular and longitudinal), sewage solids deposits, sags, offset joints, root intrusion, infiltration, and concrete corrosion due to the action of hydrogen sulfide generated by the decomposition of settled solids. Physical inspection of the manholes revealed cracks and holes in the walls and on the bases of the manholes.

**Project Status:** This project is under construction.

\*Information shown is estimated.

## Calumet TARP Pumping Station Improvements, CWRP

**Project Number:** 06-212-3M

**Service Area:** Calumet

**Location:** Calumet WRP

**Engineering Consultant:** AECOM

**General Contractor:** Sollitt/Sachi/Alworth Joint Venture

**Estimated Construction Cost:** \$35,288,000

**Contract Award Date:** May 2013

**Substantial Completion Date:** February 2018\*



**Project Description:** The purpose of this project is to replace the existing East 1 and West 1 Tunnel and Reservoir Plan (TARP) pumps with larger capacity pumps, replace their motors, and install new 4.6 kV variable frequency drives (VFDs) for the pumps. The suction and discharge piping will be modified to accommodate the new pumps. Also, the remaining four pumps, East 2 and 3 and West 2 and 3, will be replaced with new 72 million gallons per day pumps, along with new motors and four 4.6 kV VFDs. The drives will be located on an elevated platform in each of the pump rooms. A low pressure steam line will be constructed from the high-level influent pumping station to TARP for heating needs. The grading, roads, and site work disturbed during construction will be completed and restored.

**Project Justification:** This project will increase the firm pumping capacity of each pump room to 150 million gallons per day while restoring the dependability of the equipment at the Calumet TARP Station. There will be some increase in maintenance costs due to the addition of VFDs in place of the constant speed motors for the existing small pumps. However, VFDs will allow better control of pumping and reduce energy costs by matching pump speed with flow needs.

**Project Status:** This project is under construction.

\*Information shown is estimated.

## D799 Switchgear Replacement, SWRP

**Project Number:** 09-182-3E

**Service Area:** Stickney

**Location:** Stickney WRP

**Engineering Consultant:** In-house design

**General Contractor:** Electrical Systems, Inc.

**Estimated Construction Cost:** \$12,645,000

**Contract Award Date:** December 2015

**Substantial Completion Date:** January 2019\*



**Project Description:** Replacement of the medium voltage (13.2kV) switchgear and medium voltage feeder cables in D799 at the Stickney WRP.

**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 should be replaced to avoid a catastrophic failure.

**Project Status:** This project is under construction.

\*Information shown is estimated.

## Calumet Intercepting Sewer 19F Rehabilitation, CSA

**Project Number:** 11-239-3S

**Service Area:** Calumet and Stickney

**Location:** Bremen and Proviso Township

**Engineering Consultant:** In-house design

**General Contractor:** Insituform Technologies USA, LLC

**Estimated Construction Cost:** \$12,306,000

**Contract Award Date:** June 2016

**Substantial Completion Date:** November 2017\*



**Project Description:** The project consists of rehabilitating approximately 14,051 linear feet of 60-inch sewer pipe, 252 feet of 20-inch circular sewer, 23 drop manholes, and one junction structure, removing of an existing 48-inch cast-in-place structure, and abandoning of a 10-inch diameter pipe.

**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.

**Project Status:** This project is under construction.

\*Information shown is estimated.

## Organic Waste Receiving Facility and Digester Gas Flare Upgrade, CWRP

**Project Number:** 11-240-3P

**Service Area:** Calumet

**Location:** Calumet WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$10,500,000

**Contract Award Date:** January 2017\*

**Substantial Completion Date:** June 2018\*



**Project Description:** The overall scope includes repurposing a decommissioned sludge screening building into an organic waste receiving and processing facility. Construction includes a receiving station for unloading two tanker trucks simultaneously, a receiving pit for high strength liquid waste and fats, oils, and greases, screens, transfer pumps, transfer piping, odor control, and site work for handling truck traffic. Due to the increase in digester gas production, two new digester gas flares must be added, and the existing flares in the flare house will be rebuilt.

**Project Justification:** Biogas, generated as a by-product of the anaerobic digestion process at the Calumet WRP, has value as a fuel. Currently, the biogas is used to produce steam in boilers for plant heating. There are periods of time in the year when the steam demand is low and not all of the biogas is fully utilized. This project will permit the increase in biogas production by approximately 70 percent over the current volume by utilizing excess capacity in the digesters to take in organic waste material from outside sources. All of the biogas produced by plant solids and organic feedstock will then be fully utilized as an energy source, as a step towards energy neutrality. The biogas utilization facilities will be constructed under a separate project. Liquid organic waste will be supplied by a single supply chain manager to provide consistency and certainty of volume. Organic wastes will include high strength liquid waste from industrial sources such as food processing plants, and fats, oils, and greases from grease traps and commercial waste. The liquid organics supply chain manager will be selected under a separate request for proposal process. The receiving station constructed under this project will handle up to 200,000 gallons of liquid organic wastes per day.

**Project Status:** This project is being designed.

\*Information shown is estimated.

## Calumet TARP Screens, CWRP

**Project Number:** 13-246-3M

**Service Area:** Calumet

**Location:** Calumet WRP

**Engineering Consultant:** Rubinos & Mesia Engineers, Inc.

**General Contractor:** The George Sollitt Construction Company

**Estimated Construction Cost:** \$12,754,000

**Contract Award Date:** February 2015

**Substantial Completion Date:** April 2019\*



**Project Description:** The purpose of this project is to replace the existing bar screens, which are located upstream of the Tunnel and Reservoir Plan (TARP) pumping station approximately 350 feet below ground, with new screens which will be mechanically cleaned. The cleaning mechanism will be rail mounted at ground level and have a gripper, which will travel down the shaft and remove the screenings from the bar screens, returning them to the surface for disposal. The work will be performed in conjunction with Contract 06-212-3M, Calumet TARP Pumping Station Improvements.

**Project Justification:** This project will restore the dependability of the equipment at the Calumet TARP pumping station. Even with the addition of the screen cleaning mechanism, there will be a decrease in maintenance costs for the screens due to the elimination of the manual cleaning operation. However, there will be an increase in energy costs. The mechanism will provide more frequent cleanings and a safer operation, as workers will no longer need to be lowered into the wet shaft via a man basket in order to manually clean the screens.

**Project Status:** This project is under construction.

\*Information shown is estimated.

## Drop Shaft 5 Inspection and Rehabilitation, NSA

**Project Number:** 14-372-3S

**Service Area:** North

**Location:** City of Des Plaines

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$2,700,000

**Contract Award Date:** January 2017\*

**Substantial Completion Date:** October 2017\*



**Project Description:** The project consists of the rehabilitation of the following: Drop Shaft No. 5 by slip lining, 100 feet of 108-inch pipe by the cured-in-place pipe lining process, 75 feet of the drop shaft exit conduit by spray-on lining, and replacement of deteriorated appurtenances.

**Project Justification:** The drop shaft 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.

**Project Status:** The design phase is 60 percent complete.

\*Information shown is estimated.

## Conversion of Old GCTs to the WASSTRIP® Process, SWRP

**Project Number:** 15-120-3P

**Service Area:** Stickney

**Location:** Stickney WRP

**Engineering Consultant:** In-house design

**General Contractor:** Morrison Construction Company, Inc.

**Estimated Construction Cost:** \$5,223,000

**Contract Award Date:** May 2016

**Substantial Completion Date:** April 2018\*



**Project Description:** The remaining old gravity concentration tanks will be converted to the Waste Activated Sludge Stripping to Remove Internal Phosphorus (WASSTRIP®) process to aid in the release of phosphorus which will be recovered from the pre-digestion centrate by the existing Ostara process.

**Project Justification:** The WASSTRIP® process will increase the quantity of phosphorus that will be recovered by the Ostara facility. This enhances the District's strategic plan toward sustainability and resource recovery. Additional benefits of this process will be the reduction of struvite formation in the digesters and post centrate piping as well as improving the dewaterability of our biosolids. The fermentation of primary sludge will create additional volatile fatty acids necessary for a more stable operation of the enhanced biological phosphorus removal treatment process.

**Project Status:** This project is under construction.

\*Information shown is estimated.

## Conversion of Two New GCTs to Primary Sludge Fermenters and Installation of a Gas Detection System in the New GCT Building, SWRP

**Project Number:** 15-124-3P

**Service Area:** Stickney

**Location:** Stickney WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

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

**Contract Award Date:** January 2017\*

**Substantial Completion Date:** May 2018\*



**Project Description:** This project will convert two of the new gravity concentration tanks (GCTs) 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:** This project is being designed.

\*Information shown is estimated.

## Public Building Commission Guaranteed Energy Performance Contract

**Project Number:** 16-PBC-MO

**Service Area:** Calumet and Stickney

**Location:** Calumet WRP, Stickney WRP

**Engineering Consultant:** Public Building Commission of Chicago

**General Contractor:** Noresco, LLC

**Estimated Construction Cost:** \$4,250,000

**Contract Award Date:** February, 2016

**Substantial Completion Date:** September, 2017\*



**Project Description:** The 2016/17 energy performance project is primarily focused on fully evaluated and needed energy-related capital improvements at the Calumet Water Reclamation Plant. The work includes the installation of upgraded HVAC controls, custom blanket insulation of certain steam pipe fittings and valves, and the conversion of obsolete light fixtures to the latest light-emitting diode lamp technology. Also included in the 2016/17 energy performance project is a light emitting diode fixture modernization project at a large warehouse at the Stickney Water Reclamation Plant.

**Project Justification:** The projects were recommended by the Public Building Commission of Chicago as part of their Investment Grade Audit Report.

**Project Status:** This project is in progress.

\*Information shown is estimated.

## Devon IAS Switchgear Replacement and Wilmette Pumping Station Conduit Replacement

**Project Number:** 16-077-3E

**Service Area:** North

**Location:** Devon IAS and Wilmette Pumping Station

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

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

**Contract Award Date:** January 2017\*

**Substantial Completion Date:** January 2018\*



**Project Description:** Replace electrical switchgear and motor control center at the Devon Instream Aeration Station. Replace conduit at the Wilmette Pumping Station.

**Project Justification:** For the Devon Instream Aeration Station: The electrical equipment is over 30 years old and is in poor condition. In order to avoid failure and to ensure the appropriate level of service, the equipment must be replaced. For the Wilmette Pumping Station: Due to flooding, the wires to gate actuators have been subjected to freezing/thawing and therefore have become damaged. The underground conduit and wire will be replaced with above ground conduit and wire.

**Project Status:** This project is being designed.

\*Information shown is estimated.

## 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

**General Contractor:** To be determined

**Estimated Construction Cost:** \$1,500,000

**Contract Award Date:** October 2017\*

**Substantial Completion Date:** October 2018\*



**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:** This project is in the preliminary design stage.

\*Information shown is estimated.

## McCook Reservoir Expanded Stage 2 Slope Stabilization and Retaining Walls

**Project Number:** 16-125-4F

**Service Area:** Stickney

**Location:** Lawndale Avenue Solids Management Area

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$11,200,000

**Contract Award Date:** May 2017\*

**Substantial Completion Date:** May 2018\*



**Project Description:** The scope of work consists of constructing approximately 2,000 linear feet of a soil nail retaining wall along the western and southern sides as well as slope stabilization work around the entire perimeter of Expanded Stage 2 of the McCook Reservoir.

**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 retaining walls with correlating stabilization of the side slopes are required to provide sufficient mining reserves to achieve the desired capacity of ten billion gallons.

**Project Status:** Design is 60 percent complete.

\*Information shown is estimated.

## Summit Conduit Rehabilitation, SSA

**Project Number:** 16-126-3S

**Service Area:** Stickney

**Location:** Lyons Township

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

**Estimated Construction Cost:** \$1,700,000

**Contract Award Date:** April 2017\*

**Substantial Completion Date:** December 2017\*



**Project Description:** This project consists of the rehabilitation of 810 feet of 6'x7' 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:** Design is 30 percent complete.

\*Information shown is estimated.

## Covered Composting System, CWRP

**Project Number:** 16-270-3P

**Service Area:** Calumet

**Location:** Calumet WRP

**Engineering Consultant:** To be determined

**General Contractor:** To be determined

**Estimated Construction Cost:** \$24,000,000

**Contract Award Date:** April 2017\*

**Substantial Completion Date:** January 2018\*



**Project Description:** The scope of work for this project is to design a covered composting system to be located at the Calumet WRP's East Drying Cells 5 and 6. The design shall utilize the GORE® system sized for 25,000 dry tons of annual production at 20 percent solids content. The GORE® system requires a biosolids feedstock with 15 to 25 percent solids content and a bulking agent (i.e. wood chips, yard waste, or shredded paper) to be mixed with the biosolids. The GORE® system consists of three phases: Phase I—High Rate Composting, Phase II—Maturation, and Phase III—Finishing. Each phase occurs at its own location. Phases I and II occur under a three-layer laminate cover in bunkers with four-foot high walls. The bunkers separate the compost piles and provide support for a cover winding system to easily install and remove the GORE® covers from the piles. No cover is needed in Phase III. A total of 36 bunkers are required for Phase I, and 18 bunkers are required for Phase II. Also included are conveyors to move material between phases, a receiving and mixing building, a biofilter system, blowers, and ancillary mechanical and electrical equipment.

**Project Justification:** The purpose of this project is to provide facilities at the Calumet WRP for high quality composted biosolids product to be marketed and sold. The system will produce an exceptional quality, Class A biosolids product, while containing nuisance odors generated during the process.

**Project Status:** This project is being designed.

\*Information shown is estimated.

## Furnish, Deliver, and Install Junction Chamber Odor Control System, CWRP

**Project Number:** 16-271-3P

**Service Area:** Calumet

**Location:** Calumet WRP

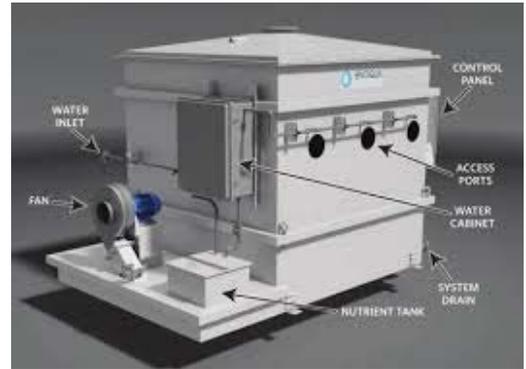
**Engineering Consultant:** In-house design

**General Contractor:** To be determined

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

**Contract Award Date:** June 2017\*

**Substantial Completion Date:** June 2018\*



**Project Description:** The high level influent pumping station is an odorous area at the Calumet Water Reclamation Plant. Odor compounds, their concentrations, and associated air flows were collected and evaluated to determine the best available strategy to address the odor emissions in this area. A biotrickling filter will be installed to mitigate odors.

**Project Justification:** This project will reduce the odor emissions that affect the District's neighbors and staff.

**Project Status:** Detailed design is in progress.

\*Information shown is estimated.

## Furnish, Deliver, and Install Odor Control Systems, KWRP

**Project Number:** 16-373-3P

**Service Area:** North

**Location:** Kirie WRP

**Engineering Consultant:** In-house design

**General Contractor:** To be determined

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

**Contract Award Date:** October 2017\*

**Substantial Completion Date:** October 2018\*



**Project Description:** The north and south pumphouses of the Kirie Water Reclamation Plant produce odorous emissions. Odor compounds, concentrations, and associated air flows were collected and evaluated to determine the best available strategy to address these emissions. A carbon adsorption filter unit will be installed to address the odorous exhaust from the north and south pumphouses.

**Project Justification:** This project will reduce the odor emissions that affect the District's neighbors and staff. The plant is located near a residential neighborhood and is next to public athletic fields.

**Project Status:** Detailed design is in progress.

\*Information shown is estimated.

## Furnish, Deliver, and Install Odor Control Systems, HPWRP

**Project Number:** 16-537-3P

**Service Area:** North

**Location:** Hanover Park WRP

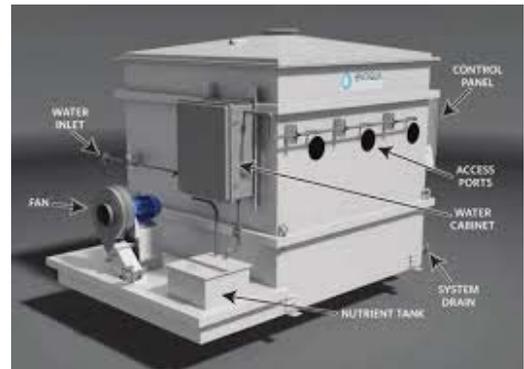
**Engineering Consultant:** In-house design

**General Contractor:** To be determined

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

**Contract Award Date:** April 2017\*

**Substantial Completion Date:** April 2018\*



**Project Description:** The coarse screen building exhaust, gravity belt thickener exhaust, aerated grit tanks, and pre-treatment building are odorous areas at the Hanover Park WRP. Odor compounds, concentrations, and associated air flows were collected and evaluated to determine the best available strategy to address the odor emissions. The following technologies will be applied: a biotrickling filter unit will be installed to address odors from the gravity belt thickener exhaust, a separate biotrickling filter unit will be installed to address the odors from the pre-treatment building and the aerated grit tanks, and a carbon adsorption filter unit will be installed to address the coarse screen building exhaust. The project will also include the installation of covers over the aerated grit tanks.

**Project Justification:** This project will reduce the odor emissions that affect the District's neighbors and staff. The plant is located in a residential neighborhood, next to an elementary school.

**Project Status:** This project is being designed.

\*Information shown is estimated.

## Fischer Farms Horticultural Center, HPWRP

**Project Number:** 16-538-3V

**Service Area:** North

**Location:** Hanover Park WRP

**Engineering Consultant:** Robinos & Mesia Engineers, Inc.

**General Contractor:** To be determined

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

**Contract Award Date:** June 2017\*

**Substantial Completion Date:** June 2018\*



**Project Description:** Build a research and education center at Fischer Farms to use biosolids-based compost as a fertilizer in growing native plants, trees, and bushes. The facility will also be used for educating communities in the beneficial use of biosolids, a byproduct of the waste water treatment process.

**Project Justification:** The District is committed to sustainable practices encompassing the use of biosolids as a resource rather than as a waste product. The use of biosolids as fertilizer will save landfills and will benefit the society as a whole.

**Project Status:** This project is being designed.

\*Information shown is estimated.

# SEWER DESIGN PROJECT MAP 2017



UPPER DES PLAINES  
INTERCEPTING SEWER 11D  
EXT. C REHABILITATION, NSA  
11-404-3S \$5,500,000

UPPER DES PLAINES  
INTERCEPTING SEWER 11D  
REHABILITATION, NSA  
12-369-3S \$5,500,000

UPPER DES PLAINES  
INTERCEPTING SEWER 14B  
REHABILITATION, NSA  
06-360-3S \$6,700,000

NORTH SHORE 1  
REHABILITATION, NSA  
10-047-3S \$21,500,000

DROP SHAFT 5 INSPECTION  
AND REHABILITATION, NSA  
14-372-3S \$2,700,000

39th STREET CONDUIT  
REHABILITATION PHASE II, SSA  
01-103-AS \$24,700,000

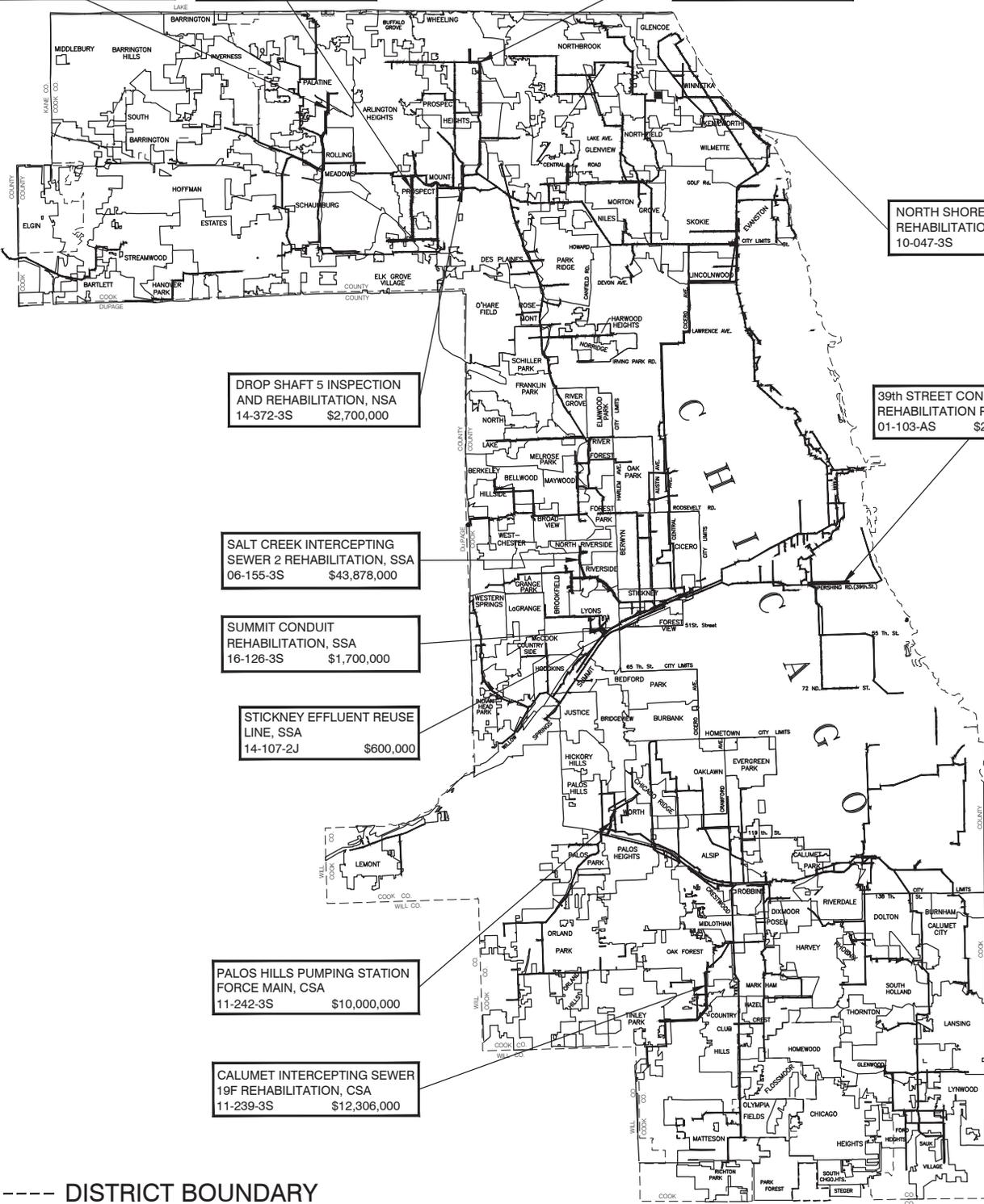
SALT CREEK INTERCEPTING  
SEWER 2 REHABILITATION, SSA  
06-155-3S \$43,878,000

SUMMIT CONDUIT  
REHABILITATION, SSA  
16-126-3S \$1,700,000

STICKNEY EFFLUENT REUSE  
LINE, SSA  
14-107-2J \$600,000

PALOS HILLS PUMPING STATION  
FORCE MAIN, CSA  
11-242-3S \$10,000,000

CALUMET INTERCEPTING SEWER  
19F REHABILITATION, CSA  
11-239-3S \$12,306,000



----- DISTRICT BOUNDARY



LOCATION MAP

39th STREET CONDUIT REHABILITATION - PHASE II, SSA  
REHABILITATE CONDUIT FROM LAKE SHORE DRIVE TO THE RACINE AVENUE PUMPING STATION  
COST: \$24,700,000

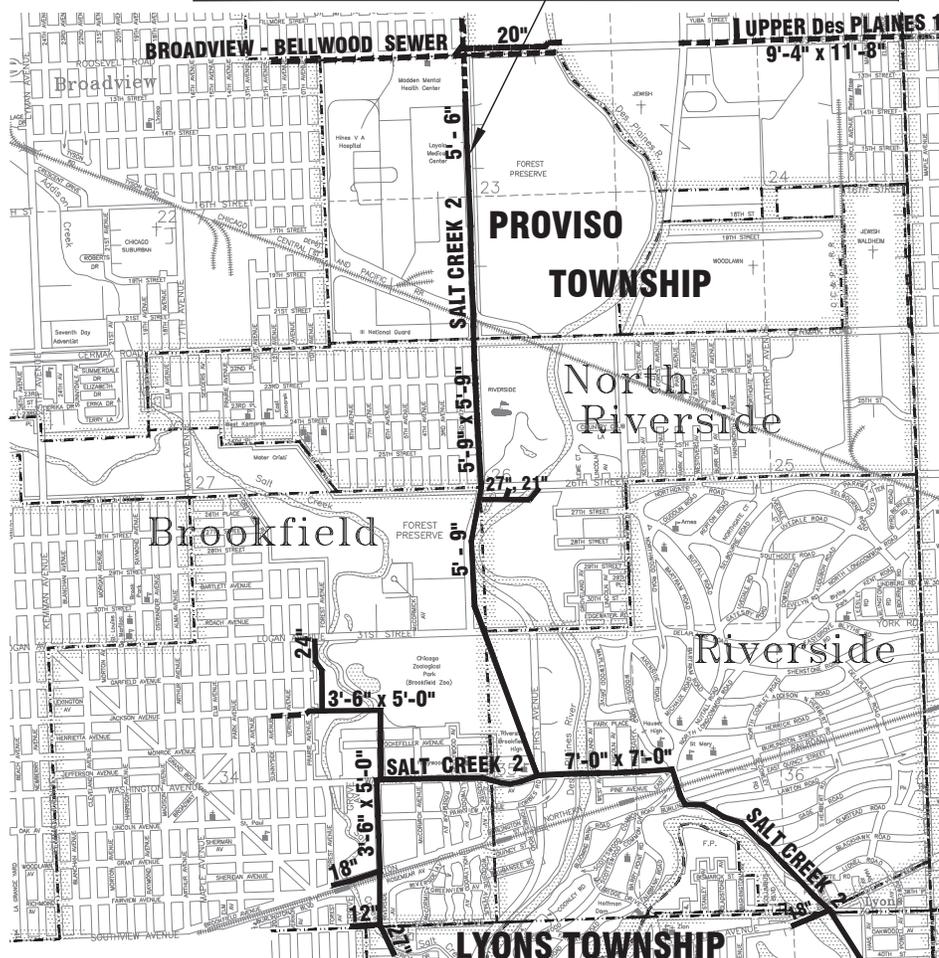
**LEGEND:**

-  = SEWER TO BE REHABILITATED
-  = EXISTING SEWER

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



**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 CONC. PIPE  
 7,857 FEET OF 3'-6" x 5'-0" SEMIELLIPTICAL PIPE  
 12,442 FEET OF 5'-9" x 5'-9" SEMIELLIPTICAL PIPE  
 7,400 FEET OF 7'-0" x 7'-0" SEMIELLIPTICAL PIPE  
 REHABILITATION OF 81 MANHOLES  
 REHABILITATION OF 2 JUNCTION CHAMBERS  
 REBUILDING/RAISING OF 11 MANHOLES  
 CONSTRUCTION OF 1 MANHOLE  
 CONTROL STRUCTURE MODIFICATION  
**COST: \$43,878,000**



**LEGEND:**

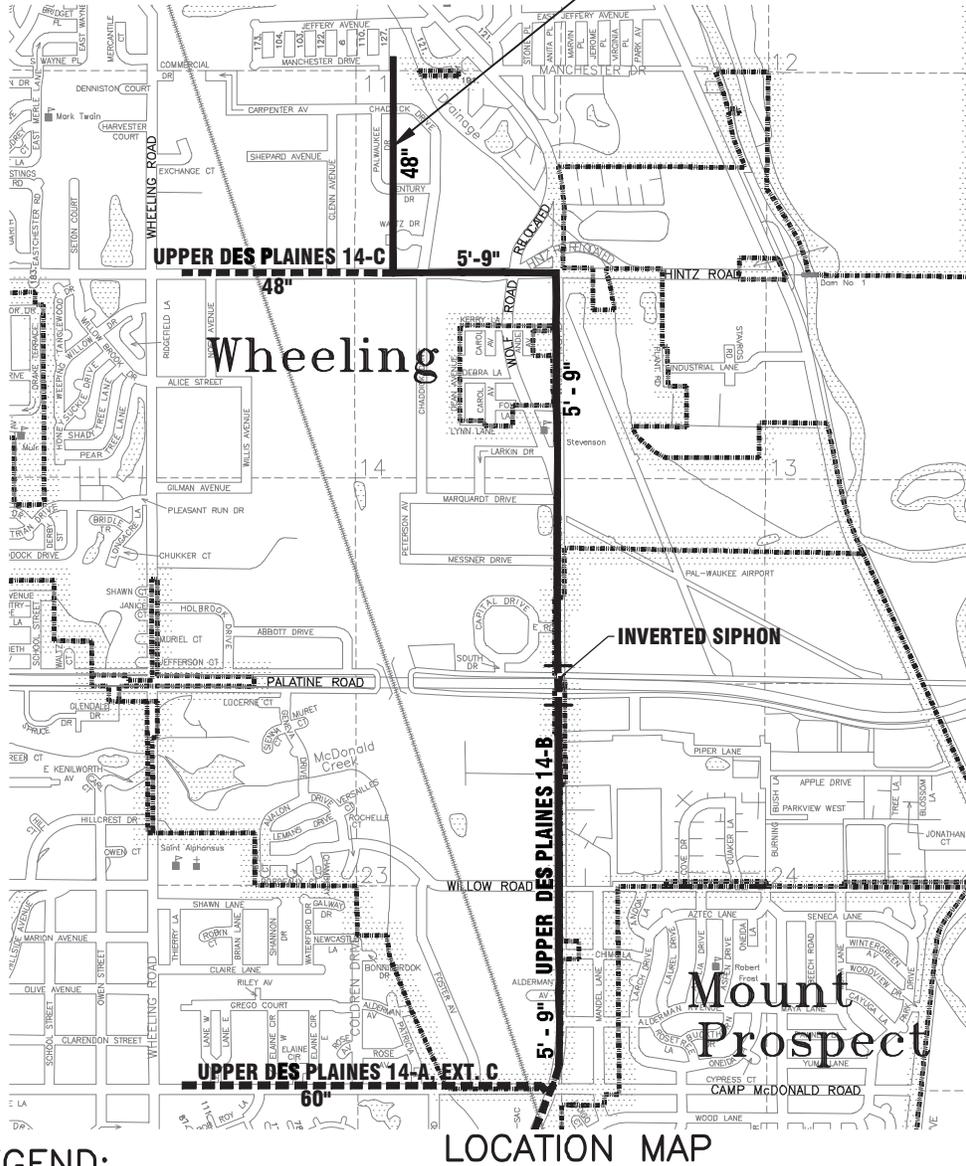
- = SEWER TO BE REHABILITATED
- = EXISTING SEWER

**LOCATION MAP**

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



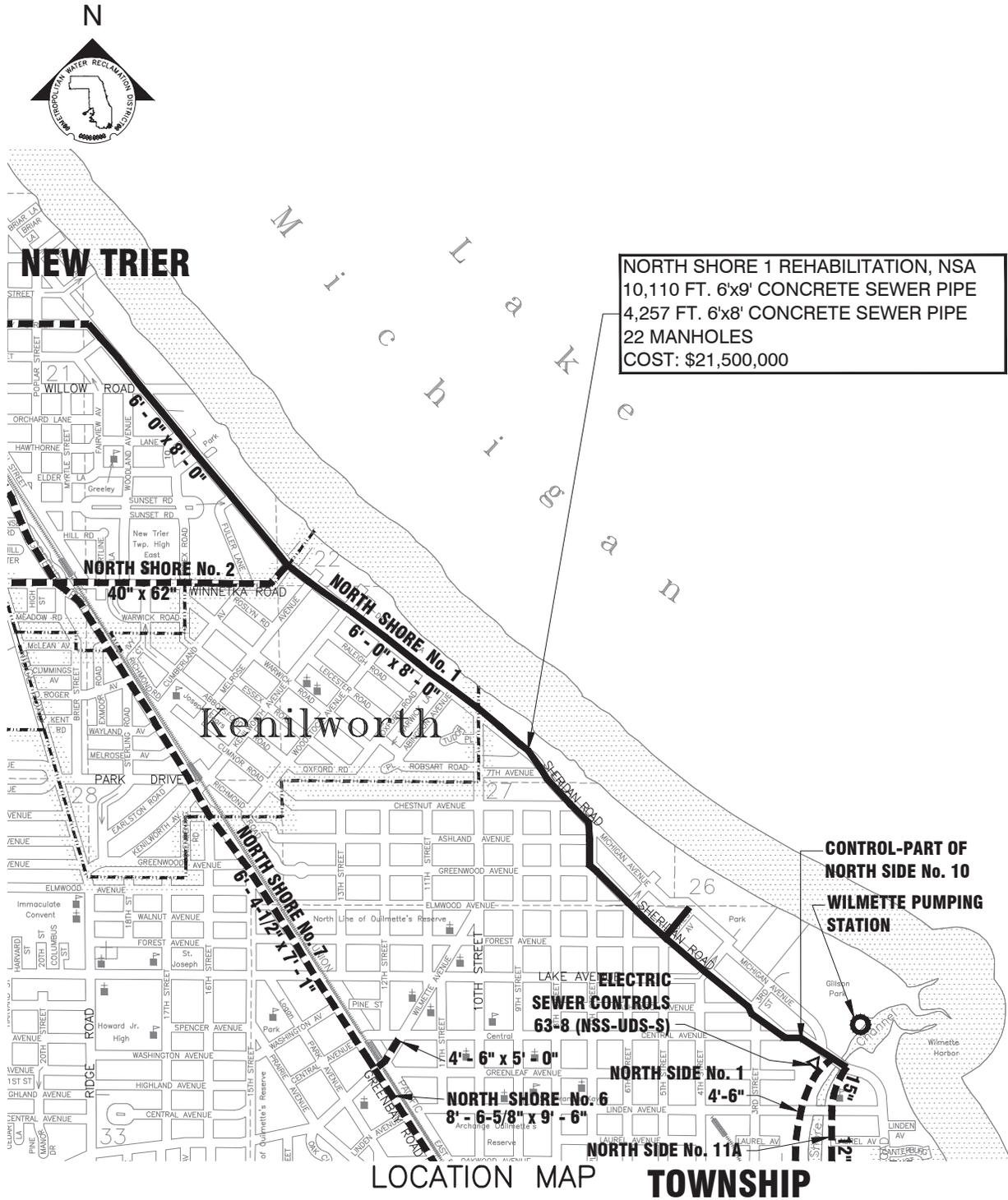
UPPER DES PLAINES INTERCEPTING SEWER 14B  
 REHABILITATION, NSA  
 3,000 FEET OF 48-INCH SEWER  
 11,000 FEET OF 69-INCH SEWER  
 26 MANHOLES/STRUCTURES  
 1 NEW MANHOLE  
 COST: \$6,700,000



**LEGEND:**

- = SEWER TO BE REHABILITATED
- - - - -** = EXISTING SEWER

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

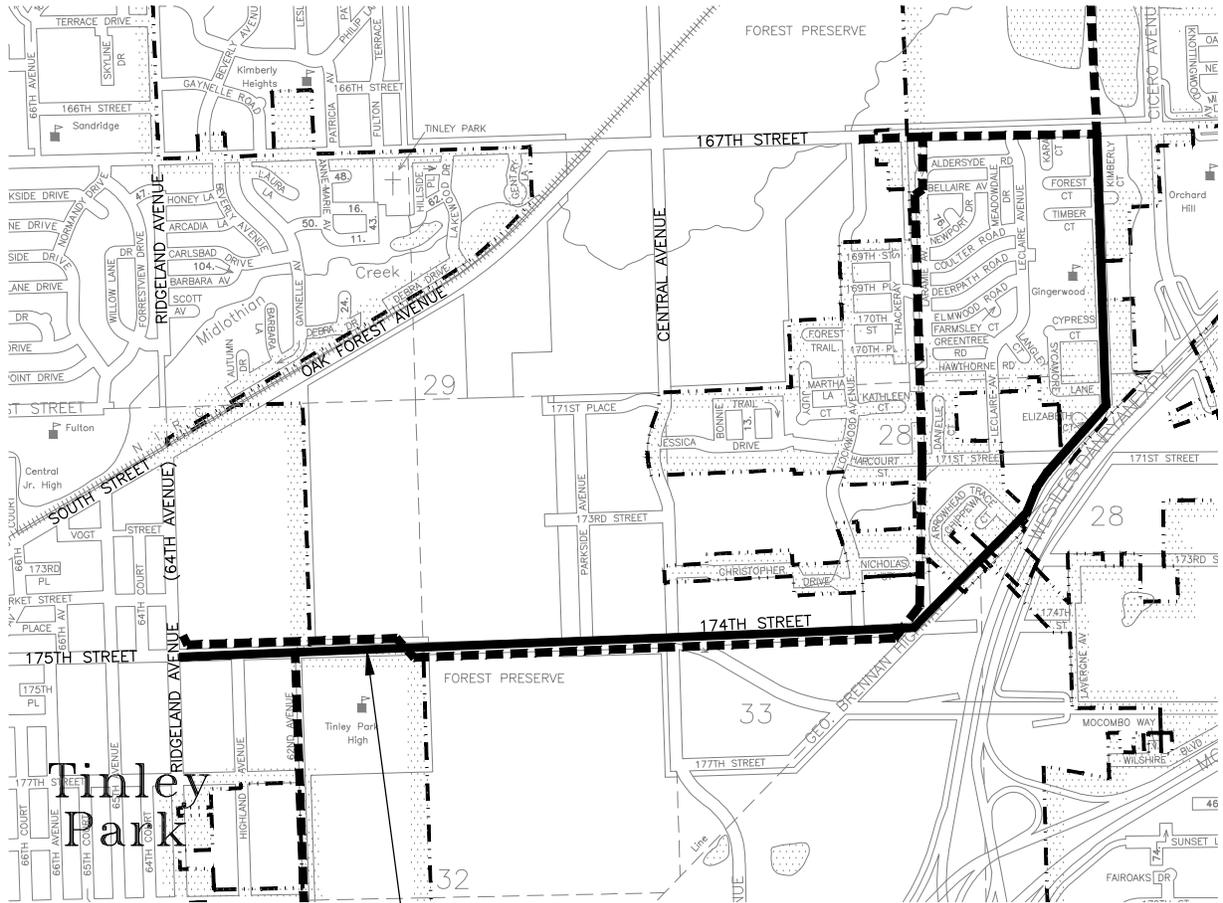


**NORTH SHORE 1 REHABILITATION, NSA**  
 10,110 FT. 6'x9' CONCRETE SEWER PIPE  
 4,257 FT. 6'x8' CONCRETE SEWER PIPE  
 22 MANHOLES  
 COST: \$21,500,000

**LEGEND:**

- = SEWER TO BE REHABILITATED
- = EXISTING SEWER

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



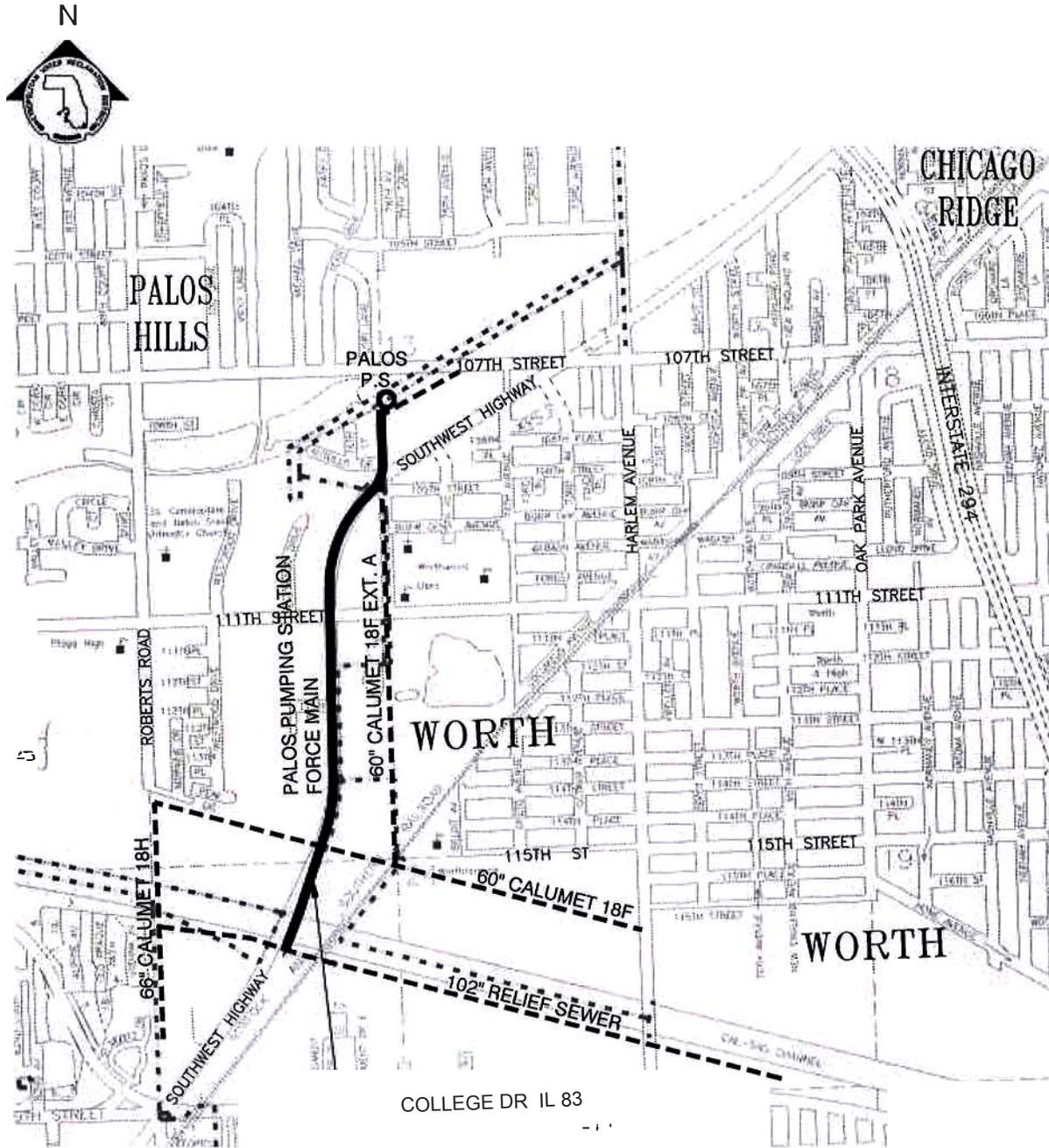
LOCATION MAP

CALUMET INTERCEPTING SEWER 19F  
 REHABILITATION, CSA  
 14,051 FEET OF 60-INCH DIAMETER  
 SEWER PIPE  
 23 MANHOLES AND 1 JUNCTION  
 STRUCTURE  
 COST: \$12,306,000

**LEGEND:**

- = SEWER TO BE REHABILITATED
- - - -** = EXISTING SEWER

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



COLLEGE DR IL 83

LOCATION MAP

|  |
|--|
| PALOS HILLS PUMPING STATION FORCE MAIN, CSA<br>6,500 FEET OF 24-INCH DIAMETER FORCE MAIN<br>COST: \$10,000,000 |
|--|

**LEGEND:**

-  = SEWER TO BE REHABILITATED
-  = EXISTING SEWER

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



LOCATION MAP

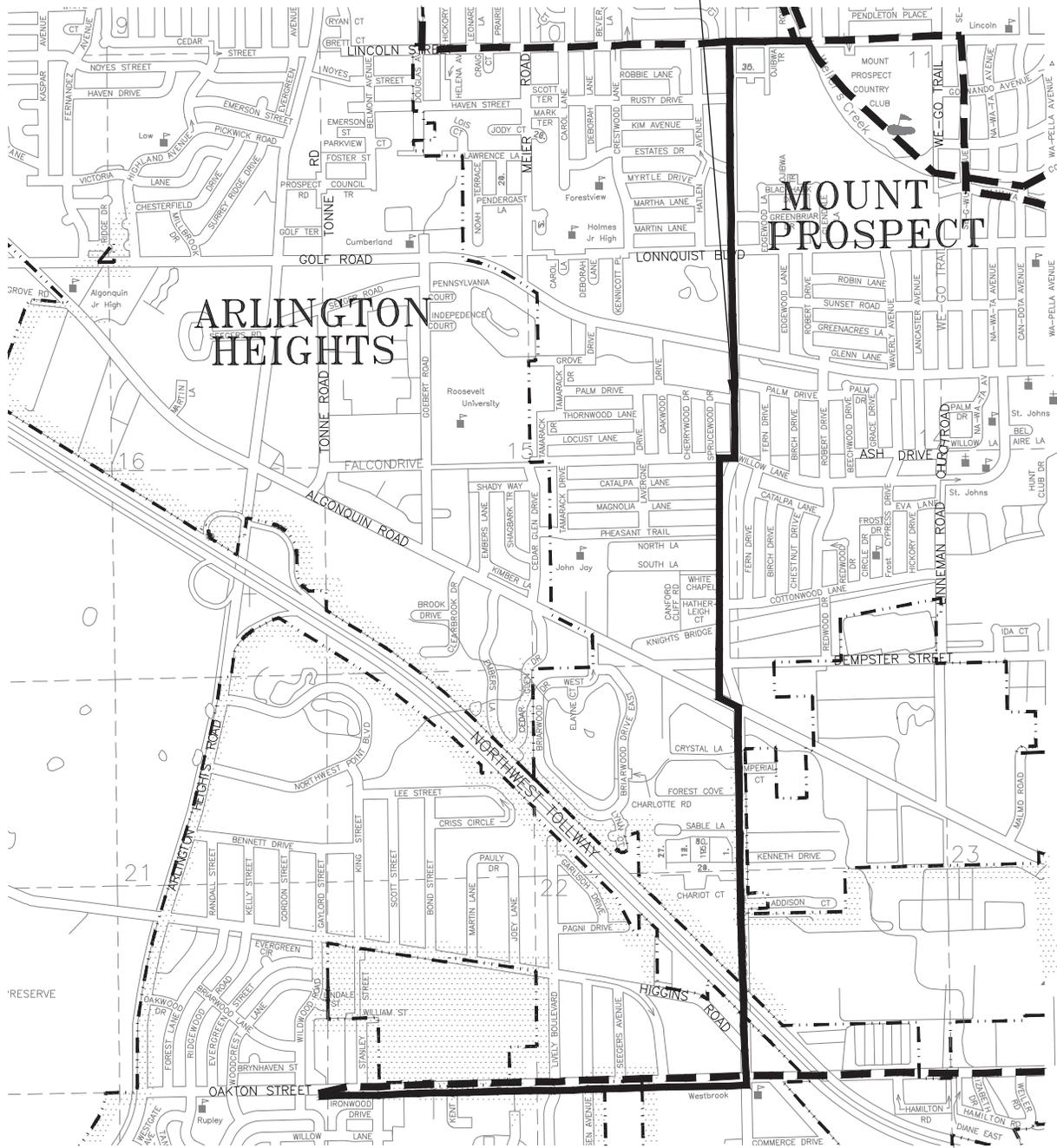
UPPER DES PLAINES INTERCEPTING SEWER 11D EXT. C REHABILITATION, NSA 10,828 FEET OF 36-INCH DIAMETER SEWER 24 MANHOLES AND ONE JUNCTION STRUCTURE  
 COST: \$5,500,000

**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**  
 11,317 FEET OF 36-INCH SEWER  
 1,089 FEET OF 54-INCH SEWER  
 36 MANHOLES  
 COST: \$5,500,000



**LEGEND:**

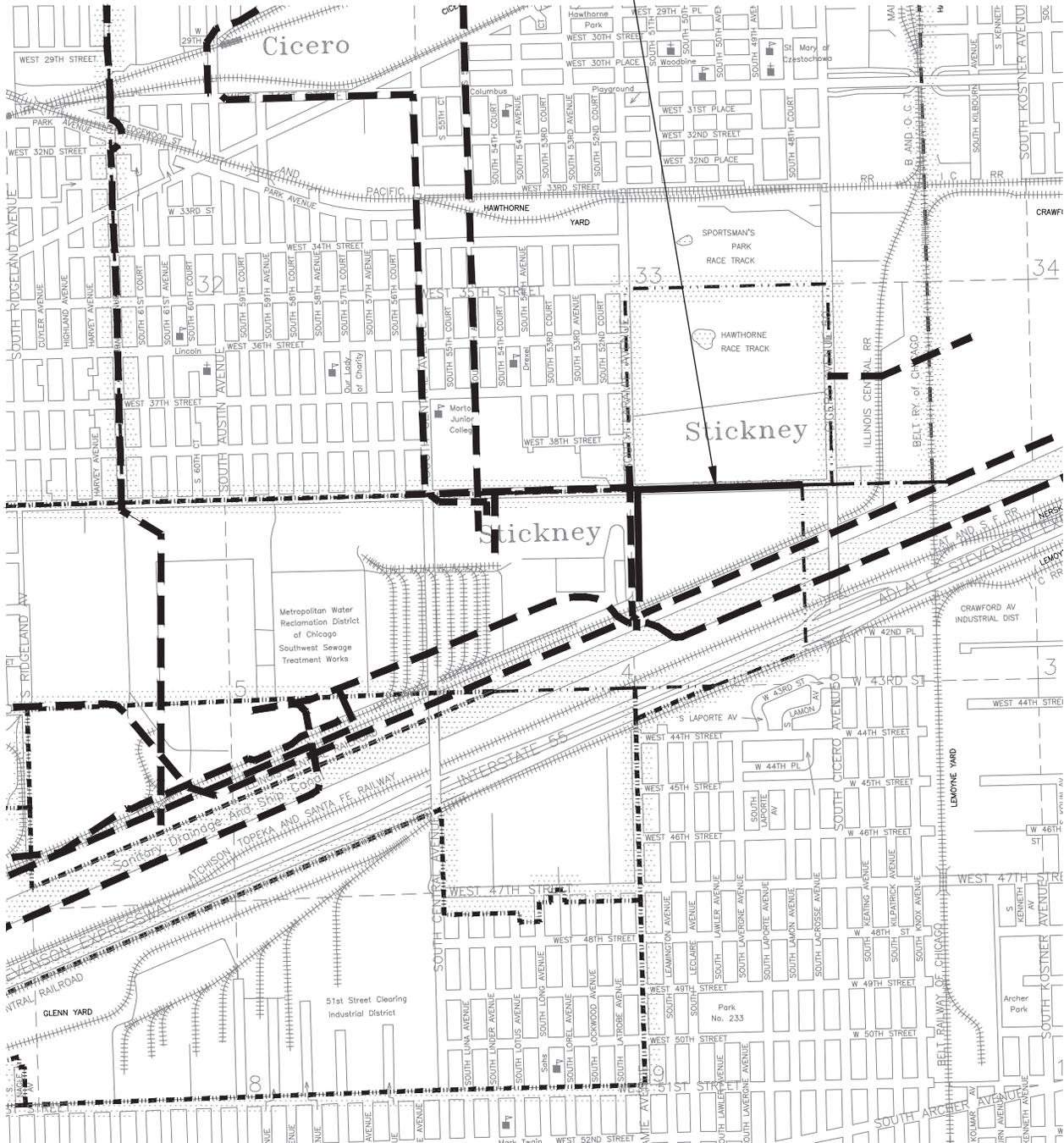
- = SEWER TO BE REHABILITATED
- - - - -** = EXISTING SEWER

**LOCATION MAP**

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



STICKNEY EFFLUENT REUSE LINE, SSA  
2,000 FEET OF 6-INCH DIAMETER FORCE MAIN  
COST: \$600,000

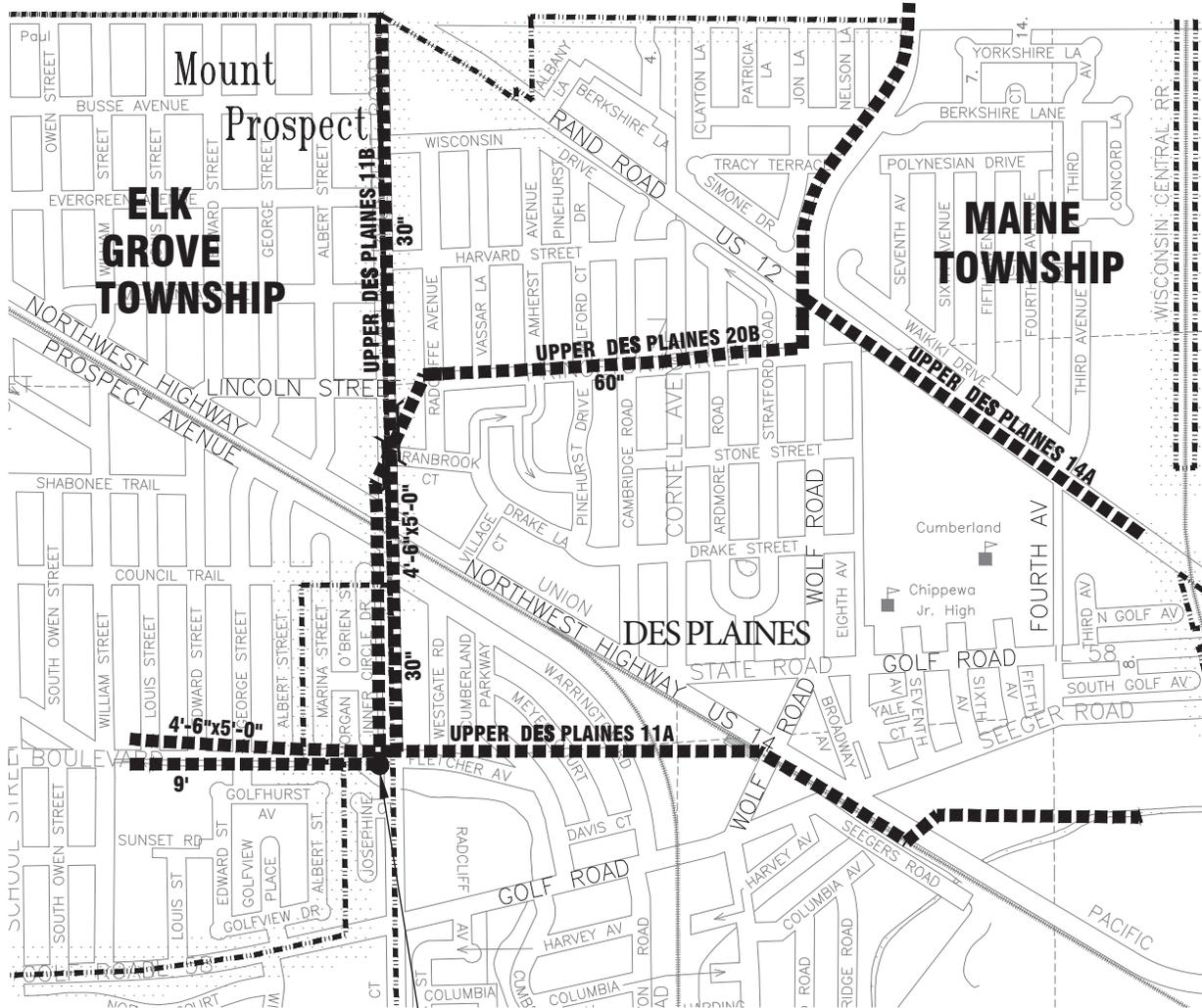


LOCATION MAP

**LEGEND:**

-  = PROPOSED MWRD FORCE MAIN
-  = MWRD SEWERS

# STICKNEY EFFLUENT REUSE LINE, SSA CONTRACT 14-107-2J



LOCATION MAP

DROP SHAFT 5 INSPECTION AND REHABILITATION, NSA  
 100 FEET OF 108" DIAMETER SEWER  
 75 FEET OF 108" DIAMETER DROP SHAFT  
 REPLACEMENT OF DETERIORATED METAL APPURTENANCES  
 COST: \$2,700,000

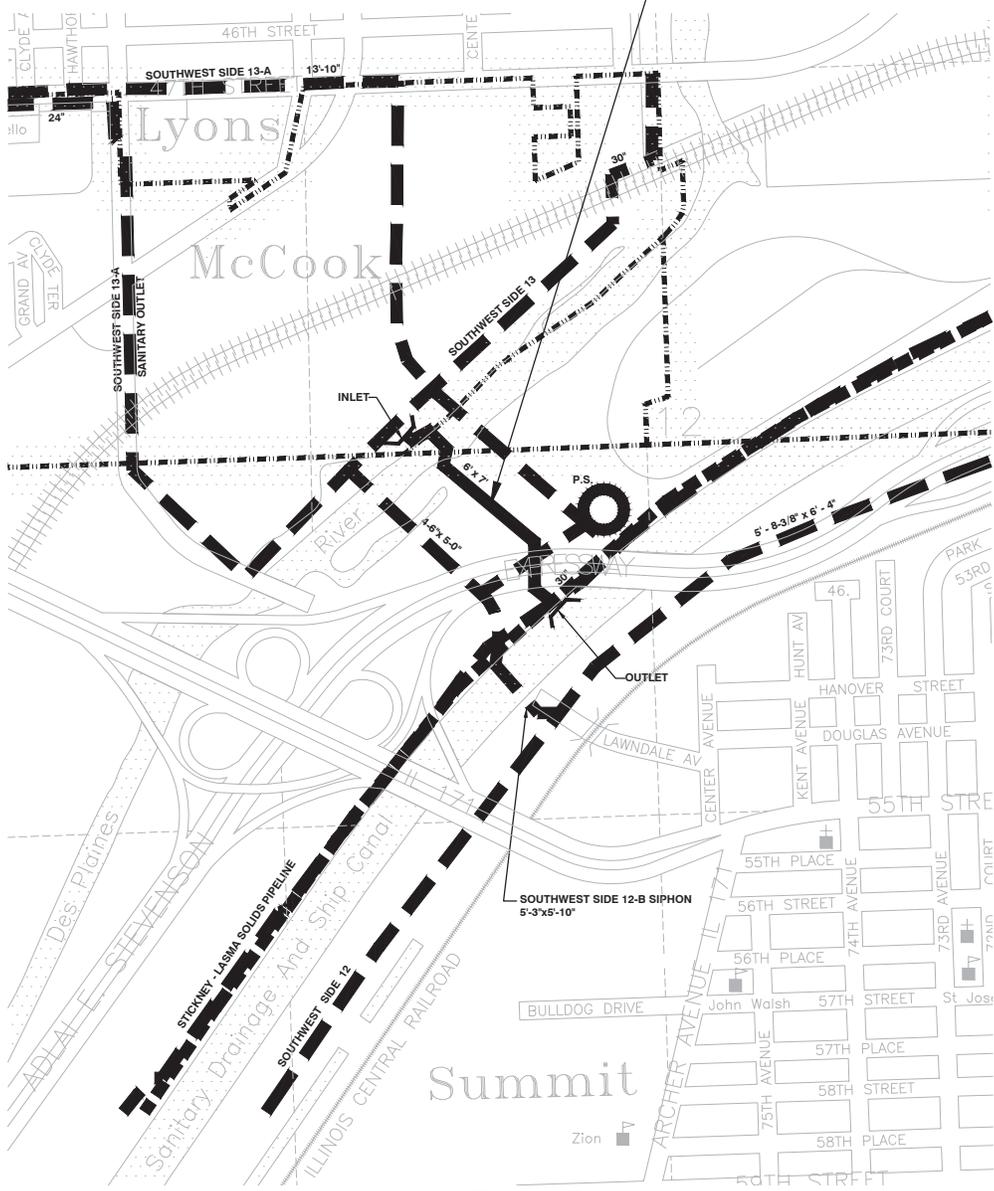
**LEGEND:**

- = MANHOLE TO BE REHABILITATED
- = EXISTING SEWER

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



SUMMIT CONDUIT REHABILITATION, SSA  
 810 LINEAR FEET OF 6'x7' SEMIELLIPTICAL/OVOID SEWER  
 INLET & OUTLET STRUCTURE REHABILITATION  
 REPAIR OF PVC PIPE  
 INJECTION GROUTING  
 PVC LINEAR REMOVAL & REPAIR  
 COST: \$1,700,000



LOCATION MAP

**LEGEND:**

- = EXISTING SEWER
- = SEWER TO BE REHABILITATED

**SUMMIT CONDUIT REHABILITATION, SSA  
 CONTRACT 16-126-3S**

## Stormwater Management Capital Improvements Bond Fund Program

| <u>Awards in 2017</u>   | Project<br>Number | Est.<br>Construc-<br>tion<br>Cost | Dura-<br>tion<br>(days) | Est.<br>Award<br>Date |
|---|-------------------|-----------------------------------|-------------------------|-----------------------|
| 1 * Buffalo Creek Reservoir Expansion   | 13-370-3F         | \$ 19,300                         | 548                     | Jan-17                |
| 2 * Flood Control Project on the East Branch of Cherry Creek,<br>Flossmoor                | 10-883-CF         | 3,810                             | 370                     | Jan-17                |
| 3 * Streambank Stabilization Projects for Addison Creek                                   | 14-108-3F         | 478                               | 366                     | Jan-17                |
| 4 Streambank Stabilization Project on Melvina Ditch, Oak Lawn<br>and Chicago Ridge        | 13-248-3F         | 10,600                            | 1095                    | Jan-17                |
| 5 Streambank Stabilization Project along Midlothian Creek, Tinley<br>Park                 | 10-882-CF         | 392                               | 370                     | Feb-17                |
| 6 Flood Control Project at Arrowhead Lake, Palos Heights                                  | 10-883-BF         | 1,200                             | 370                     | Feb-17                |
| 7 Melvina Ditch Reservoir Improvements  | 14-263-3F         | 21,452                            | 400                     | Feb-17                |
| 8 Flood Control Project on 103rd Street from Cicero Avenue to<br>Central Avenue, Oak Lawn | 15-IGA-22         | 3,000                             | 370                     | Apr-17                |
| 9 Flood Control Project on Natalie Creek, Oak Forest and<br>Midlothian                    | 14-252-3F         | 8,300                             | 730                     | Apr-17                |
| 10 Flood Control Project for Deer Creek, Ford Heights                                     | 10-884-BF         | 3,440                             | 370                     | Apr-17                |
| 11 Flood Control Project on Farmers and Prairie Creeks                                    | 12-056-3F         | 14,100                            | 660                     | May-17                |
| 12 Lyons Levee Flood Control Improvements, Lyons  | 13-199-3F         | 6,500                             | 365                     | Jul-17                |
| 13 Flood Control Project for Midlothian Turnpike at Lavergne<br>Avenue, Crestwood         | 15-IGA-04         | 500                               | 370                     | Sep-17                |
| 14 Addison Creek Reservoir  | 11-186-3F         | 109,542                           | 730                     | Oct-17                |
| Total 2017 Awards   |                   | \$ 202,614                        |                         |                       |

### Projects Under Development

| # Project Name   | Project<br>Number | Est.<br>Construc-<br>tion<br>Cost | Dura-<br>tion<br>(days) | Est.<br>Award<br>Date |
|--|-------------------|-----------------------------------|-------------------------|-----------------------|
| 15 Streambank Stabilization Project on Tinley Creek, Orland Park                                 | 10-882-AF         | \$ 3,800                          | 370                     | Jan-18                |
| 16 Flood Control Project for the West Fork of the North Branch of<br>the Chicago River, Glenview | 12-055-3F         | 25,000                            | 730                     | Jun-18                |
| 17 Addison Creek Channel Improvements  | 11-187-3F         | 48,133                            | 712                     | Sep-19                |
| Total Future Awards  |                   | \$ 76,933                         |                         |                       |
| Cumulative 2017 and Future Awards  |                   | \$ 279,547                        |                         |                       |

\*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.**

| Method of Financing        |              |               |              |
|----------------------------|--------------|---------------|--------------|
| State<br>Revolving<br>Fund | Alternate    |               |              |
| <u>Loans</u>               | <u>Bonds</u> | <u>Grants</u> | <u>Total</u> |
| \$ 168,275                 | \$ 101,272   | \$ 10,000     | \$ 279,547   |

## Stormwater Management Capital Improvements Bond Fund Program Operating Impacts

| #  | Project Name   | Project Number | Justification         |                    |                         |                          |                      | Impact          |               |                 |
|--|--|----------------|-----------------------|--------------------|-------------------------|--------------------------|----------------------|-----------------|---------------|-----------------|
|  |  |                | <i>Capacity Needs</i> | <i>Useful Life</i> | <i>Economic Benefit</i> | <i>Safety/Regulatory</i> | <i>Flood Control</i> | <i>Manpower</i> | <i>Energy</i> | <i>Chemical</i> |
| <b><u>Awards in 2017</u></b>             |  |                |                       |                    |                         |                          |                      |                 |               |                 |
| 1  | Buffalo Creek Reservoir Expansion  | 13-370-3F      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 2  | Flood Control Project on the East Branch of Cherry Creek, Flossmoor                        | 10-883-CF      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 3  | Streambank Stabilization Projects for Addison Creek  | 14-108-3F      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 4  | Streambank Stabilization Project on Melvina Ditch, Oak Lawn and Chicago Ridge              | 13-248-3F      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 5  | Streambank Stabilization Project along Midlothian Creek, Tinley Park                       | 10-882-CF      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 6  | Flood Control Project at Arrowhead Lake, Palos Heights                                     | 10-883-BF      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 7  | Melvina Ditch Reservoir Improvements   | 14-263-3F      | x                     |                    |                         | x                        | x                    | =               | =             | =               |
| 8  | Flood Control Project on 103rd Street from Cicero Avenue to Central Avenue, Oak Lawn       | 15-IGA-22      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 9  | Flood Control Project on Natalie Creek, Oak Forest and Midlothian                          | 14-252-3F      | x                     | x                  | x                       | x                        | x                    | =               | =             | =               |
| 10                                       | Flood Control Project for Deer Creek, Ford Heights   | 10-884-BF      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 11                                       | Flood Control Project on Farmers and Prairie Creeks  | 12-056-3F      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 12                                       | Lyons Levee Flood Control Improvements, Lyons  | 13-199-3F      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 13                                       | Flood Control Project for Midlothian Turnpike at Lavergne Avenue, Crestwood                | 15-IGA-04      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 14                                       | Addison Creek Reservoir  | 11-186-3F      |                       |                    |                         | x                        | x                    | -               | -             | =               |
| <b><u>Projects Under Development</u></b> |  |                |                       |                    |                         |                          |                      |                 |               |                 |
| 15                                       | Streambank Stabilization Project on Tinley Creek, Orland Park                              | 10-882-AF      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 16                                       | Flood Control Project for the West Fork of the North Branch of the Chicago River, Glenview | 12-055-3F      |                       |                    |                         | x                        | x                    | =               | =             | =               |
| 17                                       | Addison Creek Channel Improvements   | 11-187-3F      |                       |                    |                         | x                        | x                    | =               | =             | =               |

See legend on following page.

**LEGEND**

Under "**Justification**," the marked columns note the categories of benefits expected from each project.

**Manpower**

|  |  |
|--|--|
| + or - Labor savings (+) or increases (-) expected to result in redirecting existing manpower away from or toward facility or process to other tasks with no net change in total position costs. | ++ or -- Labor impact significant enough to ultimately result in reduction (++) or increase (--) in personnel. See additional cost details contained in the Project Fact Sheets. |
|--|--|

**Energy**

|  |   |
|--|---|
| + or - Minor energy savings (+) or costs (-) having a negligible impact on the District's overall energy budget. | ++ or -- Major energy savings (++) or costs (--) expected to result in significant revisions to a facility's energy budget. See additional cost details contained in the Project Fact Sheets. |
|--|---|

**Chemical**

|   |  |
|---|--|
| + or - Chemical savings (+) or costs (-) having a negligible impact on the District's overall chemical costs. | ++ or -- Major chemical savings (++) or costs (--) expected to result in significant revisions to the budgeted chemical expenditures for the associated process. See additional cost details contained in the Project Fact Sheets. |
| = No budgetary impact expected.   |  |

**50000 CAPITAL IMPROVEMENTS BOND FUND**

**OBJECTIVES AND PROGRAM SUMMARY**

| OBJECTIVES BY PRIORITY:   | Cost                  | Percent       |
|---|-----------------------|---------------|
| 1. TREATMENT FACILITIES: Award four construction projects: Three odor control systems projects at Hanover Park, Calumet, and Kirie WRPs, and one other project that will reduce operation and maintenance costs or provide facility improvements. | \$ 6,000,000          | 1.7%          |
| 2. COLLECTION FACILITIES: Award three construction projects: Drop Shaft 5 Inspection and Rehabilitation, NSA, Summit Conduit Rehabilitation, SSA, and one other project.  | \$ 5,900,000          | 1.7%          |
| 3. SOLIDS PROCESSING AND DISPOSAL FACILITIES: Award two construction projects: Organic Waste Receiving and Digester Gas Flare Upgrade, CWRP and Covered Composting System, CWRP.  | \$ 38,000,000         | 10.9%         |
| 4. FLOOD AND POLLUTION CONTROL: Award 12 construction projects: Buffalo Creek Reservoir Expansion and 11 other projects. Provide funding for Stormwater Management Intergovernmental Agreements.  | \$ 214,814,400        | 61.8%         |
| 5. LAND AND RIGHT-OF-WAY ACQUISITION COSTS: Acquisition of land for the expansion of reservoir projects and payments for land easements.  | \$ 12,515,900         | 3.6%          |
| 6. PROJECT SUPPORT: Administration, design, and construction inspection for current and future contracts, funding support, and construction services, such as concrete and soil testing.  | \$ 70,806,900         | 20.3%         |
| <b>Total</b>  | <b>\$ 348,037,200</b> | <b>100.0%</b> |

| MEASURABLE GOAL:  | 2015<br>Actual | 2016<br>Estimated | 2017<br>Proposed |
|---|----------------|-------------------|------------------|
| Award contracts for the continued implementation of the District's Capital Improvement Program. |                |                   |                  |
| Number of projects proposed   | 25             | 29                | 23               |
| Number of contracts awarded   | 7              | 9                 | 23               |
| Number of plans available for award   | 7              | 9                 | 23               |

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: |  | 2015<br>Actual | Budgeted |                | Change          |         |    |
|-----------------------|--|----------------|----------|----------------|-----------------|---------|----|
| Number                | Name                                     |                | FTEs     | Dollars        | Dollars         | Percent |    |
| 1700                  | Collection Design                        | \$ 9,681       | 2017 -   | \$ -           | \$ (1,500,000)  | (100.0) | a) |
|                       |  |                | 2016 -   | \$ 1,500,000   |                 |         |    |
| 1800                  | Collection Construction                  | \$ 26,069,922  | 2017 -   | \$ 9,695,000   | \$ (10,140,000) | (51.1)  | b) |
|                       |  |                | 2016 -   | \$ 19,835,000  |                 |         |    |
| 2700                  | Treatment Design                         | \$ 1,931,056   | 2017 -   | \$ -           | \$ (1,083,600)  | (100.0) | c) |
|                       |  |                | 2016 -   | \$ 1,083,600   |                 |         |    |
| 2800                  | Treatment Construction                   | \$ 113,344,398 | 2017 -   | \$ 22,000,000  | \$ (51,502,600) | (70.1)  | d) |
|                       |  |                | 2016 -   | \$ 73,502,600  |                 |         |    |
| 3700                  | Solids Processing Design                 | \$ -           | 2017 -   | \$ 3,000,000   | \$ 3,000,000    | 100.0   | e) |
|                       |  |                | 2016 -   | \$ -           |                 |         |    |
| 3800                  | Solids Processing Construction           | \$ 35,260,176  | 2017 -   | \$ 36,325,000  | \$ 14,617,400   | 67.3    | f) |
|                       |  |                | 2016 -   | \$ 21,707,600  |                 |         |    |
| 4300                  | Stormwater Management                    | \$ -           | 2017 -   | \$ 236,404,300 | \$ 41,830,200   | 21.5    | g) |
|                       |  |                | 2016 -   | \$ 194,574,100 |                 |         |    |
| 4700                  | Flood and Pollution Control Design       | \$ 2,904,117   | 2017 -   | \$ 2,250,000   | \$ (300,000)    | (11.8)  | h) |
|                       |  |                | 2016 -   | \$ 2,550,000   |                 |         |    |
| 4800                  | Flood and Pollution Control Construction | \$ 87,811,921  | 2017 -   | \$ 31,472,000  | \$(137,289,900) | (81.4)  | i) |
|                       |  |                | 2016 -   | \$ 168,761,900 |                 |         |    |
| 5800                  | Solids Disposal Construction             | \$ 4,389,764   | 2017 -   | \$ 4,675,000   | \$ 4,675,000    | 100.0   | j) |
|                       |  |                | 2016 -   | \$ -           |                 |         |    |
| 7740                  | Land and Easements                       | \$ 16,250      | 2017 -   | \$ 2,215,900   | \$ 1,965,900    | 786.4   | k) |
|                       |  |                | 2016 -   | \$ 250,000     |                 |         |    |
| Totals                |  | \$ 271,737,285 | 2017 -   | \$ 348,037,200 | \$(135,727,600) | (28.1%) |    |
|                       |  |                | 2016 -   | \$ 483,764,800 |                 |         |    |

- a) Decrease is due to the biannual award of civil engineering support services.
- b) Decrease is due to the 2016 award of Contract 11-239-3S, Calumet Intercepting Sewer 19F Rehabilitation, CSA (\$12,600,000), offset by the anticipated 2017 award of Contract 16-126-3S, Summit Conduit Rehabilitation, SSA (\$1,785,000).
- c) Decrease is due to the indefinite deferral of Contract 09-401-2P, Master Underground Piping Survey, EWRP.
- d) Decrease is due to the 2016 award of Contracts 04-132-3D, A/B and C/D Service Tunnel Rehabilitation - Phase II (\$23,100,000), 15-120-3P, Conversion of Old GCTs to the WASSTRIP Process, SWRP (\$15,750,000), and 15-122-3P, Aeration Tanks Air Valves Automation in Batteries A, B, C, and D, SWRP (\$10,500,000), and due to the triennial award of geotechnical analysis services (\$660,000).
- e) Increase is due to the expected 2017 award of design engineering services Contract 11-189-3P, Digester Gas Utilization Facility, SWRP.
- f) Increase is due to the expected 2017 award of Contract 16-270-3P, Covered Composting System, CWRP (\$25,200,000) and an increased estimate for Contract 11-240-3P, Organic Waste Receiving Facility and Digester Gas Flare Upgrade, CWRP (\$3,255,000). Offset by the rescheduling of Contract 14-250-3P to 2018, Digester Gas Utilization Facility, CWRP (\$13,650,000).
- g) Increase is due to the expected 2017 award of Contract 11-186-3F, Addison Creek Reservoir (\$115,019,100), offset by the 2016 award of Contracts 14-066-3F, Albany Park Stormwater Diversion Tunnel (\$24,750,500) and 10-237-3F, Streambank Stabilization Project on Oak Lawn Creek (\$4,383,800), and decreased allowances for the Community Flood Control Program (\$26,000,000) and detailed designs for stormwater projects (\$16,646,000). These allowances were to provide funding for as yet undefined projects. Most of these have now been budgeted under specific projects and funded in 2016 and there is adequate funding in 2017 for the remaining proposed projects.
- h) Decrease is due to a revised estimate of need for general engineering consulting services.
- i) Decrease is due to the 2016 award of Contract 13-106-4F, McCook Reservoir Des Plaines Inflow Tunnel (\$145,950,000).
- j) Increase is due to the expected 2017 award of Contract 16-538-3V, Fischer Farms Horticultural Center, HPWRP (\$3,675,000) and an increase to the change order allowance for building projects (\$1,000,000).
- k) Increase is due to the expected payments for easements relating to various stormwater management projects.

| 401<br>50000   | Fund: Capital Improvements Bond<br>Department: Engineering<br>Division: | LINE ITEM ANALYSIS |                             |  |   |                                      |                                      |  |
|----------------|---|--------------------|-----------------------------|--|---|--------------------------------------|--------------------------------------|--|
|                |   | 2015               | 2016                        |  |   |                                      | 2017                                 |  |
| Account Number | Account Name  | Expenditure        | Original *<br>Appropriation | Adjusted **<br>Appropriation<br>09/30/16 | Expenditure<br>(Committed<br>Budget plus<br>Disbursement)<br>09/30/16 | Estimated<br>Expenditure<br>12/31/16 | Proposed by<br>Executive<br>Director | Recommended<br>by Committee<br>on Budget and<br>Employment |
| 601170         | Payments for Professional Services                                      | \$ 103,390         | \$ -                        | \$ -                                     | \$ -  | \$ -                                 | \$ -                                 | \$ -   |
| 601410         | Personal Services Exp for Prelim Engineering Rpts and Studies           | 348,415            | -                           | -  | -   | -                                    | -                                    | -  |
| 601420         | Personal Services Exp for Constr Drawings, Specs, and Cost Est          | 3,477,409          | -                           | -  | -   | -                                    | -                                    | -  |
| 601440         | Personal Svcs for Post-Award Engr for Construction Projects             | 5,441,597          | -                           | -  | -   | -                                    | -                                    | -  |
| 100            | TOTAL PERSONAL SERVICES   | 9,370,811          | -                           | -  | -   | -                                    | -                                    | -  |
| 612090         | Reprographic Services   | -                  | 10,000                      | 20,000                                   | 10,000  | -                                    | -                                    | -  |
| 612240         | Testing and Inspection Services   | 52,309             | -                           | 232,665                                  | 232,665   | 73,200                               | -                                    | -  |
| 612250         | Court Reporting Services  | 1,607              | 5,000                       | 23,583                                   | 18,583  | 5,000                                | 25,000                               | -  |
| 612380         | Soil and Rock Mechanics Investigation                                   | 251,454            | 660,000                     | 989,911                                  | 329,911   | 153,600                              | -                                    | -  |
| 612400         | Intergovernmental Agreements  | 11,159,839         | 70,978,400                  | 80,145,890                               | 52,729,799  | 15,400,800                           | 7,500,000                            | -  |
| 612430         | Payments for Professional Services                                      | -                  | 3,183,600                   | 3,504,960                                | 2,450,917   | 446,400                              | 1,200,000                            | -  |
| 612440         | Preliminary Engineering Reports and Studies                             | -                  | 50,000                      | 669,426                                  | 669,368   | 500,000                              | 250,000                              | -  |
| 612450         | Professional Engineering Services for Construction Projects             | -                  | 17,896,000                  | 28,602,180                               | 15,713,823  | 5,929,700                            | 12,992,000                           | -  |
| 612470         | Personal Svcs for Post-Award Engr for Construction Projects             | -                  | 3,000,000                   | 25,791,365                               | 22,947,423  | 9,681,000                            | -                                    | -  |
| 612490         | Contractual Services, N.O.C.  | 143,393            | -                           | -  | -   | -                                    | -                                    | -  |
| 612780         | Safety Repairs and Services   | -                  | 100,000                     | 100,000                                  | -   | -                                    | 100,000                              | -  |
| 200            | TOTAL CONTRACTUAL SERVICES  | 11,608,601         | 95,883,000                  | 140,079,979                              | 95,102,488  | 32,189,700                           | 22,067,000                           | -  |
| 634620         | Equipment for Waterway Facilities                                       | 422,608            | -                           | -  | -   | -                                    | -                                    | -  |
| 400            | TOTAL MACHINERY AND EQUIPMENT   | 422,608            | -                           | -  | -   | -                                    | -                                    | -  |
| 645600         | Collection Facilities Structures  | 38,030,288         | 2,250,000                   | 46,428,080                               | 46,224,165  | 18,548,700                           | 3,000,000                            | -  |
| 645620         | Waterway Facilities Structures  | 35,093,940         | 75,427,700                  | 129,224,961                              | 55,156,069  | 21,742,800                           | 207,527,300                          | -  |
| 645630         | Army Corps of Engineers Services  | 16,667,000         | 159,399,000                 | 159,374,000                              | 114,828,882   | 32,147,000                           | 18,740,000                           | -  |
| 645650         | Process Facilities Structures   | 138,242,527        | 70,012,600                  | 271,704,677                              | 233,023,524   | 96,814,700                           | 54,525,000                           | -  |
| 645680         | Buildings   | -                  | -                           | 5,127,600                                | 5,126,225   | 1,070,000                            | 4,675,000                            | -  |
| 645690         | Capital Projects, N.O.C.  | 663,838            | -                           | 33,192                                   | -   | -                                    | 1,000,000                            | -  |
| 645700         | Preservation of Collection Facility Structures                          | 11,631,981         | 17,585,000                  | 72,566,175                               | 70,153,266  | 23,566,400                           | 5,120,000                            | -  |

| 401<br>50000                           | Fund: Capital Improvements Bond<br>Department: Engineering<br>Division: | LINE ITEM ANALYSIS   |                             |  |   |                                      |                                      |  |
|--|---|----------------------|-----------------------------|--|---|--------------------------------------|--------------------------------------|--|
|  |   | 2015                 | 2016                        |  |   |                                      | 2017                                 |  |
| Account Number                         | Account Name  | Expenditure          | Original *<br>Appropriation | Adjusted **<br>Appropriation<br>09/30/16 | Expenditure<br>(Committed<br>Budget plus<br>Disbursement)<br>09/30/16 | Estimated<br>Expenditure<br>12/31/16 | Proposed by<br>Executive<br>Director | Recommended<br>by Committee<br>on Budget and<br>Employment |
| 645720                                 | Preservation of Waterway Facility Structures                            | 864,966              | 28,654,300                  | 28,654,300                               | 8,718,058   | 3,355,300                            | 15,792,000                           | -  |
| 645750                                 | Preservation of Process Facility Structures                             | 7,486,399            | 23,150,000                  | 24,723,991                               | 23,599,537  | 8,305,600                            | 500,000                              | -  |
| 645780                                 | Preservation of Buildings   | -                    | -                           | 9,578,700                                | 9,578,700   | -                                    | 2,575,000                            | -  |
| 500                                    | TOTAL CAPITAL PROJECTS  | 248,680,939          | 376,478,600                 | 747,415,676                              | 566,408,425   | 205,550,500                          | 313,454,300                          | -  |
| 656010                                 | Land  | 1,045,097            | 10,300,000                  | 14,000,000                               | 1,159,085   | 4,474,900                            | 10,300,000                           | -  |
| 600                                    | TOTAL LAND  | 1,045,097            | 10,300,000                  | 14,000,000                               | 1,159,085   | 4,474,900                            | 10,300,000                           | -  |
| 667340                                 | Payments for Easements  | 16,250               | 250,000                     | 275,100                                  | 275,100   | 275,100                              | 2,215,900                            | -  |
| 727102                                 | Principal Expense - Capital Lease                                       | 2,247,506            | -                           | 45,025,725                               | 45,025,725  | 2,357,800                            | -                                    | -  |
| 727112                                 | Interest Expense - Capital Lease  | 2,142,259            | -                           | 16,337,778                               | 16,337,778  | 2,032,000                            | -                                    | -  |
| 767300                                 | Bond Issuance Costs   | 744,732              | 853,200                     | 853,100                                  | 282,645   | 365,000                              | -                                    | -  |
| 700                                    | TOTAL FIXED AND OTHER CHARGES   | 5,150,746            | 1,103,200                   | 62,491,703                               | 61,921,248  | 5,029,900                            | 2,215,900                            | -  |
| <b>TOTAL CAPITAL IMPROVEMENTS BOND</b> |   | <b>\$276,278,802</b> | <b>\$483,764,800</b>        | <b>\$963,987,358</b>                     | <b>\$724,591,245</b>  | <b>\$247,245,000</b>                 | <b>\$348,037,200</b>                 | <b>\$ -</b>  |

\* 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 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.

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

4. Effective 01/01/2016, professional services previously included in Personal Services (accounts 601170, 601410, 601420, 601430, and 601440) were reclassified to Contractual Services (accounts 612430, 612440, 612450, 612460, and 612470 respectively).

**NOTE PAGE**