



DETROIT
**Water & Sewerage
Department**



2018-2022 CIP Report

DRAFT 1/31/2017
FINAL 6/7/2017

Version 1
January 31, 2017

Contents

I.	Overview	I-1
	SECTION 1 Detroit Water and Sewerage Department.....	I-1
	1.1. Governance and Board Members	I-1
	1.2. Management Team	I-2
	1.3. Service Area and Customer Relationships	I-2
	SECTION 2 Capital Improvement Plan	I-2
	2.1. Calendar	I-3
	2.2. Funded Portion of the Programs.....	I-3
	2.3. Project Status Description.....	I-3
	2.4. Project Categories	I-4
	2.5. CIP Types	I-5
II.	Capital Improvement Plan	II-1
	SECTION 1 Approval Process.....	II-1
	SECTION 2 Financial Plan Introduction	II-1
	SECTION 3 Summary CIP Financial Plan Review & Analysis ..	II-3
	SECTION 4 The Project Process.....	II-4
	4.1. Project Identification	II-4
	4.2. Project Proposals	II-4
	4.3. Project Prioritization	II-4
III.	Capital Improvement Projects	III-1
	SECTION 1 Water	III-1
	1.1. Water Field Services.....	III-1
	1.2. Customer Meter Replacement Program.....	III-1
	1.3. Fire Hydrant Replacement Program	III-2
	SECTION 2 Sewer	III-19
	2.1. Sewer Field Services.....	III-19
	2.2. CSO Control	III-19
	2.3. Pump Stations	III-20
	SECTION 3 Central Services.....	III-33
	3.1. Information Technology.....	III-33
	3.2. Fleet and Heavy Equipment	III-33
	3.3. Facilities.....	III-33
IV.	Appendices.....	IV-1

Navigation

This document may be read straight through, or readers using a pdf version of the document may use the navigation bar at the top of each page to jump to any chapter. The highlighted label indicates the chapter the current page resides in. This pdf document also contains bookmarks to chapters and sections, which may be accessed and utilized in standard pdf viewing applications.

Glossary

BOWC.....	Board of Water Commissioners
CIP	Capital Improvement Plan/Program/Project (depending on context)
CS.....	Consultant Services
DLBA.....	Detroit Land Bank Authority
DPS	Detroit Public Schools Community District
DTE	Detroit Edison
DWRF.....	Drinking Water Revolving Fund
DWSD	Detroit Water and Sewerage Department
DWS.....	Department of Water Supply
FY.....	Fiscal Year
GRDC	Grandmont Rosedale Development Corporation
GLWA	Great Lakes Water Authority
GSI	Green Stormwater Infrastructure
I&E.....	Improvement and Extension
MBO	Master Bond Ordinance
NPDES.....	National Pollutant Discharge Elimination System
PASER	PAvement Surface Evaluation and Rating
PDD.....	Planning and Development Department
PW	Public Works
SRF.....	State Revolving Fund
URT.....	Upper Rouge Tunnel
WS	Water System



I. OVERVIEW

SECTION 1 DETROIT WATER AND SEWERAGE DEPARTMENT

Detroit Water and Sewerage Department (DWSD) is one of the largest water and sewer utilities in the United States, serving more than 235,000 accounts that includes a residential population of nearly 700,000. DWSD’s water network consists of more than 2,700 miles of water main and nearly 3,000 miles of sewer collection piping. DWSD has a rich history as a public utility dating back to 1836. Today, DWSD focuses on serving the residents, businesses, non-profits, faith-based organizations and other account holders that rely on water and sewer services within the city of Detroit

On January 1, 2016, the City of Detroit began leasing regional water and sewer infrastructure, as well as water and wastewater treatment facilities, to the Great Lakes Water Authority (GLWA). The regional system, built by DWSD, serves 126 municipalities in seven southeast Michigan counties. The agreement between DWSD and GLWA includes a \$50 million annual lease payment for 40 years to replace and rehabilitate DWSD’s aging water and sewer system. DWSD continues to retain ownership of the regional assets.

“Today, DWSD focuses on serving the residential households, businesses, non-profits, faith-based organizations and other account holders that rely on water and sewer services within the city of Detroit.”

The governance structure of the Authority gives suburban water and sewer customers a substantial collaborative role in the direction of

one of the largest water and wastewater utilities in the nation. While GLWA manages and operates all regional water and wastewater wholesale services, DWSD and the other customers retain control of the local water and sewer services within their respective borders. DWSD also acts as an agent of GLWA with respect to setting, billing, collecting and enforcing local retail charges.

1.1. Governance and Board Members

The seven members of the Board of Water Commissioners (BOWC) are appointed by and serve at the pleasure of the Mayor of the City. In addition to the qualifications established in the December 15, 2015 Court Order, the City’s Charter: (i) prohibits any member of the Board from being a City official or employee, or a principal or employee of a contractor of the City, (ii) requires that a member of the Board be a citizen of the United States and a resident of the State of Michigan, and (iii) requires no fewer than four members be residents of the City. The members of the Board serve four-year terms which are staggered so that not more than two members’ terms expire each year.

Four committees have been established: (i) Customer Service, (ii) Human Resources, (iii) Finance, and (iv) Capital Improvement and Operations.

The BOWC currently consists of:

- Michael Einheuser, Chairman
- Mary E. Blackmon, Vice Chairperson
- Lane Coleman, Commissioner
- John Henry Davis, Commissioner
- Linda D. Forte, Commissioner
- Jane C. Garcia, Commissioner
- Pamela Rodgers, Commissioner



1.2. Management Team

Upon the bifurcation of DWSD, the Mayor appointed a new Director and Deputy Director to improve the delivery of customer service to DWSD's retail customers. This new leadership team is also charged with developing and implementing a capital improvement program for the water and sewer infrastructure in the range of \$75 to \$100 million annually. To meet the needs of Detroit's residents and businesses, DWSD is led by a Management Team consisting of:

- *Gary A. Brown, Director*
- *Palencia Mobley, P.E., Deputy Director and Chief Engineer*
- *Robert Presnell, Chief Operating Officer*
- *Marcus Hudson, Chief Financial Officer*
- *Dan Rainey, Chief Information Officer*
- *Debra Pospiech, General Counsel*

1.3. Service Area and Customer Relationships

The service area of DWSD is primarily the city of Detroit. This includes more than 235,000 customers in a 139-square mile area. However, DWSD does have approximately 200 suburban retail customers. Suburban retail customer are those who lie outside the incorporated limits of the city but are served by the DWSD's local water or sewer infrastructure. DWSD is committed to serving all of its customers, both residential and non-residential, with superior service.

SECTION 2 CAPITAL IMPROVEMENT PLAN

The 2018 CIP was given a makeover from previous years. This document is intended to be more educational and informative. This document mirrors the GLWA CIP document where appropriate, since the Authority issues bonds on behalf of DWSD at this time. The CIP will continue to evolve and change as DWSD makes use of new information technology and financial systems implemented by the City of Detroit.

The DWSD Capital Improvement Program (CIP) supports the continuation of major capital asset investment in programs and projects that will upgrade the Department's aging water distribution and wastewater collection system infrastructure, as well as the overarching Centralized service infrastructure that supports both systems. The CIP includes mandated projects and rehabilitation of assets necessary to meet permit and other regulatory requirements. Based upon the execution of programs and projects identified in the CIP, existing levels of service currently provided will be met or exceeded.

This CIP should be considered a planning document – the CIP is a dynamic and evolving plan that requires continual review and modification during the course of each year. The estimates indicated in the early years of the report are likely more precise than those in the later years. The project descriptions and summaries represent a brief synopses of the entire project scope; these descriptions are generally more precise for ongoing active projects than for planned new projects, where specific project activities may have yet to be determined.

DWSD has developed a capital improvement program ("CIP") for the next five years that is within the range of \$75 to \$100 million, annually, to accelerate the pace of infrastructure renewal. In fact, the CIP is a major component of the City's larger capital investment strategy designed to:

- Renew and rehabilitate Detroit infrastructure and neighborhoods.
- Reconfigure systems to reflect demographic trends and emerging urban plans.
- Re-landscape the urban environment to embrace the "greening of Detroit".

A centerpiece of the CIP is the development of a CIP program management organization (CIPMO) with responsibility to coordinate



and execute capital project planning and implementation across multiple agencies responsible for infrastructure and community development.

Until the CIPMO Contract CS-1812 described above is awarded, DWSD will continue to implement water, sewer and green infrastructure projects with a value of approximately \$50 million per year. In addition, DWSD will make investments in equipment, facilities, and technology to improve the level of service to its customers and maximize the life of its assets.

See Appendix A for the CS-1812 Request for Proposal for Professional Engineering and Construction Management Services for a Program Management Organization to Manage the Capital Improvement Program.

2.1. Calendar

The following are some important dates regarding the DWSD 2018-2022 CIP.

Date	Description
December 21, 2016	Board of Water Commissioners Meeting- Present FY2018-2022 CIP Draft Version No. 1
February 1, 2017	Submit FY2018-2022 CIP Draft Version No. 1 to GLWA
February 15, 2017	Board of Water Commissioners Meeting- Proposed Approval of FY2018-2022 CIP
March 1, 2017	Submit BOWC Approved FY2018-2022 CIP to GLWA
July 1, 2017	Effective Date of FY 2018-2022 CIP

2.2. Funded Portion of the Programs

This plan spans a 5-year period from 2018 through 2022. The CIP review process also includes an extensive review of the total project, or “lifetime” budget, which reflects historical spending prior to, during, and beyond the current 5-year period. The goal of the Department’s capital financing strategy is to align capital project financing sources with multiple goals including: (1) recovering the costs of capital investment over the useful lives of the capital assets; (b) minimizing the impact of the capital programs on water and sewage revenue requirements; and (c) protecting and enhancing the Department’s financial position. The potential funding source identified for each project is subject to change based upon the systems need and financial resources available at the time.

2.3. Project Status Description

In order to determine a particular project’s progress within the CIP, a status is assigned to each project within the CIP. The project status designation provides a high level understanding of the progress. Projects are often divided into multiple phases or categories based upon the contract type. As such, each phase of a multiple phase project will have its own status and contract number. Descriptions of each particular status are provided in Table I-1 on the following page.



2.4. Project Categories

Often projects are broken up into several phases related to how the particular project will be delivered and managed. Categories may be grouped to align with work to be performed within each individual phase. Individual categories are identified and named below, however, in reality several categories may exist for each phase. In this case, this implies the same vendor, under one contract, will be performing multiple categories of the overall project. The current project categories are identified below.

- S..... Study
- D..... Design
- C Construction
- CA..... Construction Assistance
- DB..... Design and Build
- DBA Design Build Assistance
- CM..... Construction Management
- MOU..... Memorandum of Understanding Agreements (coordination with other City of Detroit departments, utilities or other agencies)
- PO..... Purchase Order

Table I-1. Project status descriptions

Project Status	Description
New	Project that has never been included in a previous CIP.
Not Yet Started	Project that has been included in the previous CIP, has never had expenditures charged to it and does not have an assigned Oracle Fusion Project Number
Under Procurement	Project that has an assigned Oracle Fusion Project Number and has not been issued a Notice to Start Work.
Active	Project that has an assigned Oracle Fusion Project Number in the financial system, a Notice to Start Work has been issued, had expenditures in the last fiscal year and has projected expenditures of more than \$100,000 in the current fiscal year.
On-Hold	Project that has been suspended, may or may not have an assigned Oracle Fusion Project Number, experienced expenditures or no expenditures in the previous fiscal year(s), and/or has no projected expenditures in the current fiscal year or future fiscal years.
Pending Close-out	Project that has an assigned Oracle Fusion Project Number, a Notice to Start Work has been issued, has projected expenditures for the current fiscal year equal to \$100,000 or less - with no future projected expenditures and has reached substantial completion.

2.5. CIP Types

Multiple CIP types are necessary to distinguish the differences in intent of how a particular CIP is to be used. This CIP contains three primary CIP types; Project, Program and Allowance. A typical project that has a specific scope and timeframe is considered a Project. Whereas Programs and Allowances do not have specifically developed scopes and typically extend over many years. Allowances are necessary for utility operations due to the unanticipated nature of pipeline and equipment failures that require immediate repair and rehabilitation to continuously meet level of service requirements.

Table I-2 CIP Types defines each CIP Type.

Table I-2. CIP Types

CIP Type	Description
Project	A "Project" consists of the replacement and/or rehabilitation of specific capital assets within a finite timeframe and scope.
Program	A "Program" consists of the replacement and/or rehabilitation of specific capital assets on an ongoing or reoccurring basis. The program scope and/or projected expenses may vary from year-to-year depending on the needs identified within the program and as newly established programs develop consistent schedules, requirements and history over time. Although not typically identified in the CIP futures years projected expenses, these programs will typically be funded in perpetuity.
Allowance	An "Allowance" consists of unanticipated replacement and/or rehabilitation of currently unidentified capital assets. Engineering studies, evaluations, testing, construction assistance directly related to the unforeseen replacement or rehabilitation are also included in the projected expenses.



II. CAPITAL IMPROVEMENT PLAN

SECTION 1 APPROVAL PROCESS

The CIP development and approval process begins with the approval of the previous year's CIP. The CIP process is a substantial level of effort that involves many people throughout the Department. Modifications, adjustments and improvements are being continuously considered and vetted internally and externally, in coordination with other City of Detroit agencies, utilities, or other system customers. Projects and programs that ultimately get funded within the CIP are typically identified based upon master planning or condition/need assessment efforts. Projects also are identified internally based upon the needs of engineers, operations or maintenance staff. An internal effort to coordinate and prioritize all identified projects that come from these various sources into one location is currently underway to assist in ensuring the appropriate projects and programs are being funded in a prioritized manner.

The process typically begins in June of each year where project managers reviews project needs through the completion of the Project Proposal Memorandum. Project Proposals are due to the Chief Engineer by the end of August. At this time, the Chief Engineer will make requests to Finance to issue CIP numbers for each project that can be added as new projects to the CIP. Preparation of a draft of the CIP and back-up documentation is reviewed internally with Management, and other city agencies as required. DWSD's CIP is submitted to the City of Detroit, Office of the Chief Financial Officer in November for presentation to the Detroit City Council for the City's five year CIP.

The CIP is presented to the Board at its December meeting. An approval version of the CIP is presented to the Board at its January meeting. Upon approval by the Board, the DWSD CIP is submitted to the GLWA Chief Planning Officer and Manager of Capital Programs on February 1. If necessary an updated version will be adopted by the

Board at its February meeting, and a final CIP document will be submitted to GLWA on March 1. At this point, it is expected that the CIP approval process coincides with the overall budget development process.

SECTION 2 FINANCIAL PLAN INTRODUCTION

The Fiscal Year 2017-2021 CIP was approved by the Board in February 2016. The following table details the planned expenditures and the projected funding sources for the Fiscal Year 2018-2022 CIP. Expenditures are focused on replacement, installation and/or abandonment of existing water mains, replacement of inoperable fire hydrants, rehabilitation of sewer systems, management of storm water with green infrastructure, upgrades to information technology systems, replacing aging equipment and vehicles, as well as rehabilitation of facilities that support the operation of the utility. The Department will finance its ongoing CIP with proceeds of existing bonds, future bond issues by the Authority or the Department, federal and state grants and loans and revenues of the Water Supply and Sewer System.

The DWSD CIP financing plan balances a number of objectives to support the Departments' mission to efficiently deliver the best retail water and sewer services in partnership with our customers through excellence in service and collaboration. Those objectives include the following.

- ✓ Working with a cross-functional team, identify and fund prioritized capital improvements to ensure a sustainable system.
- ✓ Recover the costs of capital investment over the useful lives of the capital assets.



- ✓ Minimize the financial impact of the capital programs on system customers.
- ✓ Protect and enhance the Departments' financial position.

The DWSD works with the Authority to draw upon four sources of revenue for its capital improvement plan.

1. **Bond Proceeds:** The Authority uses an incremental method of funding long-lived capital projects through a bond financing program rather than funding all projects in advance. The Authority issues revenue bonds pursuant to Michigan Public Act 94 of 1933 (the Revenue Bond Act). The Act provides a pledge of "net revenues" for the payment of the bond principal and interest. "Net revenues" means the revenues of the system remaining after deducting the reasonable expenses of administration, operation, and maintenance of the system.
2. **Revenue Financed Capital:** Based upon ongoing expense, capital, and revenue optimization efforts, the DWSD is able to build reserves to fund pay-as-you go capital for shorter-lived and lower-dollar capital expenditures.
3. **Federal Loan Programs:** The Authority's sources of funding includes lower cost financing programs including the State Revolving Fund (SRF) Loan program and the Drinking Water Revolving Fund (DWRF) Loan program. The lease agreement with the City of Detroit provides for use of SRF and DWRF for the benefit of the City of Detroit Local System. While the Authority is responsible for the debt service on bonds issued to finance capital improvements to the DWSD Local Water and Sewer System, the annual principal and interest requirements are included in the revenue requirements assigned to the City of Detroit retail customer class.
4. **Grants:** The DWSD utilizes public grants programs such as those available from the Environmental Protection Agency, Housing and Urban Development, as well as nonprofit

organizations who fund programs in partnership with DWSD through the Detroit Economic Growth Corporation. DWSD will continue to pursue opportunities which meet the mission of the organization provide safe drinking water, reliable customer service and environmental integrity.

To ensure proper accountability of funding sources and uses, the Department utilizes two funds for its capital program for each system: the Construction Bond Fund and the Improvement & Extension (I&E) Fund.

- ✓ **Construction Bond Fund:** This fund represents the proceeds of bond issuances for the purposes of financing capital improvements.
- ✓ **Improvement & Extension Fund:** The I&E fund is defined by the Authority's Master Bond Ordinance (MBO) as the "fund used for improvements, enlargements, extensions or betterment" of the System. Cash receipts of the Department are transferred into the I&E Fund pursuant to a flow of funds after commitments are met for a monthly allocation of System operations and maintenance expense, debt service, pension, water residential assistance program, budget stabilization fund, and extraordinary repair and replacement fund as administered by a trustee.

It should be noted that the basis of accounting for the CIP is the accrual basis. Under this basis of accounting, revenues are recognized when earned and measurable regardless of when collected; and expenses are recorded, or accrued, on a matching basis when incurred. Accrued expenses are expected to be paid in a subsequent accounting period. For purposes of this CIP, expenses and expenditures are used interchangeably.

SECTION 3 SUMMARY CIP FINANCIAL PLAN REVIEW & ANALYSIS

The FY 2018 – FY 2022 capital improvement plan provides for \$290 million of water system improvements and \$240 million of sewer system improvements over the five year planning cycle.

Table II-1. Water CIP Categories

Category	Cost Thru 6/30/2016	FY 2017	FY 2018	Projected Expenditures					2018-2022 CIP Total	Total est'd cost
				FY 2019	FY 2020	FY 2021	FY 2022	FY 2023		
Water										
Water Field Services	\$ 23,900	\$ 24,268	\$ 67,200	\$ 74,086	\$ 58,970	\$ 41,000	\$ 37,500	\$ 37,500	\$ 278,756	\$ 3367,424
Metering	-	4,000	4,000	4,000	4,000	4,000	4,000	4,000	20,000	30,269
General Purpose	-	2,000	2,000	2,000	2,000	2,000	2,000	2,000	10,000	15,245
Water Total	23,900	30,268	73,200	80,086	64,970	47,000	43,500	43,500	308,756	406,424
Water Central Services										
Fleet	-	259	2,000	2,000	2,000	2,000	2,000	2,000	10,000	12,259
Facilities	-	500	2,500	2,500	2,500	2,000	2,000	2,000	11,500	14,000
Information Technology	-	950	875	793	1,993	120	1,000	1,000	4,780	7,000
General Purpose	-	-	-	-	-	-	-	-	-	-
Water Central Services Total	-	1,709	5,375	5,293	6,493	4,120	5,000	5,000	26,280	33,259
Grand Total	23,900	31,977	78,575	85,379	71,463	51,120	48,500	48,500	335,036	439,683

Table II-2. Sewer CIP Categories

Category	Cost Thru 6/30/2016	FY 2017	FY 2018	Projected Expenditures					2018-2022 CIP Total	Total est'd cost
				FY 2019	FY 2020	FY 2021	FY 2022	FY 2023		
Sewer										
Sewer Field Services	\$11,160	\$7,964	\$42,500	\$47,500	\$57,500	\$37,500	\$37,500	\$37,500	\$222,500	\$279,124
Green Infrastructure	-	4,289	12,225	14,350	6,000	10,000	10,000	-	52,575	39,625
Pump Stations	-	-	-	-	-	-	-	-	-	-
General Purpose	-	-	-	-	-	-	-	-	-	-
Sewer Total	11,160	12,253	54,725	61,850	63,500	47,500	47,500	37,500	275,075	278,281
Sewer Centralized Services										
Fleet	-	1,545	2,000	2,000	2,000	2,000	2,000	2,000	10,000	13,545
Facilities	-	500	2,500	2,500	2,500	2,500	2,500	2,500	12,500	15,500
Information Technology	-	950	875	793	1,993	120	1,000	1,000	4,780	7,000
Centralized Services Total	-	2,995	5,375	5,293	6,493	4,620	5,500	5,500	27,280	36,045
Grand Total	11,160	15,248	60,100	67,143	69,993	52,120	53,000	43,000	302,355	354,794

Table II-3. Centralized Services Categories (also appear broken out in Water and Sewer tables)

Category	Cost Thru	Projected Expenditures							2018-2022	Total est'd
	6/30/2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	CIP Total	cost
Fleet										
Water	\$ -	\$ 259	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 10,000	\$ 12,259
Sewer	-	1,545	2,000	2,000	2,000	2,000	2,000	2,000	10,000	13,545
Fleet Total	-	1,804	4,000	4,000	4,000	4,000	4,000	4,000	20,000	25,804
Facilities										
Water	-	500	2,500	2,500	2,500	2,000	2,000	2,000	11,500	14,000
Sewer	-	500	2,500	2,500	2,500	2,500	2,500	2,500	12,500	15,500
Facilities Total	-	1,000	5,000	5,000	5,000	4,500	4,500	4,500	24,000	29,500
Information Technology										
Water	-	950	875	793	1,993	120	1,000	1,000	4,780	7,000
Sewer	-	950	875	793	1,993	120	1,000	1,000	4,780	7,000
Information Technology Total	-	1,900	1,750	1,585	3,985	240	2,000	2,000	9,560	14,000
Grand Total	-	4,704	10,750	10,585	12,985	8,740	10,500	10,500	53,560	69,304

SECTION 4 THE PROJECT PROCESS

4.1. Project Identification

Currently, projects to be considered for inclusion in each year of the CIP are identified by the subject matter expert engineers or other project managers. These engineers and project managers utilize available institutional knowledge, data, operations and maintenance reports, need and condition assessments and master plans to identify the project need. Many come from projects that are already in the planning process or have been designed but not yet constructed. Others were recommended by staff or chosen based on work being planned by the public works or planning departments in the City of Detroit. to further the mission of DWSD. Some are driven by regulatory requirements. Some originated from several sources.

4.2. Project Proposals

DWSD has a CIP project proposal template which is used to provide the background/history for the project, proposed and alternative

solutions, along with the budget and schedule for a project. The project proposal template is provided in Appendix B. The process by which projects are submitted and evaluated for inclusion in the CIP will be revamped under CS-1812 CIPMO. However, until that contract has been awarded, the project proposal template will be used. In addition, the CIPMO in conjunction with the Field Services PMO will develop an asset management program for DWSD to use to select and prioritize projects for inclusion in the CIP.

4.3. Project Prioritization

In the 2018-2022 CIP, Water CIP projects are prioritized using three metrics: frequency of main breaks, occupancy of the area, and PASER rating of the overlying road.

Water mains that have had more than 5 breaks per 1,000 feet of pipe are evaluated for replacement. Those mains with higher numbers of recent breaks were prioritized higher. Areas with higher occupancy were prioritized over areas with lower occupancy. Areas with poor

road condition were prioritized over areas with better overlying road condition. In addition, mains are evaluated based on the investments of other city departments such as Public Works and Planning and Development.

In the past two years, DWSD has only been able to invest in emergency repairs to the sewer system. This year a new contract is being issued which will provide for inspection, and rehabilitation of sewers and manholes. This program will prioritize project areas based on the number of basement backup claims and complaints received for an area. Those areas with a higher number of complaints will be investigated and rehabilitated first.

With respect to green infrastructure, a variety of factors are used to determine the priority of a project. This includes, reports of street flooding, basement backup claims data, community engagement/neighborhood participation, and site location. As of this CIP, projects in the Upper Rouge Tunnel have a higher priority than those in other areas of the city.

Inherent in the prioritization process is the ability to leverage dollars in an efficient way. Thus, when and where possible projects may be worked into the capital construction programs of DPW, DTE, or other agencies such as Wayne County and the State of Michigan Department of Transportation.



III. CAPITAL IMPROVEMENT PROJECTS

The DWSD CIP is organized by three categories: water system, sewer system, and centralized services. Projects in the water category are primarily for water main replacements, residential metering and the fire hydrant replacement program. Projects in the sewer category include rehabilitation of the sewer infrastructure and green infrastructure for storm water management. Centralized services are allowances that facilitate improvements that benefit both the water and sewer business with the purchase of fleet and heavy equipment, rehabilitation and improvements to facilities, and information technology upgrades to facilitate operations and implementation of the capital programs. The following pages provide an overview of the projects types in each category. Individual project descriptions have only been provided for the projects in the Green Infrastructure Program because there are a variety of project types.

SECTION 1 WATER

There are 22 projects listed in the water portion of this CIP. This includes 17 Field Services projects and programs, a water meter replacement program, a fire hydrant replacement program, and 3 Central Services projects. Following this explanatory portion is a list of the projects with estimated costs, a set of maps displaying locations where the work for the projects will take place, and a list of the locations of the projects on the map.

1.1. Water Field Services

On the following pages, there are maps which denote the water main replacement projects in this years CIP. DWSD has 5 active construction contracts, two of which will be completed before FY18 begins. These projects at their completion will result in the reconstruction of nearly 20 miles of water main. There are 4 projects in the procurement phase which at their completion will result in the reconstruction of 22 miles of water main.

In addition, there are 200 miles of pipe that are being evaluated for inclusion in future construction contracts. Of this, 75 miles are designed but may not meet all the criteria to warrant replacement at this time. The remaining 125 miles are segments of main submitted by the Field Services Maintenance and Repair Division for replacement or have been submitted by DPW as roads that will be resurfaced in the 2017 and 2018 construction season. DWSD uses a consultant engineering firm, Contract CS-1673, to design water mains. . Based on previous project sizes, DWSD anticipates the new water main replacement contracts identified in to begin in FY19 and beyond to replace 20 miles of water main annually.

Contract CS-1812 as discussed previously is under evaluation but when awarded will accelerate the renewal rate of water main replacement to 30 to 45 miles per year. The pilot areas that will be evaluated by the CIPMO are shown on the figures in the following pages.

1.2. Customer Meter Replacement Program

DWSD replaces customer meters annually. There are more than 200,000 meters in the DWSD service area. Meters range in size from 5/8" to 60" in diameter. Meters are replaced for a variety of reasons, including failure due to age or other malfunctions. Meters generally have a life expectancy of 10 to 20 years, but this varies based on the volume of water that passes through the meter, which increases the wear and tear on the mechanical components. Thus decreasing the accuracy of the meter, which in turn becomes non-revenue water. It is in DWSD's interest to proactively schedule planned replacement of meters and associated equipment to ensure accurate billing for water consumed. This also improve the accuracy of sewer billings as well.

DWSD will also investigate new metering technologies in Contract CS-1812. Newer technologies have capabilities such as remote shut off

which has the ability to reduce operations and maintenance cost associated with locating the curb stop to terminate service. This would ultimately reduce surface restoration costs, when a curb stop has to be excavated to complete the shut.

1.3. Fire Hydrant Replacement Program

In FY17 DWSD began the implementation of a robust fire hydrant inspection, repair and replacement program in a partnership with the Detroit Fire Department (DFD). This program has resulted in DWSD replacing approximately 150 hydrants each year that are found inoperable from DFD conducting inspections. This program allowed DWSD to test the integration of the Geographic Information System (GIS) with the Work Asset Management (WAM) system and institute a paperless repair and replacement process. With this program, less than 3% of the 30,000 hydrants within the city are in need of repair. This program is also one component of the city's project to improve the city's Insurance Services Office (ISO) score fire protection

Table III-1. Water CIP Projects

Title	Category*	Status**	Funding Source	Total Estimated Cost	Actual Cost Thru 6/30/2016	Projected Expenditures (\$ Thousands)								2018-2022 CIP Total	% of W CIP
						FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023			
WS-685 Water Main Replacement	FS	BC	N/A	6,428,920	3,196,846	3,232	0	0	0	0	0	0	0	0	0.0%
WS-686 Water Main Replacement	FS	A	N/A	7,898,455	5,151,929	2,747	0	0	0	0	0	0	0	0	0.0%
WS-691 Joy Road Water Main Replacement Phase 1	FS	C	N/A	14,862,946	14,862,946	0	0	0	0	0	0	0	0	0	0.0%
WS-693A Joy Road Water Main Replacement Phase 2	FS	A	Loan (DWRP)	9,479,876	0	2,180	4,800	2,500	0	0	0	0	7,300	2.2%	
WS-697 Water Main Replacement	FS	A	Loan (DWRP)	4,584,876	0	2,084	2,000	500	0	0	0	0	2,500	0.7%	
WS-698 Water Main Replacement	FS	P	Loan (DWRP)	10,000,000	0	1,500	7,000	1,500	0	0	0	0	8,500	2.5%	
WS-703 Water Main Replacement	FS	P	N/A	13,000,000	0	3,000	8,000	2,000	0	0	0	0	10,000	3.0%	
WS-704 Water Main Replacement	FS	P	N/A	10,000,000	0	0	5,000	5,000	0	0	0	0	10,000	3.0%	
WS-705 Water Main Replacement	FS	P	N/A	7,000,000	0	0	2,500	4,500	0	0	0	0	7,000	2.1%	
WS-7XX Water Main Replacement	FS	N	N/A	10,000,000	0	0	0	5,600	4,400	0	0	0	10,000	3.0%	
WS-7XX Water Main Replacement	FS	N	N/A	10,000,000	0	0	0	3,000	7,000	0	0	0	10,000	3.0%	
WS-7XX Water Main Replacement	FS	N	N/A	10,000,000	0	0	0	4,500	6,500	0	0	0	11,000	3.3%	
Livernois Water Main Replacement	FS	A	N/A	1,092,271	0	1,092	0	0	0	0	0	0	0	0.0%	
CS-1673 Professional Engineering Services for Design of Water Main	FS	A	N/A	3,031,060	688,298	743	700	900	0	0	0	0	1,600	0.5%	
CS-1812 Professional Engineering and Construction Services for Capital Improvement Program Management Organization	FS	N	N/A	200,000,000	0	0	22,500	27,500	37,500	37,500	37,500	37,500	162,500	48.5%	
Water Meter Replacement Program	M	A	N/A	30,269,000	0	4,000	4,000	4,000	4,000	4,000	4,000	4,000	20,000	6.0%	
Fire Hydrant Replacement Program	GP	A	N/A	15,245,000	0	2,000	2,000	2,000	2,000	2,000	2,000	2,000	10,000	3.0%	
Water Main Replacement Projects Allowance	FS	H	N/A	18,526,000	0	1,940	5,200	7,386	0	0	0	0	12,586	3.8%	
Replacement of Distribution System Water Main Various Locations Allowance	FS	H	N/A	31,520,000	0	5,750	9,500	9,200	3,570	3,500	0	0	25,770	7.7%	
Information Technology Program	CS	A	N/A	7,000,000	0	950	875	793	1,993	120	1,000	1,000	4,780	1.4%	
Vehicle, Heavy Equipment, and Equipment Purchases	CS	A	N/A	12,259,000	0	259	2,000	2,000	2,000	2,000	2,000	2,000	10,000	3.0%	
Facility Improvement Allowance	CS	A	N/A	14,000,000	0	500	2,500	2,500	2,500	2,000	2,000	2,000	11,500	3.4%	

*FS = Field Services, M = Metering, GP = General Purpose CS = Central Services

**BC = Being Closed, C = Closed, A = Active, P = Procurement, N = New, H = On Hold

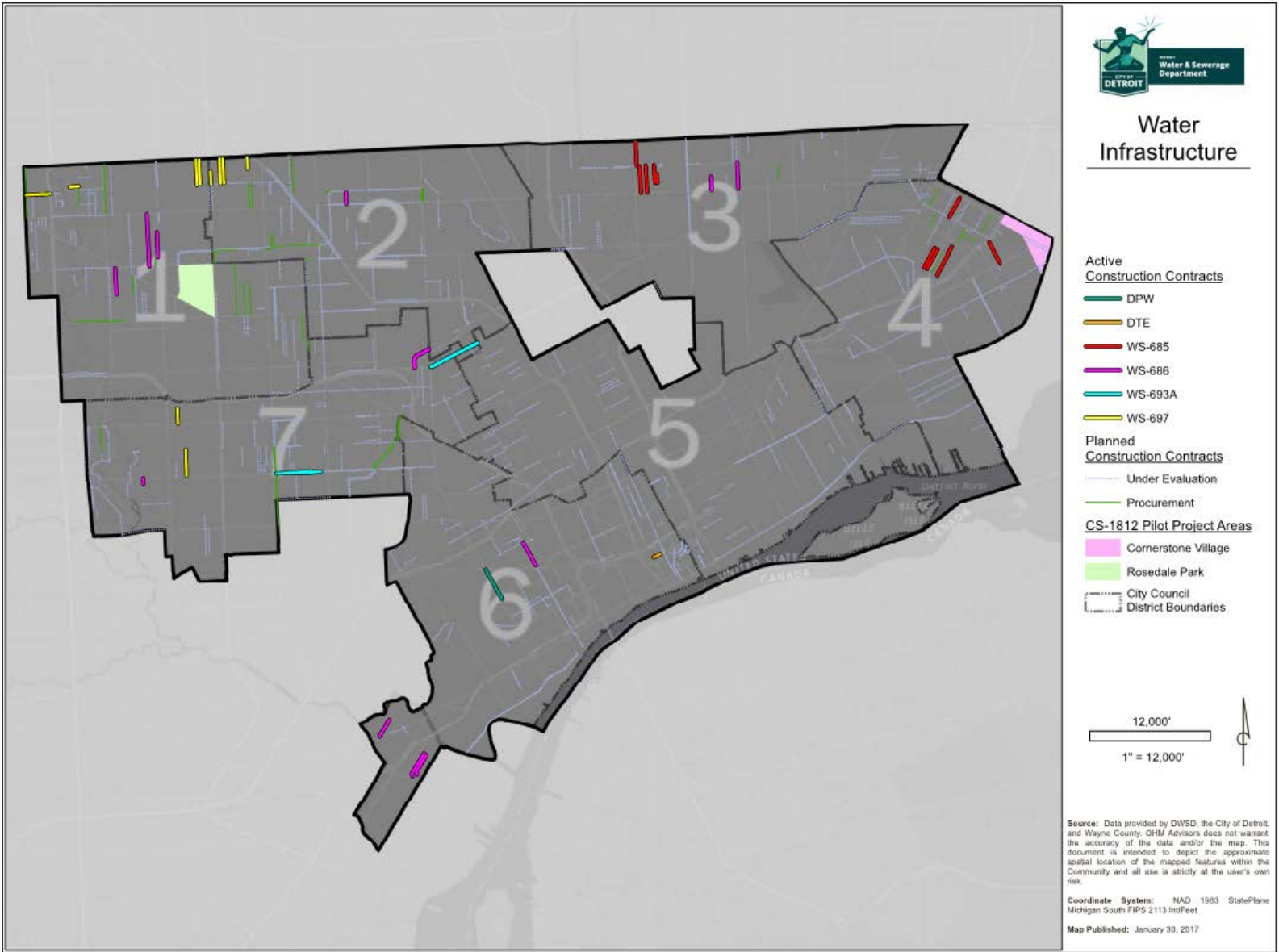


Figure III-1. Map of water projects in 2018-2022 CIP

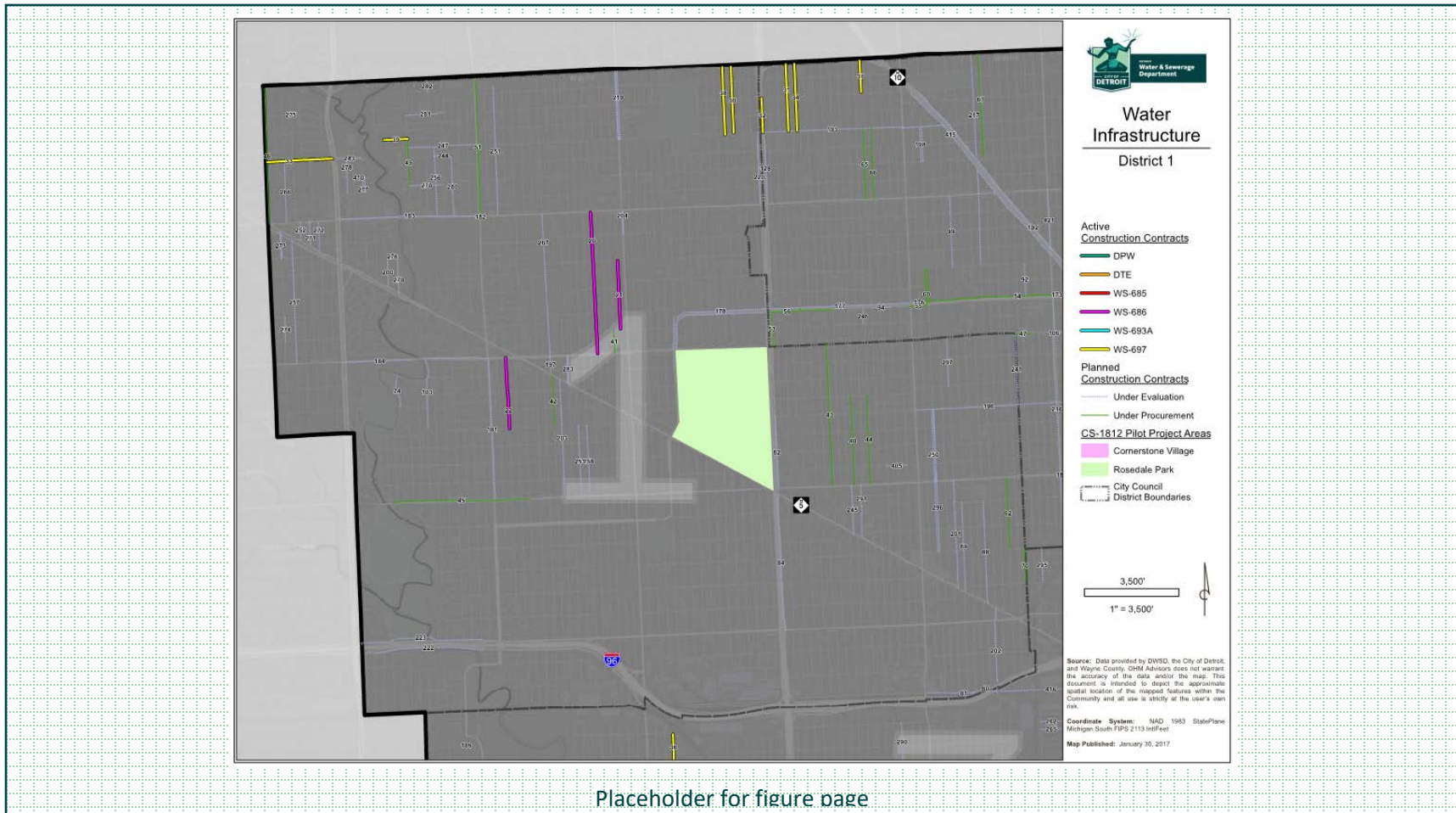


Figure III-2. Map of water projects in 2018-2022 CIP in Detroit City Council District 1

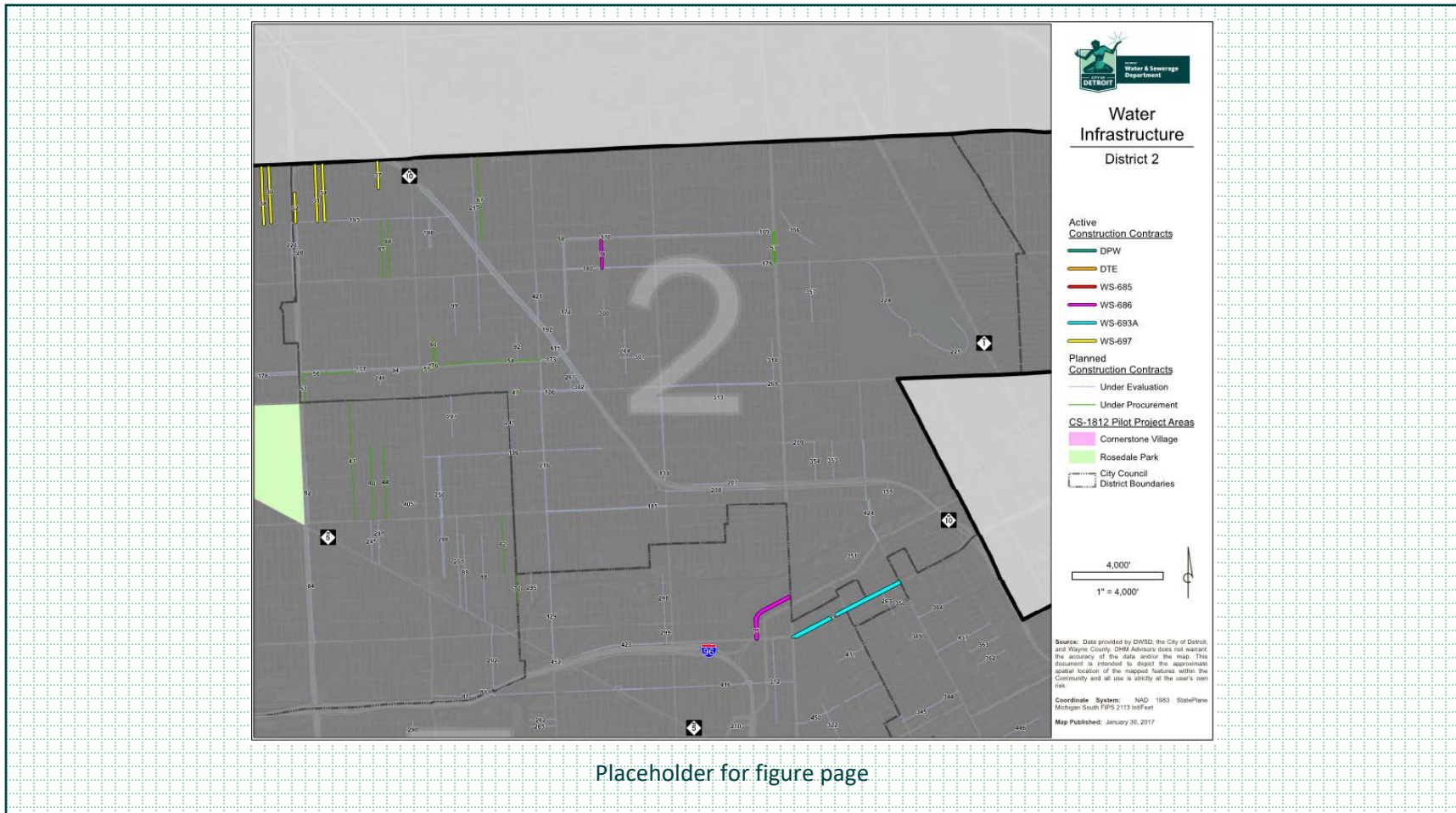
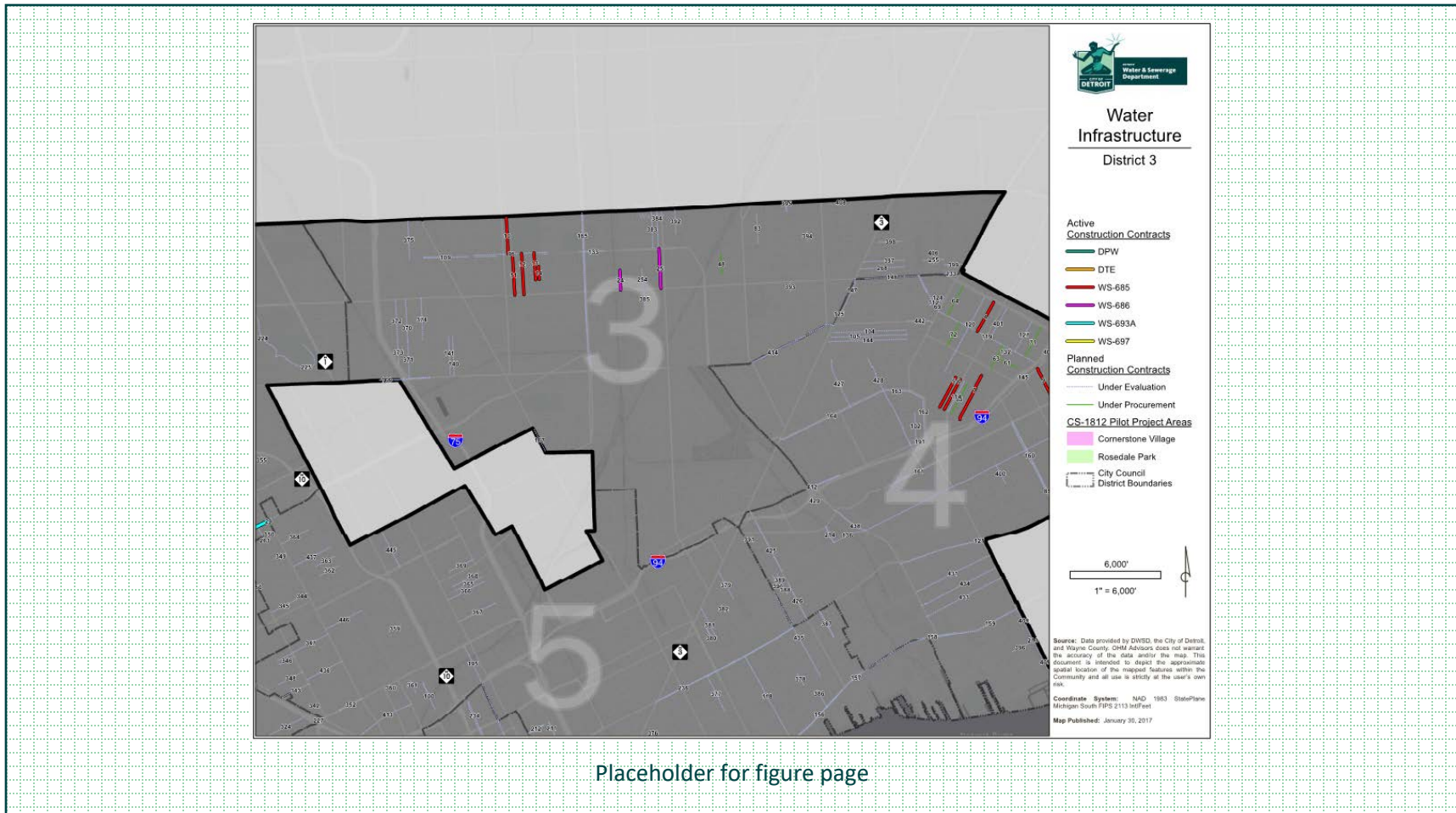


Figure III-3. Map of water projects in 2018-2022 CIP in Detroit City Council District 2



Placeholder for figure page

Figure III-4. Map of water projects in 2018-2022 CIP in Detroit City Council District 3

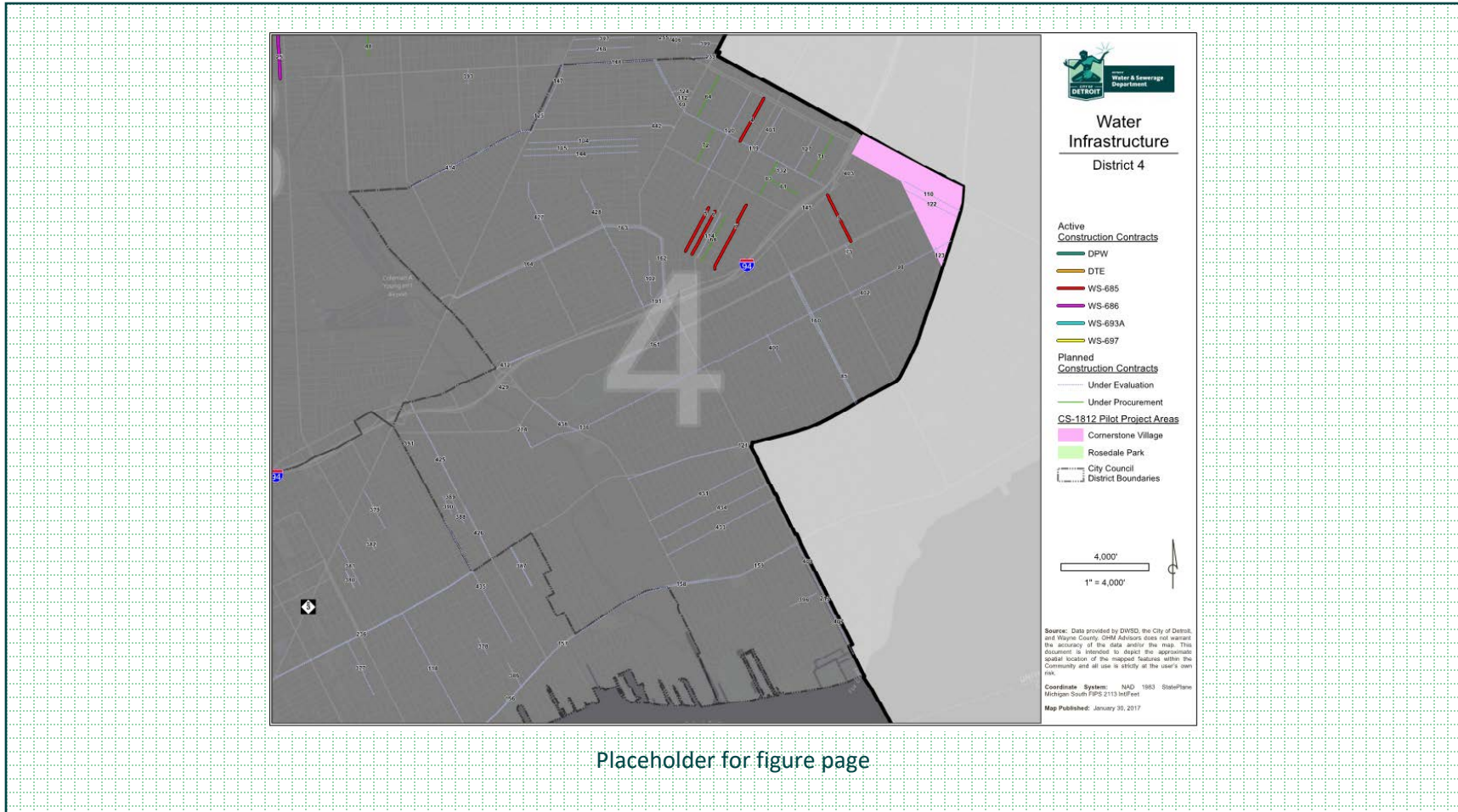
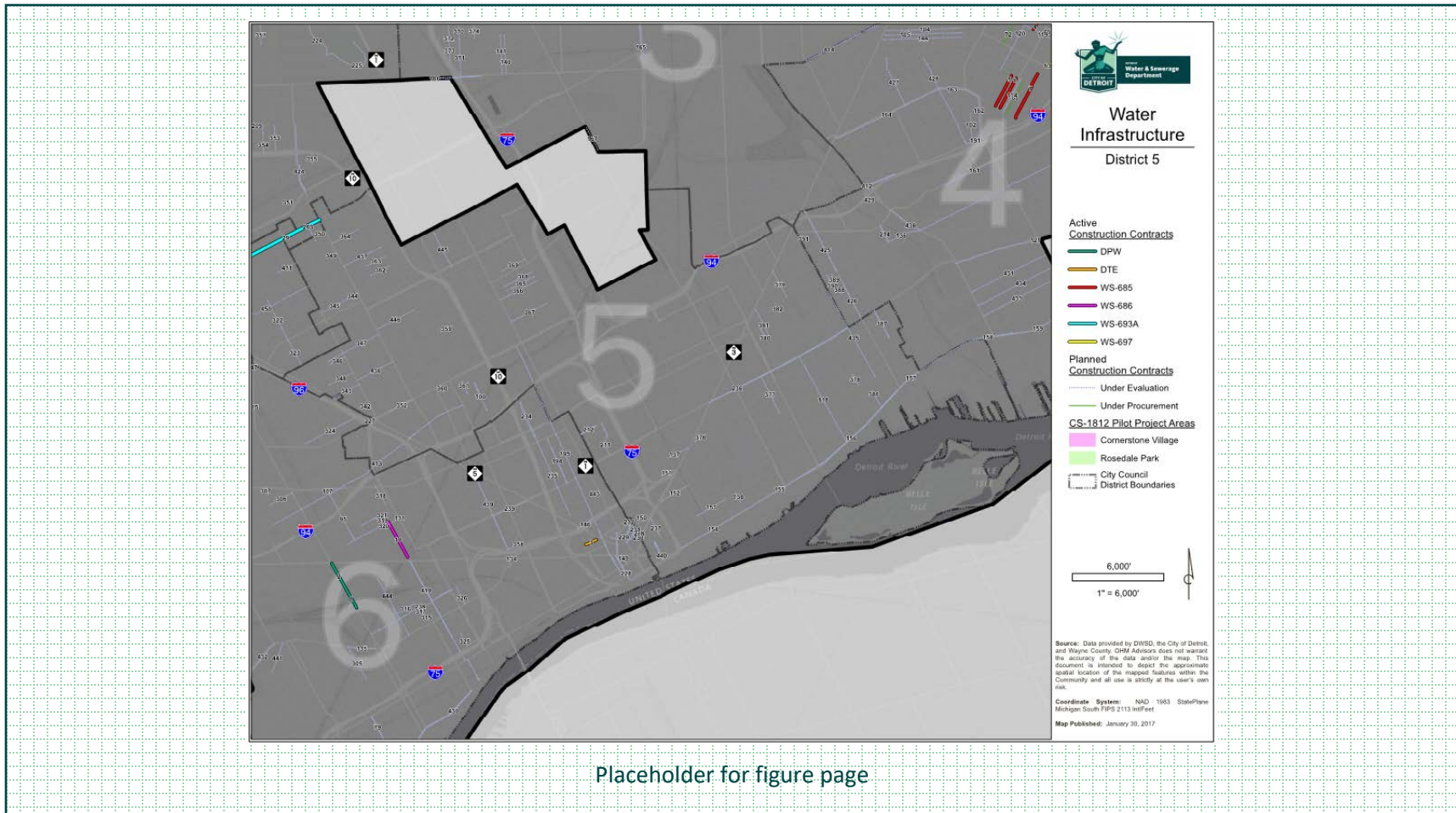
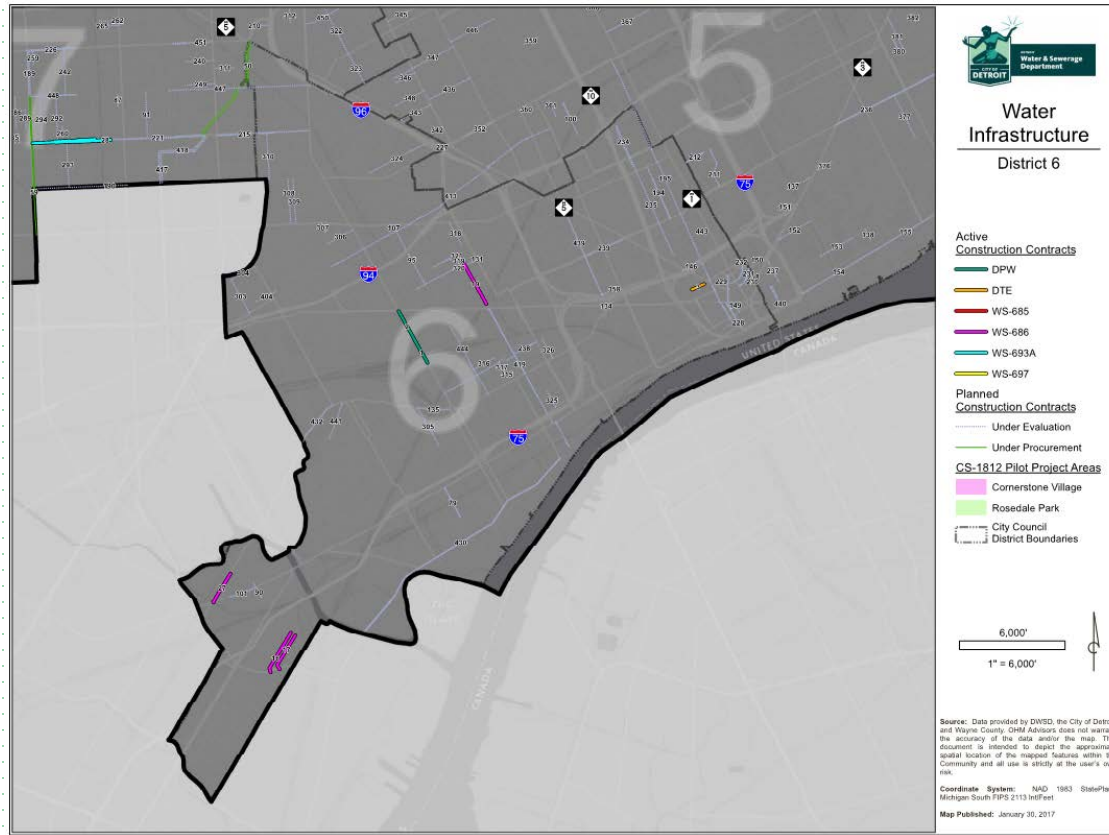


Figure III-5. Map of water projects in 2018-2022 CIP in Detroit City Council District 4



Placeholder for figure page

Figure III-6. Map of water projects in 2018-2022 CIP in Detroit City Council District 5



Placeholder for figure page

Figure III-7. Map of water projects in 2018-2022 CIP in Detroit City Council District 6

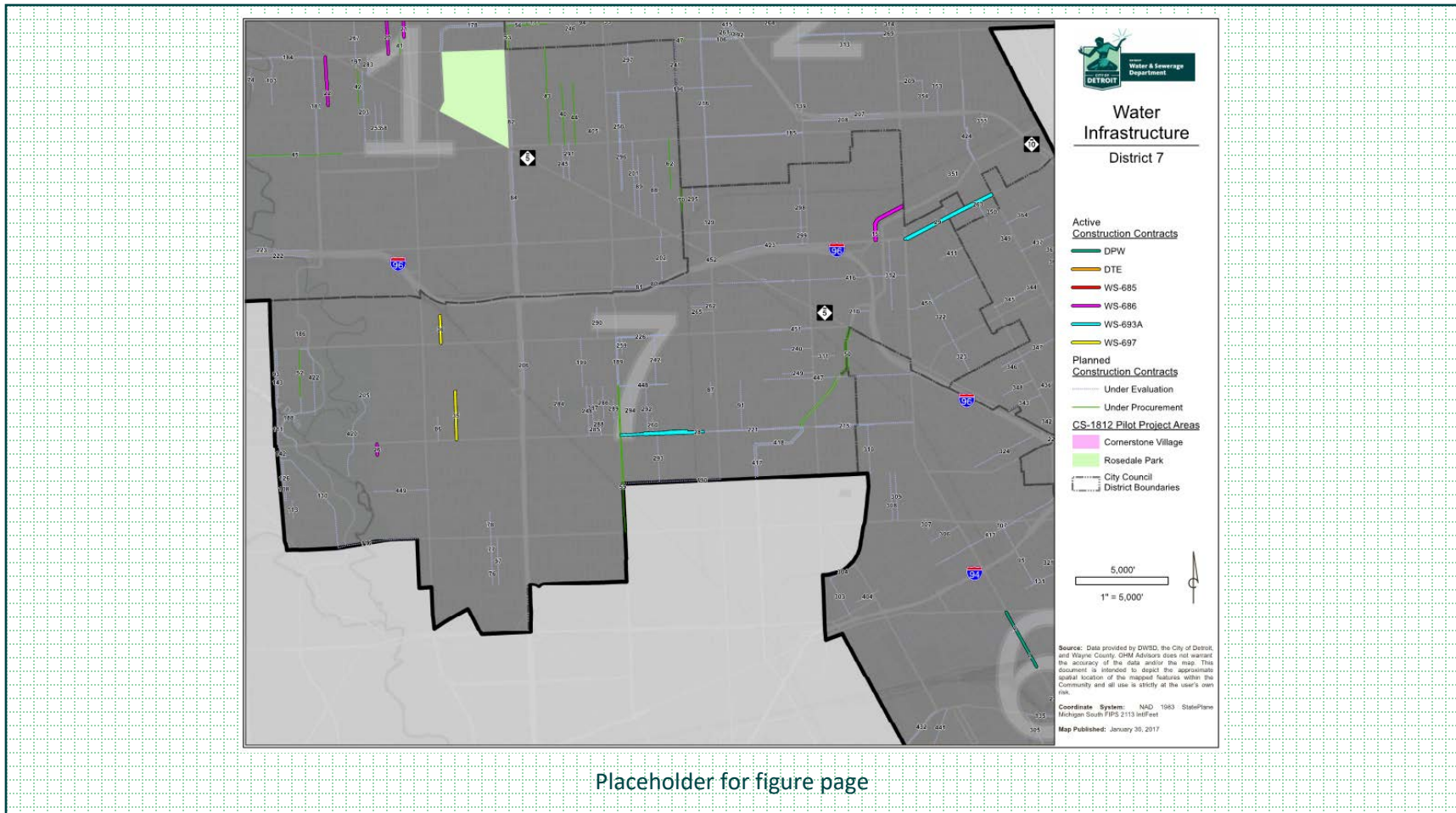


Figure III-8. Map of water projects in 2018-2022 CIP in Detroit City Council District 7

The numbers displayed on each project location in the Water Infrastructure by Council District maps correspond with the projects listed in Table III-2 for Active Construction projects, Table III-3 for Construction Projects In Procurement, and Table III-4 for Construction Projects Under Evaluation. The codes in the “Data Source” column of these three tables correspond with the studies and sources listed in Table III-5.

Table III-2. Streets with Active Water Infrastructure Work as shown on Council District Maps

Map	Street	Street From	Street To	Data Source	Length
1	Livernois Ave.	Ranspach	N. Otis	SR	2225
2	Livernois Ave.	N. Otis	Michigan	SR	1827
3	Beech	First	Third	WMEP 16	330
4	Lakepointe	Morang	Moross	WMEP 16	2209
5	Roxbury	Berkshire	Whittier	WMEP 16	2244
6	Greensboro	Berkshire	Whittier	WMEP 16	2248
7	Balfour Road	Berkshire	Yorkshire	WMEP 16	3040
9	Woodhall	Chandler Park Dr.	Harper Ave	WMEP 16	2311
10	Dean	E. Outer Drive	E. Eight Mile	WMEP 16	2360
11	Sunset	E. Seven Mile	E. Outer Drive	WMEP 16	2529
12	Justine	E. Seven Mile	E. Outer Drive	WMEP 16	2544
13	Healy	Emery Ave.	E. Outer Drive	WMEP 16	1634
14	Lamont	Emery Ave.	Lantz	WMEP 16	900
15	Ewald Circle	Davison	Livernois	WMEP 16	5746
16	Beatrice	Schaefer	Pleasant	WMEP 16	2574
17	Deacon	Schaefer	Pleasant	WMEP 16	2155
18	Manor	W. Seven Mile	W. Outer Drive	WMEP 16	1173
19	Scotten	Michigan Ave	Buchanan	WMEP 16	3051
20	Stout	W. Seven Mile	W. Six Mile	WMEP 16	5286
21	Vaughan	Pickford	Santa Maria	WMEP 16	1943
22	Burgess Ave	W. Six Mile	Puritan	WMEP 16	2546
24	Girardin	E. Seven Mile	End of Rd.	WMEP 16	1318
25	Stotter Ave.	E. Outer Drive	E. Seven Mile	CP16	2580
26	Burt Road	Joy Rd.	Van Buren	CP16	590
27	Dix	Oakwood	Mellon	DR15	1873
28	Joy Rd. Part B	Greenfield	Schaefer	CP16	12724

Map	Street	Street From	Street To	Data Source	Length
29	Davison	Livernois	Linwood	CP16	10647
30	Glastonbury Ave.	Pembroke	W. Eight Mile	SR	2025
31	Oakfield Ave.	Pembroke	W. Eight Mile	CP16	2458
32	Southfield Rd. N.B.	Pembroke Ave.	Trojan	CP16	1388
33	Frisbee Ave.	Five Points	Telegraph	CP16	2609
34	Lindsay Ave.	Pembroke Ave.	W. Eight Mile	CP16	1822
35	Grandville Ave.	Joy Rd.	W. Chicago	CP16	2731
36	Minock Ave.	Plymouth Rd.	Fitzpatrick	CP16	1437
37	Rutherford Ave.	Trojan Ave.	W. Eight Mile	CP16	1176
38	Faust Ave.	Pembroke Ave	W. Eight Mile	CP16	2556
39	Leewin Ave.	Cherokee Dr	Berg	CP16	952

Table III-3. Streets with Water Infrastructure Work In Procurement as shown on Council District Maps

Map	Street	Street From	Street To	Data Source	Length
40	Murray Hill	Fenkell	Florence	CP16	3401
41	Heyden	McNichols	Santa Maria	CP16	838
42	Trinity	McNichols	Puritan	WMEP 16	5153
43	Biltmore	Fenkell	McNichols	CP16	5426
44	Mansfield	Fenkell	Florence	CP16	3492
45	Fenkell	Bentler	Virgil	CP16	6253
46	Five Points	Seven Mile Rd.	Eight Mile Rd.	SR	5060
47	McNichols	Stansbury	Ardmore	WMEP 16	969
48	Algonac	Lappin	Manning	WMEP 16	1340
49	Berg	Vassar	Leewin	WMEP 16	1760
50	Oakman Blvd.	Joy	Grand River	WMEP 16	9800
51	Lahser	Seven Mile	Eight Mile	WMEP 16	5200
52	W. Outer Drive	Plymouth	W. Chicago	WMEP 16	2550
54	W. Outer Drive	Whitcomb	Schaefer	WMEP 16	3850
55	W. Outer Drive	Greenfield Rd.	Whitcomb	SR	641
56	W. Outer Drive	Southfield	Ferguson	SR	2160
57	W. Outer Drive	Seven Mile	Livernois	WMEP 16	18950
58	Vassar	Ward	Littlefield	WMEP 16	600
59	Greenfield	Warren	W. Chicago	DR15	12168
60	Whitcomb	Curtis	W. Outer Drive	DR15	1199
61	Britain St.	McKinney	Cadieux	SR	1529
62	Mark Twain	Fenkell	Lyndon	DR15	2683
63	McKinney Ave	Grayton	Morang	DR15	2024

Map	Street	Street From	Street To	Data Source	Length
64	Riad Rd.	Morang	Moross	DR15	2137
65	Rutherford	Pembroke	W. Seven Mile	DR15	2569
66	Prevost	Pembroke	W. Seven Mile	DR15	2629
67	Strathmoor	W. Eight Mile	Vassar	DR15	2534
68	Nottingham Ave.	Berkshire	Whittier	SR	2200
69	Parkgrove Ave.	Morang Ave	Kelly	DR15	324
70	Ardmore	Lyndon	Intervale	DR15	1281
71	Lanark Ave.	Morang	Moross	DR15	2149
72	Whitehill Rd.	Grayton	Morang	DR15	1789

Table III-4. Streets with Water Infrastructure Work Under Evaluation as shown on Council District Maps

Map	Street	Street From	Street To	Data Source	Length
73	Guilford	Chandler Park Dr.	Southampton	WMEP 16	808
74	Ridge Road	Florence	S. Riverdale	WMEP 16	1170
76	Brace Street	Paul	Whitlock	WMEP 16	1300
78	Brace Street	Warren	Sawyer	WMEP 16	1350
79	Post Street	Fort Street	South	WMEP 16	1750
80	Fullerton	Greenfield	Hubbell	WMEP 16	2700
81	Fullerton	Terry	Sussex	WMEP 16	930
82	Southfield Svc Drive North	Fenkell	Puritan	WMEP 16	2560
83	Bradford	State Fair	Collingham	WMEP 16	1960
84	Southfield Svc Drive North	Schoolcraft	Grand River	WMEP 16	5120
85	E. Outer Drive	Rosewood	Wallingford	WMEP 16	1780
86	Auburn	Cathedral	Joy Rd.	WMEP 16	1290
87	Carlin	W. Chicago	Westfield	WMEP 16	779
88	Marlowe	Chalfonte	Grand River	WMEP 16	3686
89	Robson Ave.	Chalfonte	Grand River	WMEP 16	3301
90	Sanders Ave.	Dumfries Ave.	Colonial	WMEP 16	1174
91	Ward Ave.	W. Chicago	Westfield	WMEP 16	744
92	Stansbury Ave.	Outer Drive	Curtis	WMEP 16	1213
93	West Parkway	Plymouth	W. Chicago (West Side)	WMEP 16	2550
94	W. Outer Drive	Rutherford	Forrer	WMEP 16	650
95	Junction Ave.	Buchanan	Herbert	WMEP 16	2039
96	E. Outer Drive	Gallagher	Conley	WMEP 16	8040

Map	Street	Street From	Street To	Data Source	Length
97	Greenview	W. Warren	Paul	WMEP 16	2600
98	E. Warren	Cadieux	Mack	WMEP 16	5196
99	Robson Ave.	Curtis Ave.	W. Seven Mile	WMEP 16	2645
100	Trumbull Ave.	Elijah McCoy	Holden	WMEP 16	2116
101	Oakwood Blvd.	Pleasant Ave.	Sanders	WMEP 16	1585
102	Philip Ave	Evanston	Elmdale	WMEP 16	1596
103	Beaverland Ave.	Puritan Ave	McNichols	WMEP 16	2619
104	Cedar Grove	Gratiot Ave.	Hayes	WMEP 16	4861
105	Hazelridge	Gratiot Ave.	Hayes	WMEP 16	5008
106	McNichols	Schaefer	James Couzens	WMEP 16	4100
107	Junction	Edsel Ford I-94	Warren	WMEP 16	1480
108	West Parkway	Van Buren	Tireman (West Side)	WMEP 16	2170
109	E. Outer Drive	Dequindre	Mitchell	WMEP 16	4595
110	Hillcrest Ave.	Rolandale Ave	Mack	WMEP 16	2886
111	West Parkway	Joy	W.Chicago	WMEP 16	2720
112	Glenwood Ave.	Morang	Kelly	WMEP 16	635
113	Beaverland Ave.	Sawyer Ave.	Tireman	WMEP 16	914
114	Beaconsfield Ave.	Berkshire	Whittier	WMEP 16	2156
116	Warren	Parkland	Heyden	WMEP 16	4515
118	Van Dyke Ave.	Jefferson Ave.	Mack	WMEP 16	6876
119	Morang Ave.	I-94	E. Seven Mile	WMEP 16	7670
120	Wayburn	Whittier	Moross	WMEP 16	5495
121	Mack	Conner	Alter	WMEP 16	7007
122	Lannoo	Canyon	Mack	WMEP 16	2529
123	Canyon	Mack	Warren	WMEP 16	616
124	Linnhurst Ave.	Morang	Kelly	WMEP 16	944
125	Gratiot Ave.	E. McNichols Rd.	Glenwood	WMEP 16	1828
126	West Parkway	Van Buren	Tireman (East Side)	WMEP 16	2170
127	Marne	Morang	Moross	WMEP 16	2219
128	Southfield Svc. Drive N.B.	W. Seven Mile	Pembroke	WMEP 16	3839
129	Schaefer Hwy.	Jeffries Fwy.	Lyndon	WMEP 16	4130
130	Parkland	Van Buren	Warren	WMEP 16	6130
131	Livernois Ave.	Buchanan	Vinewood	WMEP 16	7620
132	Meuse	Mckinney	Cadieux	WMEP 16	692
133	E. Outer Drive	Mound	Mt. Elliott	WMEP 16	1390
134	Fourteenth St.	Michigan Ave.	US-12 Alley	WMEP 16	156
135	Vernor Ave.	Livernois Ave.	Waterman	WMEP 16	1774



Map	Street	Street From	Street To	Data Source	Length
136	Warren Ave	St. Jean	Cadieux	WMEP 16	18738
137	Alfred	Orleans	Dubois	WMEP 16	1485
138	Joseph Campau	Easement: Congress	E. Lafayette	WMEP 16	731
139	Wyoming Ave.	John C Lodge Fwy.	McNichols	WMEP 16	4108
140	Mackay	McNichols	Nevada	WMEP 16	2559
141	Arlington	McNichols	Nevada	WMEP 16	2454
142	West Parkway	Joy	Van Buren	WMEP 16	750
143	West Parkway	Plymouth	W. Chicago (East Side)	WMEP 16	2550
144	Young Avenue, Dwg 1, 2, 3	Gratiot	Hayes	WMEP 16	5178
145	Cadieux	Harper	E I-94 Exit Ramp	WMEP 16	371
146	S. Fisher Service Dr. & Columbia St	Third St.	Cass	WMEP 16	979
147	Gratiot Ave.	Glenwood Ave.	E. Seven Mile	WMEP 16	1757
148	E. Seven Mile Rd.	Chalmers	Morang	WMEP 16	2630
149	Shelby Ave.	Fort St.	Michigan	WMEP 16	673
150	Beaubien Ave.	Madison Ave.	N. Beacon	WMEP 16	250
151	Winder	Russell	Orleans	WMEP 16	1007
152	Maple	Gratiot	St. Aubin	WMEP 16	2691
153	E. Lafayette	Orleans	Chene	WMEP 16	2717
154	Jefferson Avenue	I-375	Jos Campau	JA 2016	7440
155	Jefferson Avenue	Jos Campau	E. Grand Blvd	JA 2016	10730
156	Jefferson Avenue	E. Grand Blvd	Holcomb	JA 2016	6670
157	Jefferson Avenue	Holcomb	Bentineau	JA 2016	8320
158	Jefferson Avenue	Bentineau	Dickerson	JA 2016	9915
159	Jefferson Avenue	Dickerson	Alter Road	JA 2016	5960
160	Outer Drive E	Mack	Chandler Park	WC 2015	6600
161	Chandler Park	Alter	Dickerson	WC 2015	3696
162	Outer Drive E	I-94/Harper	Hayes	WC 2015	3400
163	Outer Drive E	Hayes	Chalmers	WC 2015	1750
164	Outer Drive E	Chalmers	Gratiot	WC 2015	8350
165	Mound Road	8 mile	6 mile	WC 2015	10560
166	McNichols E	Oakland	Dequindre	WC 2015	3168
167	Conant	Carpenter	Casmere	WC 2015	1584
169	Outer Drive W	Livernois	Wyoming	WC 2015	5200
170	Outer Drive W	Wyoming	W. 7 Mile	WC 2015	6900
172	Outer Drive W	W. 7 Mile	Lodge	WC 2015	3740

Map	Street	Street From	Street To	Data Source	Length
173	Outer Drive W	Lodge	Schaefer	WC 2015	980
176	Outer Drive W	Whitcomb	Greenfield	WC 2015	580
177	Outer Drive W	Greenfield	Southfield	WC 2015	5150
179	Seven Mile W	Livernois	Wyoming	WC 2015	5280
180	Seven Mile W	Wyoming	Outer Drive	WC 2015	3960
181	Lahser	Fenkell	6 Mile	WC 2015	5280
182	Lahser	7 Mile	8 Mile	WC 2015	5280
183	Seven Mile W	Lahser	Telegraph	WC 2015	5280
184	McNichols W	Lahser	Telegraph	WC 2015	5280
185	Fenkell	Wyoming	Schaefer	WC 2015	5280
188	Outer Drive W	W. Chicago	Joy	WC 2015	4040
189	Greenfield	Chicago	Plymouth	WC 2015	2640
190	Tireman	Schaefer	Greenfield	WC 2015	5280
191	Harper	Hayes	E.Outer Drive	DPW 2017	1075
192	James Couzens N/B	Six Mile (McNichols)	Audrey	DPW 2017	11350
193	Pembroke	Southfield s/d	James Couzens	DPW 2017	6846
194	Second	ML King	Forest	DPW 2017	3235
195	Cass	Grand Blvd	Congress	DPW 2017	16564
196	Puritan	Greenfield	Meyers	DPW 2017	7901
197	Trinity (Asp)	Grand River	McNichols	DPW 2017	630
198	Whitcomb (Asp/Conc)	Vassar	Pembroke	DPW 2017	1317
199	St.Marys (Asp)	Chicago	Plymouth	DPW 2017	2584
200	Codding Include intersection @Margareta (Conc)	Grand River	Margareta	DPW 2017	1227
201	Coyle (Asp)	Grand River	Fenkell	DPW 2017	3994
202	Hubbell	Jeffries Fwy	Grand River	DPW 2017	2843
203	Burt Road	Fenkell	Grand River	DPW 2017	4319
204	Evergreen	Clarita	Seven Mile	DPW 2017	836
205	W. Chicago	Spinoza Dr.	Trinity	DPW 2017	440
206	Southfield Service Drive N/B	Chicago	Plymouth	DPW 2017	2550
207	John C Lodge N/B	50' W of Monica	Ohio	DPW 2017	3171
208	John C. Lodge S/B	Wyoming	Monica	DPW 2017	4354
209	Puritan	Livernois	Belden	DPW 2017	1303
210	Elmhurst	Oakman	Jeffries Fwy	DPW 2017	789
211	Beaubien	Mack	Canfield	DPW 2017	2110



Map	Street	Street From	Street To	Data Source	Length
212	Canfield	Beaubien	John R	DPW 2017	1478
213	Alter Rd	E.Jefferson	Klenk Island	DPW 2017	5680
214	St.Jean	Shoemaker	Warren	DPW 2017	1195
215	Joy	Wyoming	Livernois	DPW 2017	5280
216	Schaefer	Lyndon	Outer Drive	DPW 2017	9168
217	Hubbell	Eight Mile	Curtis	DPW 2017	7499
218	Randolph	Gratiot	Centre	DPW 2017	227
219	Evergreen	Pembroke	Eight Mile	DPW 2017	2515
220	Southfield Service Drive S/B	Pembroke	Seven Mile	DPW 2017	2553
221	Joy	Oakman	Decatur	DPW 2017	5283
222	Schoolcraft E/B	W of Riverview	W.of Dolphin	DPW 2017	3983
223	Schoolcraft W/B	Dale	Dolphin	DPW 2017	4314
224	Pontchartrain Blvd	Merrill Plaisance	7 Mile Rd.	DPW 2017	3129
225	Merrill Plaisance	Woodward	Pontchartrain	DPW 2017	4051
226	Plymouth Avenue	Greenfield	Hubbell	DPW 2017	2625
227	W.Grand Blvd (Both Sides)	Grand River	Jeffries Fwy	DPW 2017	589
228	Washington Blvd	W.Jefferson	Grand Circus Park	DPW 2017	3175
229	Clifford Street	Woodward	Bagley	DPW 2017	876
230	Broadway Avenue	Gratiot	Grand River	DPW 2017	445
231	Grand River Avenue	Woodward	Madison	DPW 2017	1283
232	John R Street	E.Adams	Woodward	DPW 2017	1180
233	E. Seven Mile Road	Kelly	Redmond	DPW 2017	984
234	Anthony Wayne Drive	Forest	I-94	DPW 2017	3062
235	Third Avenue	Ledyard	Forest	DPW 2017	5231
236	Mack Avenue	Gratiot	McClellan	DPW 2017	10165
237	St. Antoine Street	Lafayette	Gratiot	DPW 2017	1413
238	Toledo Avenue	Livernois	W. Grand Blvd.	DPW 2017	5962
239	M.L. King Boulevard	14th	Trumbull	DPW 2017	2396
240	Beechdale (Asp)	Wyoming	Mendota	DPW 2017	1143
241	Ardmore (Asp)	W.McNichols	Puritan	DPW 2017	2607
242	Lauder (Asp)	Plymouth	Chicago	DPW 2017	2652
243	Frisbee (Conc)	Telegraph	Appleton	DPW 2017	981
244	Frisbee (Conc)	Northrop	Redfern	DPW 2017	564
245	Mettetal (Asp)	Fenkell	Grand River	DPW 2017	1731
246	Mansfield (Asp)	W.Outer Drive	Santa Maria	DPW 2017	591

Map	Street	Street From	Street To	Data Source	Length
247	Pembroke (Conc)	Lahser	Berg	DPW 2017	2563
248	Mansfield (Asp)	Chicago	Joy Rd	DPW 2017	2586
249	Morley (Asp)	Wyoming	Mendota	DPW 2017	1666
250	Whitcomb (Asp)	Fenkell	Puritan	DPW 2017	2611
251	Burgess (Asp)	Seven Mile	Dead End (N) Hessell	DPW 2017	4618
252	Fenton (Conc)	Grand River	Seven Mile	DPW 2017	671
253	Braile (Conc)	Puritan	Fenkell	DPW 2017	2583
254	Rogge (Asp)	Seven Mile	Bliss	DPW 2017	1300
255	Coram (Asp)	Redmond	Crusade	DPW 2017	1305
256	Redfern (Conc)	Seven Mile	Pembroke	DPW 2017	2544
257	Winston (Conc)	Grand River	W.McNichols	DPW 2017	4579
258	Patton (Asp) Include Intersection @ Puritan	Puritan	Fenkell	DPW 2017	2586
259	Prest (Conc)	Plymouth	Elmira	DPW 2017	859
260	Terry (Conc)	Joy Rd	Ellis	DPW 2017	848
261	Ward (Asp)	W.McNichols	James Couzens	DPW 2017	855
262	Capitol (Asp)	Schaefer	Shirley	DPW 2017	1127
263	Lawton (Asp)	Davison	Glendale	DPW 2017	1120
264	Mendota (Conc)	Santa Maria	Curtis	DPW 2017	1961
265	Castleton(Wpa)	Schaefer	Shirley	DPW 2017	1184
266	Grandview (Conc)	Seven Mile	Frisbee	DPW 2017	2265
267	Trinity (Asp)	Seven Mile	W. McNichols	DPW 2017	5146
268	Lappin (Asp)	Gratiot	Hayes	DPW 2017	2926
269	McNichols	Wyoming	Livernois	DPW 2017	5223
270	Vassar (Conc)	McIntyre	Berg	DPW 2017	1293
271	Lenore (Conc)	Grand River	Seven Mile	DPW 2017	884
272	Wormer (Conc)	Grand River	Seven Mile	DPW 2017	1098
273	Salem (Conc)	Grand River	Margareta	DPW 2017	874
274	Salem (Conc) Include Intersection @Bennett	Bennett	Santa Maria	DPW 2017	892
275	Norfolk (Asp)	@Winston	Intersection	DPW 2017	57
276	Margareta (Conc)	Greyfield	Glenhurst	DPW 2017	349
277	Appleton (Conc)	Verdun	Dead End (S)	DPW 2017	684
278	Dale (Conc)	Vassar	Frisbee	DPW 2017	1268
279	Grayfield (Wpa)	Grand River	Margareta	DPW 2017	1250



Map	Street	Street From	Street To	Data Source	Length
280	Northrop (Conc)	Seven Mile	Frisbee	DPW 2017	2211
281	Trojan (Conc)	Berg	McIntyre	DPW 2017	1413
282	Redfern (Conc)	Eight Mile	Hessell	DPW 2017	412
283	Pierson (Asp)	Grand River	W.McNichols	DPW 2017	937
284	Grandmont (Conc)	W.Chicago	Ellis	DPW 2017	1743
285	Kramer (Conc)	Mansfield	Prevost	DPW 2017	662
286	Forrer (Conc)	W.Chicago	Ellis	DPW 2017	1727
287	Rutherford (Conc)	W.Chicago	Kramer	DPW 2017	2261
288	Prevost (Conc)	Ellis	Joy Rd	DPW 2017	847
289	Winthrop (Conc)	Westfield	Ellis	DPW 2017	1080
290	Forrer (Conc)	Plymouth	Captiol	DPW 2017	1571
291	St.Marys (Asp)	Fenkell	Grand River	DPW 2017	1753
292	Robson (Conc)	Joy Rd	W.Chicago	DPW 2017	2601
293	Lauder (Asp)	Tireman	Joy Rd	DPW 2017	2711
294	Whitcomb (Asp/Conc)	Joy Rd	W.Chicago	DPW 2017	2601
295	Stansbury (Asp)	Lyndon	Intervale	DPW 2017	1282
296	Whitcomb (Asp)	Fenkell	Lyndon	DPW 2017	2653
297	Coyle (Asp)	Florence	W.McNichols	DPW 2017	1792
298	Washburn (Asp)	Schoolcraft	Dead End	DPW 2017	1831
299	Washburn (Asp)	Jeffries	Schoolcraft	DPW 2017	857
300	Manor (Conc) Include intersection	Curtis	Margareta	DPW 2017	1294
301	Santa Clara (Conc)	Wyoming	Pinehurst	DPW 2017	1739
302	Sorrento (Asp)	W.McNichols	James Couzens	DPW 2017	265
303	Addison(Asp/Conc)	Dayton	McGraw	DPW 2017	2079
304	Dayton (Asp)	Lonyo	Addison	DPW 2017	1537
305	Waterman (Asp)	Vernor	Regular	DPW 2017	2342
306	Barlum (Asp)	Livernois	Martin	DPW 2017	1706
307	Daniels (Asp)	Crowley	W.Warren	DPW 2017	516
308	Prairie (Asp)	Warren	Tireman	DPW 2017	2589
309	Wykes (Asp)	Warren	Tireman	DPW 2017	2586
310	Alpine (Asp)	Joy Rd	Tireman	DPW 2017	2607
311	Orangelawn (Asp)	Wyoming	Ohio	DPW 2017	1137
312	Monica (Asp)	Elmhurst	Davison	DPW 2017	3729
313	Greenlawn (Asp)	W.McNichols	Marygrove	DPW 2017	1004
314	Stoepel (Asp)	W.McNichols	Thatcher	DPW 2017	1963
315	Uthes (Asp)	McKinstry	Clark	DPW 2017	407

Map	Street	Street From	Street To	Data Source	Length
316	Brandon (Asp)	Junction	McKinstry	DPW 2017	1307
317	McKinstry (Asp)	Toledo	McMillian	DPW 2017	656
318	Bangor (Asp)	W.Warren	Hancock	DPW 2017	1350
319	Kinsman(Asp)	Scotten	Lovett	DPW 2017	634
320	Lovett (Asp)	Buchanan	Torrey	DPW 2017	2291
321	Rich (Asp)	Scotten	31st	DPW 2017	1644
322	Cascade (Asp)	Boston	Dead End (N.Of Elmhurst)	DPW 2017	2933
323	Cascade (Asp)	Joy Rd	Boston	DPW 2017	1901
324	Seebaldt (Asp)	Jeffries	Northfield	DPW 2017	3608
325	Hubbard (Asp)	Porter	Lafayette	DPW 2017	1037
326	25th (Asp)	Toledo	Vernor	DPW 2017	1231
342	Hogarth (Asp)	Dexter	Holmur	DPW 2017	691
343	Virginia Park (Asp)	Dexter	Grand River	DPW 2017	1909
344	Calvert (Asp)	Linwood	Wildemere	DPW 2017	1713
345	Calvert (Asp)	Dexter	Lawton	DPW 2017	1809
346	Hazelwood (Asp)	Dexter	Quincy	DPW 2017	1198
347	Taylor (Asp)	Linwood	Quincy	DPW 2017	3899
348	Pingree (Asp)	Quincy	Dexter	DPW 2017	1834
349	Cortland (Asp)	Linwood	Lawton	DPW 2017	835
350	Buena Vista (Asp)	Lawton	Linwood	DPW 2017	912
351	Kendall (Asp)	Ewald Circle	Wildermere	DPW 2017	2711
352	W.Grand (Asp)	Linwood	Wildermere	DPW 2017	2660
353	Wildermere (Asp)	Puritan	J.C. Lodge	DPW 2017	1709
354	Belden (Asp)	Puritan	Lodge	DPW 2017	1701
355	Baylis (Asp)	Fenkell	J.C.Lodge	DPW 2017	605
356	Canterbury (Asp)	Warrington	Stratford	DPW 2017	2040
357	Fairfield (Asp)	Seven Mile	Curtis	DPW 2017	2601
358	Pine (Asp)	Rosa Parks	14th	DPW 2017	1101
359	W. Philadelphia (Asp)	Byron	Woodrow Wilson	DPW 2017	864
360	Wabash (Asp)	Ferry Park	W.Grand Blvd.	DPW 2017	419
361	Avery (Asp)	Ferry Park	Marquette	DPW 2017	857
362	Lawrence (Asp)	Rosa Parks	LaSalle	DPW 2017	1355
363	Webb (Asp)	Rosa Parks	LaSalle	DPW 2017	1359
364	Fullerton (Asp)	Linwood	14th	DPW 2017	1940
365	Hague(Asp)	Oakland	John R	DPW 2017	2008
366	Philadelphia (Asp)	Woodward	Oakland	DPW 2017	2686
367	Chandler(Asp)	Oakland	Woodward	DPW 2017	2053



Map	Street	Street From	Street To	Data Source	Length
368	Alger (Asp)	Oakland	John R	DPW 2017	2066
369	Josephine (Asp)	Oakland	John R	DPW 2017	1776
370	Greeley (Asp)	Seven Mile	Nevada	DPW 2017	2745
371	Greeley (Asp)	Nevada	Chrysler Service Drive	DPW 2017	2372
372	Russell (Asp)	Seven Mile	Nevada	DPW 2017	2691
373	Russell (Asp)	Nevada	Chrysler Service Drive	DPW 2017	1432
374	Marx (Asp)	E.McNichols	Nevada	DPW 2017	2450
375	Riopelle (Asp)	Eight Mile	State Fair	DPW 2017	2493
376	Charlevoix (Asp)	Chene	Jos Campau	DPW 2017	884
377	Canton (Asp)	Mack	Vernor	DPW 2017	2645
378	Crane (Asp)	Vernor	Kercheval	DPW 2017	835
379	Iroquois (Asp)	Warren	Gratiot	DPW 2017	1920
380	Sheridan (Asp)	Canfield	Forest	DPW 2017	859
381	Townsend (Asp)	Canfield	Gratiot	DPW 2017	2091
382	Parker (Asp)	Willard	Warren	DPW 2017	567
383	Spencer (Asp)	Eight Mile	Outer Drive	DPW 2017	2471
384	Stotter (Asp)	Eight Mile	Outer Drive	DPW 2017	2458
385	Rogge (Asp)	Hilldale	Seven Mile	DPW 2017	1319
386	Holcomb (Asp)	St.Paul	E.Jefferson	DPW 2017	1089
387	Garland(Asp)	Mack	Charlevoix	DPW 2017	2030
388	Pennsylvania (Asp)	Forest	Canfield	DPW 2017	199
389	Pennsylvania (Asp)	Forest	Warren	DPW 2017	886
390	Cooper (Asp)	Forest	Warren	DPW 2017	907
391	Cairney (Asp)	McClellan	Cooper	DPW 2017	463
392	Veach (Asp)	Eight Mile	Dead End (E)	DPW 2017	1541
393	Goulburn (Asp)	Seven Mile	Eastwood	DPW 2017	654
394	Alcoy(Asp)	State Fair	Fairmont	DPW 2017	658
395	Goulburn (Conc)	Eight Mile	Collingham	DPW 2017	616
396	Essex (Asp)	Ashland	Chalmers	DPW 2017	1335
397	Coram (Asp)	Hayes	Gratiot	DPW 2017	2651
398	Tacoma(Asp)	Hayes	Monarch	DPW 2017	812
399	Lappin (Conc)	Redmond	Kelly	DPW 2017	1285
400	Buckingham (Asp)	E.Warren	Munich	DPW 2017	1336
401	Nottingham (Asp)	Moross	Morang	DPW 2017	2210
402	New York (Asp)	Cadieux	Dead End	DPW 2017	662
403	Marseilles (Asp)	Edsel Ford	Chester	DPW 2017	596

Map	Street	Street From	Street To	Data Source	Length
404	Henderson (Conc)	St.Lawrence	Dead End W of Trenton	DPW 2017	1336
405	Keeler (Wpa)	Prevost	Winthrop	DPW 2017	751
406	Rex (Conc)	Lappin	Liberal	DPW 2017	1005
407	Korte(Asp)	Alter Rd	Dead End (E)	DPW 2017	156
408	Hoyt (Asp)	Eight Mile	Carlisle	DPW 2017	269
409	Fairfax (Asp)	Alter Rd	Grosse Pointe Park Border	DPW 2017	320
410	Verdun (Conc)	Appleton	Riverview	DPW 2017	322
411	Fullerton	Petoskey	Dexter	DPW 2017	1320
412	Harper	Conner	Norcross	DPW 2017	2104
413	McGraw	Braden	Rosa Parks	DPW 2017	13902
414	E.McNichols	Gunston	Gratiot	DPW 2017	5918
415	James Couzens S/B	Prest	Six Mile (McNichols)	DPW 2017	11350
416	Fullerton	50 yds W of Hubbell	Livernois	DPW 2017	12776
417	Oakman Blvd N/B	Joy Road	Tireman	DPW 2017	2605
418	Oakman Blvd S/B	Joy Road	Tireman	DPW 2017	2605
419	Scotten	Jefferson	Michigan Ave?	DPW 2017	9217
420	Spinoza Drive	Tireman	Chicago	DPW 2017	5120
421	Schaefer NB/SB	Seven Mile	James Couzens	DPW 2017	4352
422	Rouge Park Drive	Outer Drive	Outer Drive	DPW 2017	5229
423	Jeffries Fwy W/B	Cheyenne	Wyoming	DPW 2017	5284
424	Linwood	Oakman	Puritan	DPW 2017	4487
425	Cadillac	Harper	Warren	DPW 2017	4390
426	Cadillac	Forest	Mack	DPW 2017	2587
427	Dickerson	E.Outer Drive	Houston Whittier	DPW 2017	3231
428	Chalmers	Harper	Houston Whittier	DPW 2017	6522
429	Hern	Conner	St.Jean	DPW 2017	175
430	W. Jefferson	Clark	Brennan	DPW 2017	13194
431	Charlevoix	Alter	Conner	DPW 2017	5708
432	Dix	Lonyo	Dearborn city limits	DPW 2017	2007
433	Kercheval	Conner	Alter	DPW 2017	5447
434	Vernor	Conner	Alter	DPW 2017	5408
435	McClellan	Forest	Kercheval	DPW 2017	6374
436	Euclid	Dexter	Linwood	DPW 2017	2640
437	Elmhurst	Linwood	Rosa Parks	DPW 2017	2692
438	Conner	Edsel Ford Fwy	Warren	DPW 2017	4143



Map	Street	Street From	Street To	Data Source	Length
439	14th	Grand River	Fisher Service Dr.	DPW 2017	5932
440	Beaubien	Jefferson	Lafayette	DPW 2017	1257
441	Woodmere	Dix	Cabot	DPW 2017	2195
442	Seymour	Kelly	Hayes	DPW 2017	1724
443	Temple (Stadium)	Park (Cass Park?)	Woodward	DPW 2017	3203
444	Junction	St. Hedwig	Vernor	DPW 2017	4286
445	Third	Webb	Chicago	DPW 2017	2527
446	Clairmount	Linwood	Rosa Parks	DPW 2017	2753
447	Chicago	Meyers	Jeffries	DPW 2017	12647
448	Chicago	Hubbell	Greenfield	DPW 2017	2594
449	Tireman	Spinoza Dr.	Evergreen	DPW 2017	3171
450	Elmhurst	Livernois	Dexter	DPW 2017	4118
451	Plymouth	Manor	Wyoming	DPW 2017	4203
452	Schaefer	W/B Jeffries Intersection		DPW 2017	91
178	W. Outer Drive	McNichols	Southfield Fwy.	WMEP 16	3600
190	Tireman	Greenfield	Hubbell	WMEP 16	2705
251	Burgess Ave	Hessel	Pembroke	WMEP 16	1876
416	Fullerton Ave.	Hubbell	Schaefer	WMEP 16	2652
75	Brace Street	Whitlock	Warren	WMEP 16	1300

Table III-5. Data Source codes

Code	Data Source
CIP 2017	FY 2017-2021 CIP Update
JA 2016	2016 Jefferson Avenue Water Main Review
WC 2015	2015 Wayne County Roads with Water-Sewer Analysis
DPW 2017	Pipeline Design Review of DPW 2017 Work
CP16	2016 Capital Projects
DR15	2015 Designs Remaining, Recommended Replacement
SR	Shovel Ready Designs List
WMEP 16	Water Main Evaluation Program 2016

SECTION 2 SEWER

There are 27 projects listed in the Sewer portion of this CIP. This includes 17 Green Infrastructure projects and programs, 7 Field Services projects and programs, and 3 Central Services projects and programs. Following this explanatory portion is a list of the projects with estimated costs, a map displaying locations of Green Infrastructure projects, and descriptive sheets for Green Infrastructure projects.

2.1. Sewer Field Services

DWSD has rehabilitated 15% of the 3,000 miles of sewer infrastructure through non-invasive method of lining. In two previous fiscal years, DWSD the rate of renewal of the sewer infrastructure decreased due to financial constraints. With the execution of the lease agreement with GLWA, DWSD is issuing a new contract valued at \$20 million annually to rehabilitate the sewer system. Tasks are selected for the contractor based on basement back up claims and complaint data, as well as reports of cave-ins and sinkholes. The contractor will inspect via physical or robotic means and provide photo or video evidence of the results. The contractor will also submit a report with recommendations for rehabilitation of the sewer and manholes. DWSD will review all results and reports and issue a notice to proceed with the work as approved by the project engineer.

2.2. CSO Control

Grey CSO Control

GLWA operates all wet weather facilities and associated appurtenances which serve DWSD and other Authority customers. There are 6 retention treatment basins and 3 screening and disinfection facilities. Of these only one facility, the Belle Isle CSO, solely serves the City of Detroit. Any grey CSO control projects will be

found in the GLWA CIP document. DWSD shared of the cost for projects is allocated in the annual charges assigned by GLWA to its customers. DWSD customers pay 83% of the cost for CSO facilities deemed to primarily serve the City of Detroit; with the exception of the Belle Isle CSO facility of which the cost is borne 100% by Detroit ratepayers.

Green CSO Control

In 2008, DWSD was set to construct a tunnel to parallel the Rouge River to provide storage of combined sewage to eliminate untreated discharges. However due to financial constraints, the nearly \$1 billion tunnel project was replaced with a \$50 million GI program. The issuance of the March 2013 NPDES Permit resulted in a commitment by DWSD to implement green infrastructure in the Upper Rouge Tunnel area of Detroit. The permit requires a \$30 million investment by 2019 with the remaining \$20 million investment completed by 2029.

The permit also includes a goal to remove 2.8 million gallons of stormwater from the combined sewer system. To date, projects implemented by DWSD, designed to manage the 2-year, 24-hour event (i.e. 2.34" of rainfall), have removed about 1.5 million gallons of stormwater in the URT. City wide, removal of impervious cover via demolitions and construction of GI practices on private property in conjunction with DWSD projects is estimated to manage approximately 3 billion gallons of stormwater annually.

In previous years, the DWSD CS-1522 GI Program Manager has issued the construction contracts for projects; however, in an effort to meet the spending requirements of the permit, DWSD will bid and award the remaining projects. Descriptions of both active construction projects and those in the design phase which will be procured this fiscal year are provided on the pages that follow.

Figure III-9 highlights the locations of the Green Infrastructure projects included in the 2018-2022 CIP.

2.3. Pump Stations

There are four wastewater pump stations which service the City of Detroit only; (1) Belle Isle, (2) Bluehill, (3) Fischer, and (4) Woodmere.

GLWA operates and maintains these pump stations via a shared service executed with DWSD. At this time, the need for capital investments in these facilities has not been identified. Upon receipt of the annual maintenance report from GLWA, DWSD will determine needs and program projects accordingly.

Table III-6. Sewer Projects

Title	Category*	Status**	Funding Source	Total Estimated Cost	Actual Cost Thru 6/30/2016	Projected Expenditures (\$ Thousands)							2018-2022 CIP Total	% of W CIP	
						FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023			
DWS-899 Emergency Sewer Repair and Rehabilitation	FS	BC	N/A	2,220,761	2,220,761	0	0	0	0	0	0	0	0	0	0.0%
DWS-889 Inspection and Rehab East Side	FS	A	N/A	4,225,950	2,239,847	1,986	0	0	0	0	0	0	0	0	0.0%
DWS-890 Inspection and Rehab Central	FS	A	N/A	4,225,950	3,429,523	796	0	0	0	0	0	0	0	0	0.0%
DWS-900 Inspection and Rehab North Side	FS	A	N/A	4,225,950	831,570	3,394	0	0	0	0	0	0	0	0	0.0%
DWS-901 Inspection and Rehab West Side	FS	A	N/A	4,225,950	2,438,401	1,788	0	0	0	0	0	0	0	0	0.0%
DWS-903 Inspection and Rehabilitation of Sewers City Wide	FS	P	N/A	60,000,000	0	0	20,000	20,000	20,000	0	0	0	60,000	19.8%	
CS-1812 Professional Engineering and Construction Services for Capital Improvement Program Management Organization	FS	A	N/A	200,000,000	0	0	22,500	27,500	37,500	37,500	37,500	37,500	162,500	53.7%	
CS-1522 Green Infrastructure Program Management	GI	A	N/A	6,400,000		1,200	1,750	1,750	500	0	0	0	4,000	1.3%	
Stoepel Park No. 1	GI	C	CS-1522	670,000		639	0	0	0	0	0	0	0	0.0%	
Crowell Rec Center and EcoSite Modifications	GI	P	CS-1522	900,000	0	300	600	0	0	0	0	0	600	0.2%	
Constance Sewer (PW-6968)	GI	C	N/A	500,000		250	0	0	0	0	0	0	0	0.0%	
Tireman Phase II Bioswale	GI	A	CS-1522	560,000		280	0	0	0	0	0	0	0	0.0%	
Constance at Rouge Park	GI	N	N/A	2,000,000	0	0	1,000	1,000	0	0	0	0	2,000	0.7%	
Oakman Blvd	GI	N	N/A	4,600,000	0	0	3,000	1,600	0	0	0	0	4,600	1.5%	
Vacant Lot Bioretention	GI	N	N/A	900,000	0	100	800	0	0	0	0	0	800	0.3%	
Liuzzo Park	GI	C	CS-1522	420,000	0	420	0	0	0	0	0	0	0	0.0%	
O'Shea Park	GI	P	N/A	600,000	0	0	600	0	0	0	0	0	600	0.2%	
Joy Rd. Drainage Improvements	GI	N	CS-1522	225,000	0	0	225	0	0	0	0	0	225	0.1%	
Orangelawn Street	GI	N	N/A	3,500,000	0	0	1,000	2,500	0	0	0	0	3,500	1.2%	
Tireman-Sawyer Phase III	GI	N	N/A	3,000,000	0	0	1,000	2,000	0	0	0	0	3,000	1.0%	
Pervious Pavement Projects & Tireman Phase I PW-6968	GI	C	CS-1522	2,100,000		1,100	0	0	0	0	0	0	0	0.0%	



Title	Category*	Status**	Funding Source	Total Estimated Cost	Actual Cost Thru 6/30/2016	Projected Expenditures (\$ Thousands)							2018-2022 CIP Total	% of W CIP
						FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023		
Charles H. Wright Academy	GI	N	N/A	750,000	0	0	750	0	0	0	0	0	750	0.2%
Luddington Middle School	GI	N	N/A	500,000	0	0	500	0	0	0	0	0	500	0.2%
Undesignated Green Infrastructure	GI	N	N/A	12,000,000	0	0	1,000	5,500	5,500	10,000	10,000	0	32,000	10.6%
Vehicle, Heavy Equipment, and Equipment Purchases	CS	A	N/A	13,545,000		1,545	2,000	2,000	2,000	2,000	2,000	2,000	10,000	3.3%
Information Technology	CS	A	N/A	7,000,000		950	875	793	1,993	120	1,000	1,000	4,780	1.6%
Facility Improvement Allowance	CS	A	N/A	15,500,000		500	2,500	2,500	2,500	2,500	2,500	2,500	12,500	4.1%

*FS = Field Services, GI = Green Infrastructure, GP = General Purpose, CS = Central Services **BC = Being Closed, C = Closed, A = Active, P = Procurement, N = New, H = On Hold

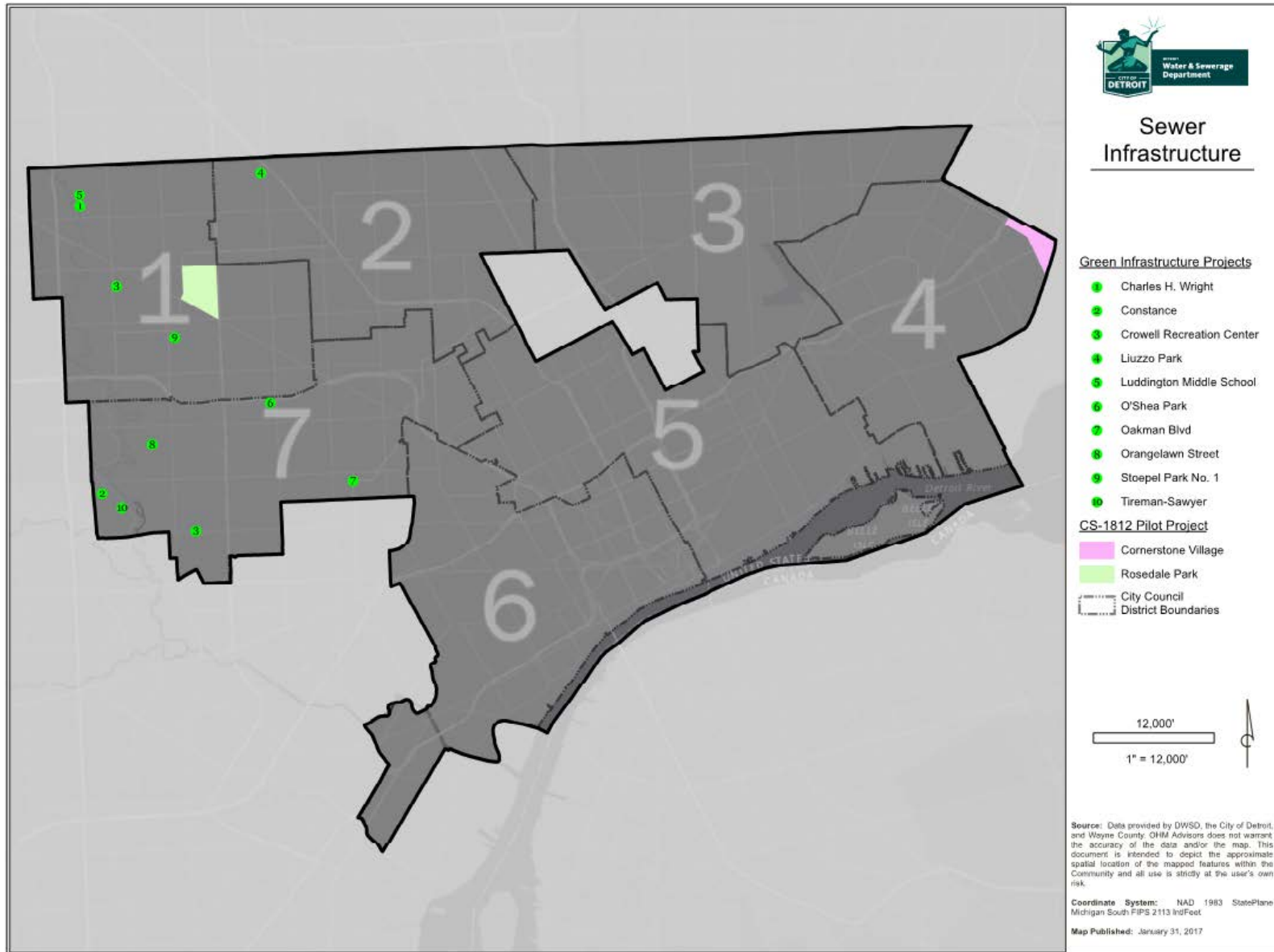


Figure III-9. Map of sewer projects in 2018-2022 CIP for Green Infrastructure

CIP #XX

Stoepel Park No. 1 Green Infrastructure

Status: Active/Contract No. CS-1522

Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: NE section of Brightmoor Neighborhood

Driver: DWSD NPDES Permit No. MI0022802

Preliminary Scope of Work: Design and construct two pocket bioretention practices to manage runoff from areas along Westwood Street. Replaced paved parking lot with a permeable parking lot constructed of open-graded aggregate to reduce runoff.

Challenges: N/A



Project Cost Estimates

Type	Description	Status	D-Design C- Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Thousands)					
								2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21
Sewer(G)	Stoepel Park No. 1	Active	C	8	6/1/16	12/31/16	\$670,000	\$31	\$639				

CIP#XX

Crowell Rec Center and EcoSite Modifications

Status: New

Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: Riverdale neighborhood (Crowell) and Warrensdale neighborhood (EcoSites)

Driver: DWSD NPDES Permit No. MI0022802

Preliminary Scope of Work: For Crowell, permeable block pavement installed in the center parking spaces and two bioretention islands to collect runoff within and tributary to the north parking lot and the south parking lot. For EcoSites, modify 2 of 4 initial designs to divert runoff from opposite side of the street into bioretention cells to double the tributary area at a reasonable cost.

Challenges: This project will be bid and awarded by DWSD. Movement of the procurement process may result in a 2 month delay to issue notice to proceed due to required approvals by either the City of Detroit Financial Review Commission, Detroit City Council or the Board of Water Commissioners, which is dependent upon the contract value and duration.

Project Cost Estimates

Type	Description	Status	D-Design C- Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Thousands)						
								2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21	
Sewer(G)	Crowell Rec Center and EcoSite Modifications	Procurement	C	10	4/1/2017	12/31/2017	\$900,000		\$300	\$600				

CIP#XX

Constance Sewer (PW-6968)

Status: Active/Contract No. PW-6968

Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: Constance Street (from Beaverland Street to Parkland Street)

Driver: DWSD NPDES Permit No. MI0022802

Preliminary Scope of Work: Installed new storm pipes on to intercept storm water before it drains to the combined sewer, in coordination with DPW road resurfacing.

Challenges: N/A



Project Cost Estimates

Type	Description	Status	D-Design C- Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Thousands)						
								2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21	
Sewer (G)	Constance Sewer (PW- 6968)	Active	C	9	5/1/2016	12/31/2016	\$500,000	\$250						

CIP#XX

Tireman Phase II Bioswale

Status: Active/Contract No. CS-1522

Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: Tireman Avenue (Parkland to Outer Drive)

Driver: DWSD NPDES Permit No. MI0022802

Preliminary Scope of Work: Installed bioswales to divert runoff from Tireman.

Challenges: N/A



Project Cost Estimates

Type	Description	Status	D-Design C- Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Thousands)						
								2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21	
Sewer(G)	Tireman Phase II Bioswale	Active	C		7/1/2015	6/30/2017	\$560,000	\$280	\$280					

CIP#XX

Constance at Rouge Park

Status: New

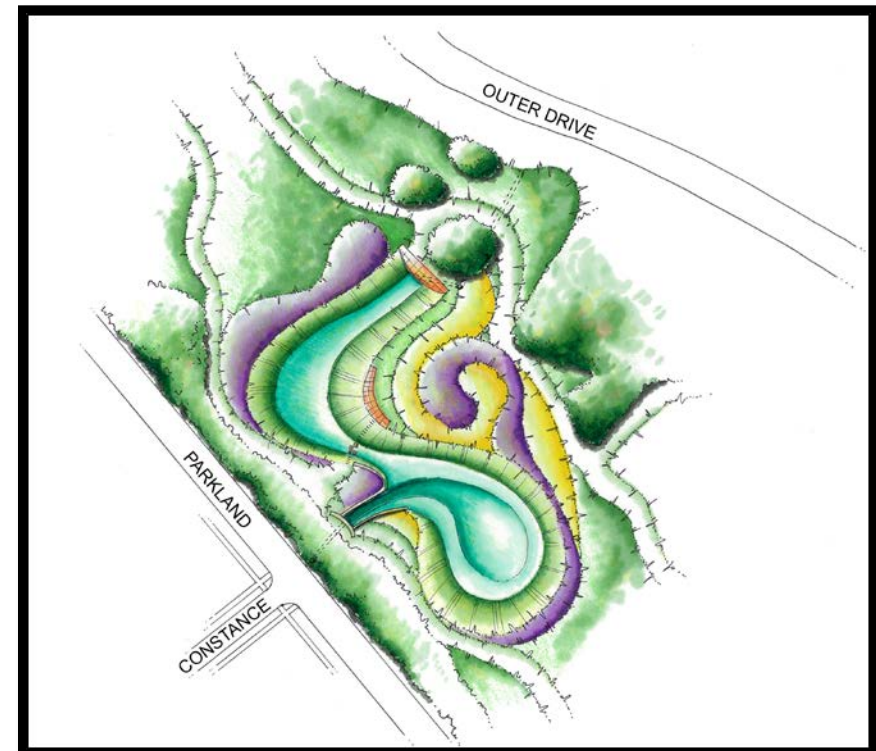
Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: Constance Street (west of the Rouge River from Parkway Street to Outer Drive)

Driver: DWSD NPDES Permit No. MI0022802

Preliminary Scope of Work: Install bioswales to divert runoff from Tireman into Rouge Park.

Challenges: This project will be bid and awarded by DWSD. Movement of the procurement process may result in a 2 month delay to issue notice to proceed due to required approvals by either the City of Detroit Financial Review Commission, Detroit City Council or the Board of Water Commissioners, which is dependent upon the contract value and duration.



Project Cost Estimates

Type	Description	Status	D-Design C- Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Thousands)					
								2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21
Sewer(G)	Constance at Rouge Park	Procur ement	D/C	19	7/1/2017	12/31/2018	\$2,000,000			\$1,000	\$1,000		

CIP#XX

Oakman Blvd

Status: New

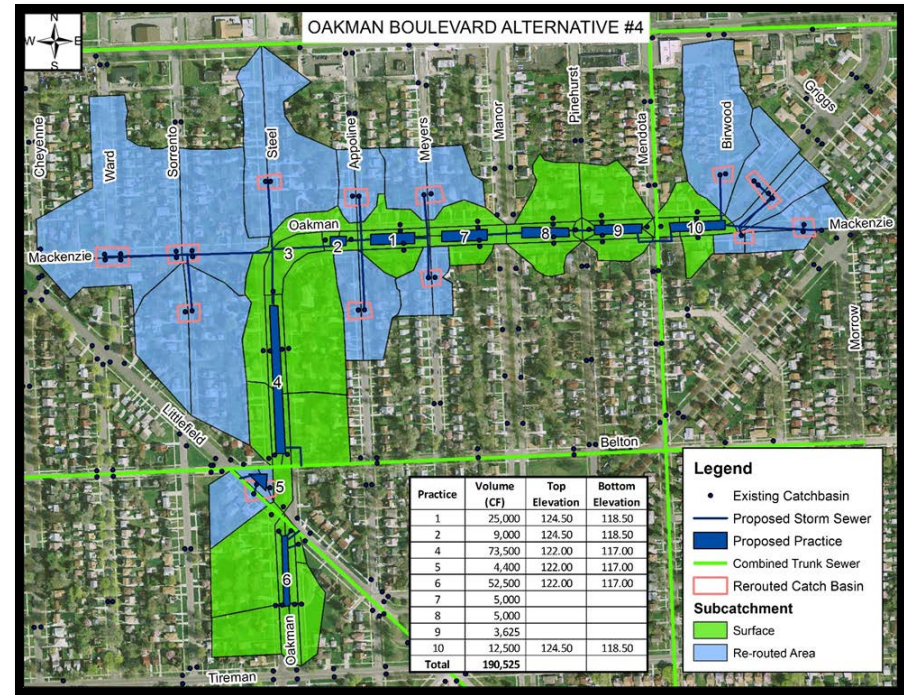
Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: Aviation neighborhood

Driver: DWSD NPDES Permit No. MI0022802; basement back-ups

Preliminary Scope of Work: Design and construct series of bioretention and underground storage practices within the median to manage runoff from 62.5 acres.

Challenges: This project will be bid and awarded by DWSD. Movement of the procurement process may result in a 2 month delay to issue notice to proceed due to required approvals by either the City of Detroit Financial Review Commission, Detroit City Council or the Board of Water Commissioners, which is dependent upon the contract value and duration.



Project Cost Estimates

Type	Description	Status	D-Design C-Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Millions)						
								2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
Sewer (G)	Oakman Blvd Phase I	Procurement	D/C	19	7/1/2017	12/31/2018	\$4,600,000			\$3,000	\$1,600			

CIP#XX

Vacant Lot Bioretention

Status: New

Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: URT

Driver: DWSD NPDES Permit No. MI0022802

Preliminary Scope of Work: Additional opportunity locations for installing bioretention systems on vacant lots (similar to 4 existing EcoSites) that capture and store road runoff have been identified in FY2016 and are under final review and selection in FY2017. Selected locations based on where two or more adjacent parcels were vacant, proximity to catch basins, and neighborhood vacancy classification. These additional locations are owned by either the DLBA or Grandmont Rosedale Development Corporation (GRDC).

Challenges: This project will be bid and awarded by DWSD. Movement of the procurement process may result in a 2 month delay to issue notice to proceed due to required approvals by either the City of Detroit Financial Review Commission, Detroit City Council or the Board of Water Commissioners, which is dependent upon the contract value and duration.

Project Cost Estimates

Type	Description	Status	D-Design C- Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Millions)					
								2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21
Sewer (G)	Vacant Lot Bioretention	Procurement	C	14	5/1/2017	6/30/2018	\$900,000		\$100	\$800			

CIP#XX

Liuzzo Park

Status: Active/Contract No. CS-1522

Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: Winthrop and Trojan

Driver: DWSD NPDES Permit No. MI0022802

Preliminary Scope of Work: Design and construction of three separate surface bioretention practices to manage diverted runoff from the existing roads on the north and east sides of the park, as well as within the park.

Challenges: N/A



Project Cost Estimates

Type	Description	Status	D-Design C-Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Thousands)					
								2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21
Sewer (G)	Liuzzo Park	Active	C	4	7/1/2016	10/30/2016	\$420,000	\$ -	\$ 420				

CIP#XX

O'Shea Park

Status: New

Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: Greenfield Road and I-96

Driver: DWSD NPDES Permit No. MI0022802

Preliminary Scope of Work: Design and construction of approximately 14,000 square feet of bioretention basins; will capture majority of the flow along Capitol Street and a smaller basin located near the existing building onsite.

Challenges:



Project Cost Estimates

Type	Description	Status	D-Design C- Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Thousands)						
								2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21	
Sewer (G)	O'Shea Park	Procurement	C	6	6/1/2017	12/31/2017	\$600,000			\$600				

CIP#XX

Orangelawn

Status: Active/Contract No. CS-1522

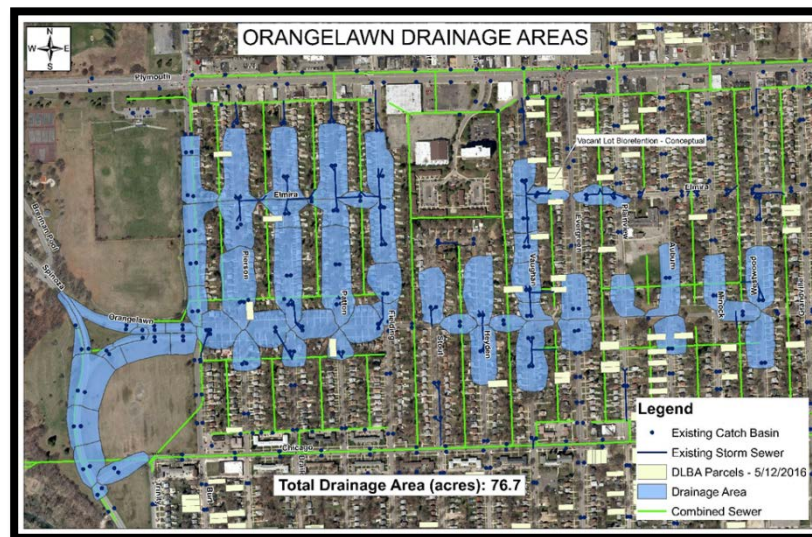
Significance: Reduce volume to URT (outfalls 059-69, 072-075, 077, 079)

Location: Between Plymouth and West Chicago immediately east of Rouge Park

Driver: DWSD NPDES Permit No. MI0022802

Preliminary Scope of Work: Neighborhood scale project draining approximately 77 acres with green infrastructure conceptual alternatives ranging from bioretention to partial separation with a more centralized storm water management practice.

Challenges:



Project Cost Estimates

Type	Description	Status	D-Design C- Construction	Duration (months)	Start Date	Finish Date	Total Estimated Cost	Projected Expenditures by Fiscal Year (Thousands)					
								2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21
Sewer(G)	Orangelawn Street	Procurement	C	10	4/1/2018	12/31/2018	\$3,500,000	\$ -	\$ -	\$1,000	\$2,500		

SECTION 3 CENTRAL SERVICES

There are six projects in the Central Services category. These are included in the Water and Sewer budgets, but are also shown here.

3.1. Information Technology

The Chief Information Officer has identified the need for a variety of projects related primarily to the bifurcation of DWSD and GLWA over the next five years. Additional projects may be added based on the development of an asset management program and new construction management program that may use software not in use by DWSD today. These needs will be identified in the CS-1812 CIPMO work. Expenditures for information technology are allocated equally to the water and sewer systems.

3.2. Fleet and Heavy Equipment

To improve the level of service for its customers, DWSD is required to continually update its fleet and heavy equipment. DWSD is evaluating the cost/benefit of leasing or purchasing rolling stock in a variety of categories. In addition, work completed by the Field

Services Program Manager under Contract No. 51130 may identify other types of equipment not currently used by DWSD that will be necessary to improve customer service. Expenditures for fleet and heavy equipment are allocated based on their use.

3.3. Facilities

DWSD is responsible for operating and maintaining five facilities: (1) Central Services Facility, (2) Eastside Customer Service Center, (3) Westside Customer Service Center, (4) West Yard, and the (5) Water Board Building. All of these facilities are in need in of major capital improvements which range from elevator upgrades, roof replacement, or perimeter security enhancements. DWSD is in the process of executing an agreement with the Detroit Building Authority to develop the scope of work and execute the implementation of these improvements. In this approach, all facilities will be evaluated a list of projects with priority identified for programming in the CIP.

Table III-7. Centralized Services Projects

Title	Category*	Status**	Funding Source	Total Estimated Cost	Actual Cost Thru 6/30/2016	Projected Expenditures (\$ Thousands)							2018-2022 CIP Total	% of W CIP
						FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023		
Water - Information Technology Program	IT	A	N/A	7,000,000	0	950	875	793	1,993	120	1,000	1,000	4,780	1.4%
Water - Vehicle, Heavy Equipment, and Equipment Purchases	FL	A	N/A	12,259,000	0	259	2,000	2,000	2,000	2,000	2,000	2,000	10,000	3.0%
Water - Facility Improvement Allowance	FA	A	N/A	14,000,000	0	500	2,500	2,500	2,500	2,000	2,000	2,000	11,500	3.4%
Sewer - Vehicle, Heavy Equipment, and Equipment Purchases	FL	A	N/A	13,545,000	0	1,545	2,000	2,000	2,000	2,000	2,000	2,000	10,000	3.3%
Sewer - Information Technology	IT	A	N/A	7,000,000	0	950	875	793	1,993	120	1,000	1,000	4,780	1.6%
Sewer - Facility Improvement Allowance	FA	A	N/A	15,500,000	0	500	2,500	2,500	2,500	2,500	2,500	2,500	12,500	4.1%

*IT = Information Technology, FL = Fleet, FA = Facilities

**C = Closed, A = Active, P = Procurement, N = New, H = On Hold

IV. APPENDICES

APPENDIX A – CS-1812 RFP

APPENDIX B – PROJECT PROPOSAL TEMPLATE



DETROIT
**Water & Sewerage
Department**

2018-2022 CIP Report

Appendix A:

CS-1812 RFP



City of Detroit - Detroit Water & Sewerage Department
Purchasing Division - Request for Proposal

CAPITAL IMPROVEMENT PROGRAM MANAGEMENT ORGANIZATION
RFP # CS-1812

ADVERTISE DATE	July 22, 2016 on Michigan Intergovernmental Trade Network ("MITN") Website (www.mitn.info)
QUESTION DEADLINE	August 5, 2016 Submitted via email (no phone calls) to the attention of: Roderick French City of Detroit, Water Sewerage Department Purchasing E-mail: dwsd-contracts@detroitmi.gov
PRE-PROPOSAL CONFERENCE	Mandatory August 15, 2016 at 2:00 PM Eastern Standard Time DWSD Huber Facility - Human Resources Building 2nd Floor Training Room 6425 Huber Street Detroit, MI 48211-1677 or Conference call-in if cannot attend in person: 855-650-4133; Code: 55742
SITE VISIT	Optional visit of co-location site at Huber after Pre-Proposal Conference August 15, 2016 at 4:00 PM Eastern Standard Time
PROPOSAL DUE DATE	September 2, 2016 at 4:00 PM Eastern Standard Time MITN Website (www.mitn.info) MITN will not allow proposals to be uploaded after this date and time
PUBLIC RECORDING	As shown on MITN upon deadline for Proposal Due Date

OVERVIEW

Detroit Water and Sewerage Department ("DWSD") is issuing this request for proposal for professional engineering and construction services for a Capital Improvement Program Management Organization ("CIPMO"). DWSD requests written proposals from professional engineering and construction management firms to evaluate the existing capital improvement program ("CIP") and develop recommendations using an asset management approach for the replacement and rehabilitation of the water distribution and sewer collection system in the City of Detroit. The CIPMO shall develop and manage the CIP, as well as procure the professional engineering and construction services needed to implement the CIP.

This request for proposal is publicly available at the Michigan Intergovernmental Trade Network (www.mitn.info). The Great Lakes Water Authority ("GLWA") will be separately contracting for capital program management services later this year or early 2017. Bidders interested in both RFPs are requested to respond to DWSD's RFP now.



Detroit Water & Sewerage Department

REQUEST FOR PROPOSAL

DWSD RFP #: CS-1812

**Professional Engineering and Construction Management Services for a
Program Management Organization to Manage the
Capital Improvement Program**

TABLE OF CONTENTS

1. Executive Summary	4
a. Background	4
b. Capital Improvement Program Management Organization	5
c. Reporting Structure and Authorities	6
d. Carve-Out to CIPMO Responsibilities	6
e. Expected Timeline to Launch	7
f. Alternate Proposals	7
2. Scope of Work	8
a. Background	8
b. Contract Term	9
c. Program Timeline	10
d. Task Descriptions	10
i. Program Administration	10
ii. Pilot Program	16
iii. Advanced Metering Infrastructure	18
iv. Asset Management Driven Prioritization	19
v. CIP Document	22
vi. CIP Implementation	23
vii. Water and Sewer Standards and Policies Update	25
viii. Sustainable Program Implementation	27
ix. As-Needed Assistance	29
e. Contract Deliverables	29
f. Contract Reporting Requirements	30
g. Self-Performance	31
3. DWSD and CIPMO Roles, Responsibilities and Authorities	31
a. Tasks and Responsibilities Chart	31
b. Table of Authorities	33
c. Legal and Reporting Structure of CIPMO	33
d. Auditing Rights	33
4. Co-Location and Equipment Related Matters	34
5. CIPMO and Subcontractor Invoicing and Payment Terms	34
a. CIPMO	34
b. Subcontractors (Design and Construction)	34
c. DWSD Payment Terms	34
6. DWSD – GLWA Key Dates Summary	35
7. RFP Timeline	36
a. Question Deadline	36
b. Question Responses	36
c. Pre-Proposal Conference	36
d. Site Tour	37
e. Proposal Deadline	37
8. RFP Submission Requirements	37

a. No Communication with DWSD.....	37
b. Submission of Proposal.....	37
c. Preparation of Proposal.....	38
d. Proposal Format and Contents.....	38
e. Page and Font Size Limitations.....	39
f. Letter of Transmittal.....	39
g. Minimum Requirements.....	39
h. Technical Proposal Submission Requirements.....	40
i. Alternate Proposals.....	42
j. Fee Proposal Submission Requirements.....	42
k. Equal Employment Opportunity/Anti-Discrimination Statement.....	45
l. Conflict of Interest Statement.....	45
m. Local Economic Development Data.....	45
n. Financial Capability.....	45
9. Evaluation Process.....	45
a. Round I Evaluation Criteria.....	46
b. Shortlisting of Bidders.....	46
c. Interview Process (Presentations/Webinars).....	47
d. Round II Evaluation.....	47
e. Round II Evaluation Criteria.....	48
f. Final Negotiation.....	48
10. Other RFP & Contractual Matters.....	49
a. Sample DWSD Standard Form of Contract for Consulting Services.....	49
b. Insurance Requirements.....	49
c. Bond Requirements.....	49
d. Addendums.....	49
e. Reference Information.....	49
f. Related Projects Currently Underway or Planned.....	50
g. Dissemination of Information.....	51
h. Errors and Omissions.....	51
i. Sales Tax.....	51
j. Compliance with All Laws.....	51

LIST OF APPENDICES

	<u>Appendix #</u>
Pricing Forms.....	I
City of Detroit and BOWC Standard Form of Contract for Engineering Consultant Services.....	II
Local Economic Development Data.....	III
Detroit-Based Business Questionnaire Form.....	IV
Detroit City Code Section 2-106 Standards of Conduct.....	V
Detroit BOWC Policy Regarding Design Compensation for Consultants.....	VI
Clearance Package.....	VII

1. EXECUTIVE SUMMARY:

a. Background

Effective January 1, 2016, the Detroit Water and Sewerage Department (“DWSD”) became solely focused on retail water and wastewater utility service delivery in the City of Detroit (“City”) through the establishment of, and agreements with, the Great Lakes Water Authority (“GLWA”). GLWA has leased the regional facilities from the City for forty years (“Lease Agreement”) and will pay the City a lease payment of \$50 million per year (“Lease Payment”). Under the terms of the Lease Agreement:

- DWSD is responsible for operating and maintaining approximately 6,000 miles of water and sewer piping networks, which includes approximately 95,000 catch basins for roadway drainage, 34,000 sewer manholes, 30,000 fire hydrants and 40,000 valves, as well as development and maintenance of green infrastructure projects.
- GLWA is responsible for operating, maintaining and renewing water treatment facilities, water pumping stations (including operation, but not renewal, of the four pump stations that service Detroit water only), the water transmission network (all pipes greater than or equal to 24 inches), the wastewater treatment facility, combined sewer overflow facilities, sewage pumping stations and sewage collection networks which serves Southeastern Michigan.

The Lease Payment to the City must be used for the purpose of funding capital improvements to DWSD’s retail system and/or to make payments on bonds issued to fund capital improvements for this same purpose. The Lease Payment may also be used to fund DWSD’s share of improvements to the regional system. The Lease Payments represent a source of funds for DWSD to plan and invest in its infrastructure.

DWSD plans to develop a capital improvement program (“CIP”) for the next five years that could be in the range of \$300 to \$400 million to accelerate the pace of infrastructure renewal. In fact, the CIP is a major component of the City’s larger capital investment strategy designed to:

- Renew and rehabilitate Detroit infrastructure and neighborhoods.
- Reconfigure systems to reflect demographic trends and emerging urban plans.
- Re-landscape the urban environment to embrace the “greening of Detroit”.

A centerpiece of the CIP is the development of a program management organization with responsibility to coordinate and execute capital project planning and implementation across multiple agencies responsible for infrastructure and community development. The purpose of this RFP is to select a professional engineering and construction management firm (“Winning Bidder”) that can develop the PMO, lead water systems renewal and support the redevelopment of Detroit.

b. Capital Improvement Program Management Organization

DWSD’s Capital Improvement Program Management Organization (“CIPMO”) will be integrated and co-located with, and complementary to, DWSD staff and have direct responsibility for prioritizing, evaluating, preparing, coordinating, executing, tracking and documenting all DWSD capital improvement projects. The CIPMO will have responsibility for effectively and efficiently managing the life-cycle of capital projects – from conception and planning through close-out, operational testing and certification – with the goals of implementing and completing projects safely, on budget, on schedule and with a high degree of quality.

The CIPMO will be structured to ensure effective support of several high-priority DWSD initiatives including:

- Establishing/enhancing a strong safety program and having a culture that reflects a focus on rules, regulations and customer service.
- Implementing a program that will facilitate lead service line (“LSL”) replacements for both water and sewer under alternative financing arrangements and, for example, call for revised construction practices to notify customers of potential for lead particulate release.
- Advancing stormwater management through implementation of green infrastructure measures incentivized by an updated drainage charge and new credit program for managing stormwater and in coordination with TetraTech through its existing green infrastructure program.
- Enhancing quality, cost and timing of delivering system upgrades and rehabilitation.

DWSD delivers infrastructure projects utilizing numerous funding sources, including the Lease Payments, system generated cash, revenue bonds, State Revolving Funds (“SRF”) and grants. DWSD also partners with other government entities, community organizations and corporations such as Department of Public Works (“DPW”), Planning and Development Department (“PDD”), Housing and Revitalization Department (“HRD”), Detroit Building Authority (“DBA”), Detroit Economic Growth Corporation (“DEGC”), DTE Energy (“DTE”), Wayne County and the State of Michigan.

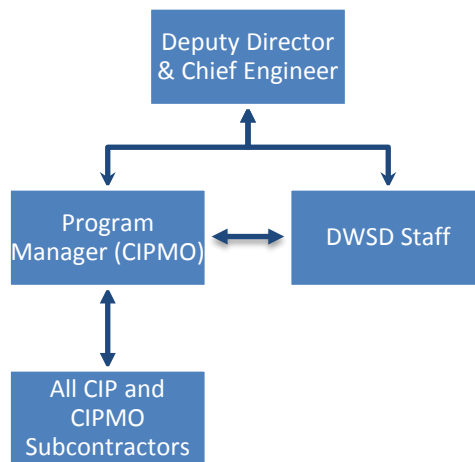
DWSD intends to engage a professional engineering and construction management services firm to develop and manage the CIPMO. The CIPMO will co-locate in DWSD’s facility on Huber Avenue in Detroit to integrate and work cohesively with DWSD staff to effectively leverage the respective skills and experience of each organization. DWSD will provide office space (offices as well as open bullpen area), utilities, internet service and limited office furniture (desks and chairs). The Winning Bidder will provide labor, materials, transportation, tools, modular office stations (if desired) and other equipment necessary to provide for the work required under the contract.

The CIPMO contract is expected to run five years with two one-year optional extensions. Over the course of the Contract Term (defined below), the Winning Bidder is expected to assist DWSD in building its internal capabilities with industry best practices and

systems. Knowledge transfer and staff development is fundamental to program success, with the objective of transitioning the CIPMO back to DWSD by the end of the Contract Term. These transitioning responsibilities would include training and, to the extent necessary, hiring permanent DWSD staff to carry on the work.

c. Reporting Structure and Authorities

With the intent to co-locate the CIPMO with the DWSD team for increased program efficiency, communication and responsiveness, clear lines of responsibility and authority will need to be established and maintained between the groups as shown below.



The CIPMO will report directly to the Deputy Director/Chief Engineer and will work closely with, but will not manage or have authority over, DWSD staff. The CIPMO, however, will have authority over all of the subcontractors engaged to effectuate the CIP and other responsibilities of the CIPMO. DWSD staff (including engineering, technicians and inspectors) will largely provide an oversight role and direction, where appropriate, subject to the responsibility carve-outs discussed in the following section.

d. Carve-Outs to CIPMO Responsibilities

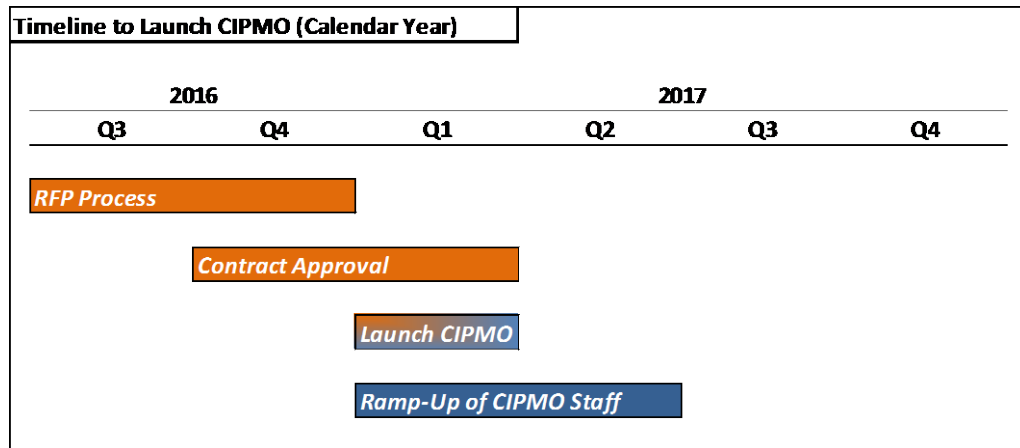
Four exceptions exist to the CIPMO responsibilities related to the CIP, as discussed below:

- Green infrastructure – likely to be managed by TetraTech through its existing contract with DWSD (although the CIPMO will need to coordinate closely with TetraTech).
- DWSD’s share of GLWA projects – may be managed by DWSD staff and/or assigned to the CIPMO at the time.
- Emergency CIP work – will be managed by DWSD in its ordinary course of responding to emergency needs.

- Maintenance and repair operations – DWSD is in the process of retaining a vendor to manage the maintenance and repair operations. As such, maintenance and repair operations are not part of the CIPMO.

e. Expected Timeline to Launch

The RFP process is expected to include solicitation of responses from interested professional engineering and construction management service firms (“Bidders”) during calendar year Q3 2016, with the evaluation and selection process being completed in calendar year Q4 2016. The objective is to have a contract approved through City Council, Board of Water Commissioners (“BOWC”) and the Financial Review Commission no later than mid-January 2017, to allow for the selected firm to quickly launch the CIPMO and begin a pilot program. To the extent feasible, the CIPMO will support finalization of the five-year CIP during the three month review period with GLWA beginning February 1st.



f. Alternate Proposals

Although Bidders must be responsive to the requirements of the RFP, Bidders are also requested to provide options and/or alternatives that could better utilize the available funds, reduce the critical path process, or otherwise provide tangential economic benefit to the City that may not have been contemplated up to this point.

By way of example only, Bidders may want to propose options (a) where design-build may be an effective alternative to design-bid-build, (b) to speed the procurement process through (i) assignment or bid parameters or (ii) blanket-and-release purchase orders, (c) for development of a disadvantaged business incubator, (d) with unique organizational structures, (e) with creative contracting options, (f) with unique approaches to risk management or (g) where the City may benefit economically from tangential paths that are not yet visible. Additionally, Bidders are encouraged to propose an incentive (and penalty) structure based on Key Performance Indicators (“KPIs”). DWSD is open to providing incentives for performance.

Bidders should inform DWSD of capabilities to utilize e-Builder (or similar type software) with (a) real-time input, access to data and reporting and (b) subcontractor access for

self-reporting, invoicing, and other data input (subject to CIPMO verification) from the field to advance the City's technology and processes to modern day techniques.

Bidders are encouraged to be creative and thoughtful in providing alternate proposals to DWSD for consideration. ***Alternate proposals will be subject to Round II evaluation following the interview process*** (see Round II Evaluation Process in section 9.d. and 9.e. for further detail).

2. SCOPE OF WORK:

a. Background

The initiation and execution of projects under this CIPMO should be prioritized to effectively and efficiently improve customer service and renew and rehabilitate Detroit's retail system infrastructure. The department anticipates the total program investment to be in the range of \$300 to \$400 million over the next five years. The scope of work that follows envisions a programmatic approach to renew and rehabilitate the water and sewer infrastructure in the City. Areas that have been identified for investment through previous planning efforts will be prioritized and a comprehensive assessment will be performed to implement water and sewer capital infrastructure solutions that (1) reduce non-revenue water, (2) minimize dry weather inflow and infiltration, (3) improve management of storm water, (4) reduce incidences of water main breaks and flooding, and (5) coordinate activities with the overall revitalization of Detroit. Solutions that utilize the latest infrastructure system innovations to reduce costs and improve service are encouraged.

Historical investments to renew the aging infrastructure for the water distribution and sewer collection networks in the City have not met industry standards. There are approximately 2,700 miles of water distribution mains in the City, of which approximately 15% have been replaced since original installation. The number of breaks in the water distribution system in the last five years has averaged 1,500 per year. The average age of existing water main is 95 years. All of this points to the need for renewal or replacement of pipe and associated appurtenances. Population loss from the City also raises the question of how best to reduce the size of the system while improving service levels. Analysis from the 2015 Water Master Plan estimated that the City may be able to reduce the total water distribution main infrastructure from 2,700 miles to 2,000 miles.

Similarly, the number of reports for sinkholes and cave-ins associated with defects in the sewer infrastructure has averaged about 200 per year over the last five years. The structural condition of sewer infrastructure, averaging 95 years of age, requires significant rehabilitation to prevent even more costly repairs and claims due to possible collapses. For more than 20 years, DWSD has lined sewers to increase capacity, reliability, and structural integrity. There are approximately 3,000 miles of sewers of which nearly 15% have been rehabilitated or reconstructed by lining. However, there may be instances in which new sewers need to be constructed for a variety of reasons including original sewers being undersized or changes in the City's master plan. In addition, where feasible, incorporating green infrastructure alternatives to minimize the

volume of storm water entering the combined sewer system should be evaluated. The Winning Bidder will coordinate all green infrastructure concepts/projects with the ongoing CS-1522 Green Infrastructure Program managed by TetraTech (for further information see Reference Information in section 10.e.iii.).

The CIPMO will coordinate the CIP with City, county, and state agencies, the DWSD green infrastructure program, utility agencies (DTE, Comcast, AT&T, etc.), other community development organizations, and the GLWA. The CIPMO will develop projects that align with infrastructure investments planned in the public and private sectors to maximize the total return on investment for capital expenditures. Integrated planning and coordination is essential for the CIPMO to be successful.

This RFP for a CIPMO is intended to produce a systematic engineering and construction program delivery solution that incorporates program management functions for the improved water and sewer services to DWSD customers in a manner that is fiscally responsible. The RFP is also intended to proactively address identified problems, determine the value of proposed projects, define scopes of work with major deliverables, identify how responsibilities will be organized for each project and provide scheduling and cost estimation. The Winning Bidder shall serve as the single point of responsibility, aligning the efforts of various designers, contractors and other parties to the DWSD CIP goals and standards.

DWSD has identified a Pilot Program (defined below in section 2.d.ii.) for implementing the water and sewer system renewal and rehabilitation. Alternative ideas and approaches are welcomed for consideration in the Pilot Program.

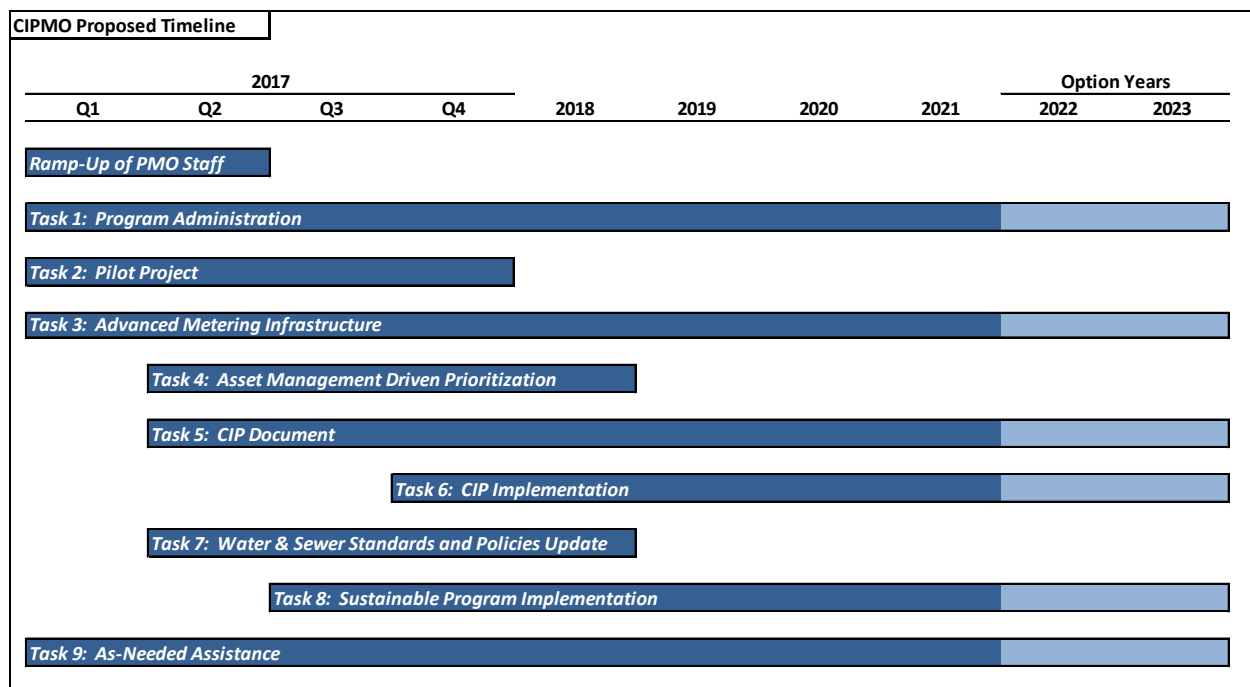
b. Contract Term

The CIPMO contract is expected to run for five years with two one-year optional extensions (“Contract Term”) whereby both parties would need to agree upon the optional years.

c. Program Timeline

The CIPMO shall integrate with DWSD and assist DWSD with preparing and implementing its CIP over the Contract Term. The contemplated timeline for the CIPMO is scheduled using eight categories as summarized below and detailed in the following sections:

- i. Program Administration.
- ii. Pilot Program (to inform on technical issues).
- iii. Advanced Metering Infrastructure.
- iv. Asset Management Driven Prioritization.
- v. CIP Document.
- vi. CIP Implementation.
- vii. Water and Sewer Standards and Policies Update.
- viii. Sustainable Program Implementation.
- ix. As-Needed Assistance.



d. Task Descriptions

i. Program Administration (Q1 2017 – End of Contract)

DWSD requires an experienced team for the CIPMO that will work with DWSD on the planning, implementation, and oversight of the developed projects by providing program management services. The CIPMO shall develop and implement strategies that align to DWSD’s organizational goals and desired outcomes. The following list of services is expected to be provided and includes, but is not limited to, project identification, prioritization and planning through asset management,

program management, design and construction management, communication management, scheduling, assisting in planning resources (human and non-human), risk analysis/management, cost analysis/controls, preparation and competitive procurement of water main and sewer design/engineering and construction services, quality assurance and quality control, value engineering reviews and stakeholder/customer outreach.

The CIPMO shall also develop standard operating procedures (“SOPs”) for estimating engineering and construction costs in the development of the CIP that is aligned with industry best practices from such sources as the Association for the Advancement of Cost Engineering (“AACE”) International and the American Society of Civil Engineers (“ASCE”).

Another key item is to assist DWSD with coordination and analysis in securing grant and loans from federal and state programs. These may include programs administered by the Michigan Department of Environmental Quality (“MDEQ”), US Environmental Protection Agency, and Michigan Department of Energy, Labor & Economic Growth, etc.

The CIPMO will provide oversight and management of all procurement activities under the program and will work with DWSD to identify all items to be procured for the successful completion of program projects.

The CIPMO shall be responsible for the overall quality of work, including work performed by sub-consultants and subcontractors. The CIPMO shall provide coordination between DWSD and any sub-consultants/subcontractors as well as federal, state or local regulatory agencies as needed. Similarly, the CIPMO will work in collaboration with the DBA and other City, county and state community development organizations and utility departments engaged in capital construction in the City. The CIPMO is expected to have and maintain a strong and responsive local presence to assure effective sub-consultant/subcontractor management as well as provide prompt response to DWSD’s needs, questions and concerns. The work associated with program administration includes the following:

1. Program Organization and Management

- a. Develop and maintain a detailed master program schedule which identifies milestones, deliverables, and key coordination meetings. The master schedule shall (a) define and sequence all activities, (b) estimate resources and durations, and (c) be regularly updated and provided to DWSD bi-weekly at a minimum. A preliminary program schedule needs to be submitted with each Bidder’s technical proposal.
- b. Maintain a complete program library and master file of all contracts and subcontract actions and reports. Upon request, the CIPMO shall

- provide summary reports and analyses of contract, subcontract and budget issues to DWSD.
- c. Review current procurement policies and procedures and provide options to enhance delivery of these services.
- d. Provide standard procedures, develop templates for acquiring professional services and, in conjunction with DWSD, procure and select sub-consultants.
- e. Provide standard design and construction controls and ensure designers and construction professionals adhere to these standards.
- f. Maintain decision tracking system to assure timely decision making.
- g. Develop a process for quality assurance and quality control (“QA/QC”) in conjunction with DWSD to ensure and evaluate quality of work delivered through the CIPMO.
- h. Provide assistance for any existing and future agreements with federal, state and/or local agencies related to environmental mitigation requirements as detailed in permits, memoranda of understanding/articles of incorporation for GLWA and the Lease Agreement.
- i. Act as a liaison between City departments, community programs, utilities, state, county and any other development-related entities and conduct stakeholder involvement programs as needed.

2. *Monthly Meetings and Status Reports*

Progress meetings between the CIPMO and DWSD shall be held on a monthly basis. Monthly status reports shall be submitted to DWSD. These reports shall include, but not be limited to, the following information:

- a. Program/project completion status versus forecasted status.
- b. Updated Critical Path Method (“CPM”) schedule.
- c. Summary of budget status with related analyses/metrics.
- d. Status update on inclusion program with related analyses/metrics.
- e. Program/project information and decision needs.
- f. Completed tasks and accomplishments for the past month.
- g. Forecasted tasks and accomplishments for the coming month.
- h. KPI performance by project manager, contractor and contract.
- i. Questions, comments, issues and suggestions.

- j. Identification of out of scope work items.
- k. Update on risk items.
- l. Invoicing issues.
- m. Deliverables list.

The CIPMO shall prepare agendas for the monthly meetings which shall be submitted with the status reports. The CIPMO shall also prepare meeting minutes which shall be submitted to DWSD for review and comment within three working days following the meeting with distribution to the program team.

DWSD and the CIPMO should hold a workshop early in the Contract Term to more specifically determine reporting protocol using comparable program examples as guidance for tracking program performance and accountability.

3. *Documentation and Data Management*

The CIPMO shall be responsible for all document and data management for the program. The CIPMO shall develop and maintain a deliverables list that tracks all reports, technical memoranda, data, or systems developed for the program. The deliverables list shall, at a minimum, include a description, purpose, format, and schedule of delivery of the deliverables. The deliverables list shall be submitted to DWSD with the monthly status report. The CIPMO shall also update and maintain a system of document management, control and change control functions to ensure that all program team member have current and accurate information available. Presently, DWSD is implementing OnBase for document management. OnBase is a shared service between DWSD and GLWA.

4. *Urban Planning*

The CIPMO should include an urban planner to interface with the City's PDD and HRD to assist in infrastructure planning for redevelopment projects. The urban planner will work with the purpose of optimizing the effectiveness of the community's land use and infrastructure. The urban planner shall work with agencies to formulate plans for the development and management of urban areas, typically analyzing land use compatibility as well as economic, environmental and social trends. In working with PDD and HRD staff to develop the plan for a community (whether commercial, residential, agricultural, natural or recreational), the urban planner shall consider a wide array of issues such as sustainability, air pollution, traffic congestion, crime, land values, legislation and zoning codes.

5. *Program Performance and Closeout*

- a. Performance Metrics

Metrics are required to enable data-driven evaluation and documentation of program success. Quality, cost, schedule and business metrics are to be collected, tracked and reported to DWSD monthly. The CIPMO shall use performance metrics as a means of determining whether the program is meeting its goals and requirements in the categories of technical, cost, schedule, business and customer satisfaction.

The CIPMO shall develop a performance dashboard (“Dashboard”) for visualizing and accessing critical program data. The Dashboard will serve as the view into overall program performance as well as for sub-programs and individual projects. The Dashboard shall include all the components for effectively monitoring the projects, such as resources, costs and schedule. Each Bidder is requested to identify performance metrics to be tracked to evaluate program effectiveness as part of the RFP response. Some of the metrics identified by DWSD include:

- 1) Schedule of project completion – actual versus planned (schedule variance).
- 2) Constructed cost of CIP project versus budgeted cost.
- 3) Engineer’s estimate versus bids received.
- 4) Number of change orders and cost for change orders.
- 5) CIP delivered versus planned.
- 6) Earned value versus planned.
- 7) Miles of water distribution network replaced or renewed.
- 8) Condition assessment of water distribution piping pre- and post-renewal.
- 9) Miles of sewer pipe replaced, renewed and/or cleaned.
- 10) Condition assessment of sewers pre- and post-renewal.
- 11) Total cost of the water program per foot of pipe renewed/replaced.
- 12) Total cost of the sewer program per foot of pipe renewed/replaced.
- 13) Number of water main designs processed per FTE.
- 14) Number/percent of QA/QC issues.
- 15) Number/percent of safety issues.
- 16) Records management – number of records processed.

- 17) Miles of water/sewer infrastructure documented and in ESRI Geographical Information System (“GIS”).
- 18) Timing and amount of inclusion programs.
- 19) Grant/state/federal funding dollars received.
- 20) Overall system condition (percent in excellent condition versus initial condition).
- 21) Percent completion of asset inventory.
- 22) Percent of system with completed condition assessments.

b. Subcontractor Performance

The CIPMO should develop, utilize and implement a standardized subcontractor performance review process upon close-out of projects (whether due to completion or termination). This subcontractor performance review information should be incorporated into e-Builder or otherwise be available on-line and provide for a standardized rating system of design, engineering and construction service providers.

c. Project Documentation and Closeout

The City uses e-Builder Enterprise construction program management software to manage its construction activities. DWSD prefers that all program-related tracking information, key performance indicators and documents be submitted and managed with e-Builder. The Winning Bidder will be required to directly utilize, and/or effectively interface with, the City’s e-Builder system to manage the CIP. Although it is preferred that the Winning Bidder utilizes e-Builder in-house, this will not be a requirement, provided the Winning Bidder’s in-house software tools interface cleanly with e-Builder.

Additionally, Bidders should inform DWSD of capabilities to utilize e-Builder (or similar type software) with (a) real-time input, access to data and reporting and (b) subcontractor access for self-reporting, invoicing, and other data input (subject to CIPMO verification) from the field.

Task 1 - Program Administration Deliverable: The CIPMO shall identify projects for, and manage all aspects of, the CIP. The CIPMO shall develop a master program schedule and maintain the library of master program contract files. The CIPMO shall provide standard procedures for program administration, contract management, QA/QC, etc. The CIPMO shall provide monthly status reports and shall develop and maintain a program deliverable list. The CIPMO shall provide performance metrics and related updates as well as update program information in e-Builder.

ii. Pilot Program (Q1 – Q4 2017)

DWSD has identified two neighborhoods as good candidates for pilot programs. The first neighborhood on the City's west side is North Rosedale Park, which is bounded by West McNichols Road, Southfield Freeway, Grand River Avenue and Evergreen Road. The second neighborhood on the city's east side, Cornerstone Village, is bounded by I-94, Kingsville Street, Cadieux Road, and Mack Avenue. For clarity, the pilot program is an opportunity to test and improve the design and construction delivery systems under the CIPMO and is expected to occur simultaneously with the other CIPMO functions defined in this scope of work (such as CIP management, standards development, etc.). It is expected that use of a pilot program area will provide a good opportunity to try an approach and evaluate it before expanding the program systematically throughout the City. In performing the asset management analyses under the next task, it may be found that another pilot area may be desirable to understand a different set of conditions such as the needs of less densely populated neighborhoods. For example, in less dense areas of the City, water quality analyses may need to be performed in addition to the tasks listed below for the pilot program.

The expectation is that the pilot will allow for a testing phase that will provide useful lessons that the CIPMO can utilize throughout the contract. These "lessons learned" could include such things as how to (a) maximize value of the money invested within the City's unique infrastructure, (b) improve customer service with high visibility and high impact actions, and (c) effectively coordinate with all of the other stakeholders affected and/or involved.

A description of the types of activities to be performed in the pilot area is provided below:

1. Obtain and review existing data on the condition of the water and sewer assets in the pilot area.
2. Obtain internal inspection of all sewer assets in the pilot area and document the condition of the sewer assets using Pipeline Assessment Certification Program ("PACP") and Manhole Assessment and Certification Program ("MACP") format. All data will be obtained in a consistent format, based on discussions with DWSD on software and database compatibility.
3. Obtain flow metering data for at least one key sub-area to support calibration and validation of a Storm Water Management Model ("SWMM") for the pilot area. The SWMM model will be utilized to define the existing level of service for wet weather capacity evaluations and comparison to typical urban area standards. An effort by GLWA and DWSD to develop and calibrate a hydraulic model for the Upper Rouge Tributary area on the west side of Detroit may be available for use by the Winning Bidder.

4. Conduct fire flow and pressure rating study of the water distribution system to determine current levels of fire flow available and specific water main Hazen Williams C-factors. Upon completion of study, DWSD's GIS data set on hydrants shall be updated to include flow and pressure rating. In addition, hydrants shall be color coded in compliance with American Water Works Association ("AWWA") or National Fire Protection Association standards. Study of the pilot area shall be conducted within 90 days of notice to proceed and hydrants in this area shall be color coded accordingly.
5. Develop and calibrate the water hydraulic model for the pilot area. The sub-area model must be compatible with insertion into the currently available regional model. Define the existing level of service for normal usage (annual average, maximum day, and peak hour) as well as fire flow in comparison to typical urban area standards.
6. Develop alternatives for improving the level of service for those items which do not meet typical standards for similar communities. Evaluate the alternatives, including cost-effectiveness and prioritization of potential improvements.
7. Replacement LSLs are an issue of national discussion. DWSD is evaluating alternatives to meet expected changes in regulatory criteria. The CIPMO shall implement the program policy DWSD selects for LSL replacement.
8. Develop water system replacement and/or rehabilitation alternatives. Evaluate the alternatives including cost-effectiveness and prioritization of potential improvements and also provide options for service line replacement.
9. Develop sewer system replacement and/or rehabilitation alternatives. Evaluate the alternatives, including cost-effectiveness and prioritization of potential improvements and also provide options for the rehabilitation or replacement of private sewer services.
10. Identify and evaluate other key factors to be considered for this area, such as benefits to reduction of untreated combined sewer overflows, contribution to community aesthetics, coordination with road improvements and with utilities.
11. Develop an implementation plan for water and sewer system renewal in the pilot program area. Alternatives for phasing of the work should be identified.
12. Issue RFPs, issue purchase orders and issue all payments to subcontractors for all aspects of the pilot program.
13. Monitor design and construction activity.

14. Based on considerations for maximizing the value of the money invested and the extent of customers receiving benefits quickly, determine the lessons learned from the pilot program and provide recommendations for City-wide implementation.

Task 2 - Pilot Program Deliverable: Prepare a report to document the models, analyses, alternatives, recommendations and conclusions, including an executive summary that can be utilized by DWSD, the BOWC and the customers to understand the strengths and weaknesses of the existing system and the logic for recommended improvements.

Completion of the pilot program is expected to provide critical guidance for moving forward City-wide. Therefore, it is important that an aggressive schedule be maintained to move forward quickly, while still ensuring that the work is done carefully and thoughtfully to provide an excellent foundation for future work. A realistic schedule should be proposed that balances these goals and constraints.

iii. Advanced Metering Infrastructure (Q1 2017 – End of Contract)

DWSD intends to improve upon providing its customers with detailed water usage information that quickly identifies household water leaks and excessive consumption through use of intelligent water distribution network. Additionally, the DWSD metering infrastructure should monitor and diagnose problems, prioritize and manage maintenance issues and use data to optimize the water distribution network on a remote and continuous basis through an integrated set of product and software solutions.

The CIPMO shall work with DWSD on developing a detailed scope of work for implementation of a two-way Advanced Metering Infrastructure (“AMI”) system that automates the meter reading to billing process and connectivity of meters, distribution sites and devices in a single, highly efficient data network. The system shall be flexible and scalable, enabling DWSD to deploy newer technology in phases as needs and budgets dictate. Transceivers on the metering devices shall collect data and communicate to data collector units or hubs that upload to either DWSD’s server or a cloud-based system.

Utilization of remote disconnect meters (“RDM”) is a critical component of upgrading the AMI as it lets crews connect and disconnect water service remotely, improves employees’ safety and reduces operational costs. The RDM shall incorporate a radio controlled valve that can be turned off or on when initiated from an authorized workstation in the AMI system. All electronic components of the RDM shall comply with Federal Communications Commission (“FCC”), Part 15 standards and AWWA Standard C-707 for encoded remote reading systems. The RDM pilot valve that is actuated via the user interface from web-enabled

workstations shall have its position, date and time recorded as part of the accounts history.

The AMI platform shall also support data collection of pressure and acoustic sensors that may be deployed within the water distribution system for remotely monitoring, analyzing and detecting water main leaks. Through non-invasive measurements and on-going monitoring, leak determination analysis will help prioritize capital and maintenance spending.

The CIPMO should perform an analysis on the integration and system enhancements required to support the AMI. In addition, the CIPMO should provide a technical report with staging and implementation recommendations. The plan must be approved by the DWSD prior to implementation. The CIPMO will work with DWSD to review and update business releases that includes meter-to-cash business processes, deployment readiness, improved management of AMI interval data, and retirement of end of life equipment.

As DWSD and the City move toward a smart city infrastructure, the AMI system should be capable of being integrated into a low power wide area network specification that meets key requirements such as secure bi-directional communications, mobility and localization services. This platform aims to provide seamless interoperability among “smart things” without the need of complex local installations. The AMI system shall be able to integrate into other DWSD systems such as GIS, work management, document management and the billing system.

Task 3 - Advanced Metering Infrastructure: Perform analyses on the system enhancements and integration required to support AMI implementation. Produce a technical memo that includes a recommended plan for AMI system implementation. Upon DWSD approval, implement the plan.

iv. Asset Management Driven Prioritization (Q2 2017 – 2018)

A large percentage of the City’s water and sewer assets are very old and likely exceed the standard estimates for service life. The CIPMO will manage identification, rehabilitation or replacement of high priority assets. Even an aggressive program, however, will result in many assets continuing to be used for years beyond the normal service life. Therefore, a program needs to be developed that provides a logical framework for prioritizing the work utilizing an asset management approach. The Veolia report (for more information see Reference Information in section 10.e.x.) includes initial ideas, some of which have been implemented, for important parameters to be used in the analyses, such as water main break density trends, current road conditions, consequences of failure and land use trends. In addition, DWSD has implemented conditions assessment of infrastructure using Smart technology. In combination with the pilot program, it is

expected that the Veolia report will help guide (but not dictate) recommendations for the CIP.

1. *Computerized Maintenance Management System*

CIPMO will perform field assessments, historical analysis of Oracle Work and Asset Management (“WAM”) work orders and review of drawings of the selected areas to determine condition of infrastructure. The installation date and cost, and expected replacement date cost information does not exist for the majority of assets. Baseline attributes (and codes) for assets are not defined. Below are several asset management initiatives in various stages of development that need to be instituted and coordinated to develop a robust and functional Computerized Maintenance Management System (“CMMS”) that tracks all assets condition, location and maintenance history. The CIPMO shall advise on the program development and implementation including, but not limited to, the following:

- a. Develop SOPs for asset auditing, asset on-boarding and turnover, including a process to retire and decommission assets, work history and related costs.
- b. Develop condition, performance, and reliability attributes for assets.
- c. Develop SOPs for assessing condition, performance and reliability by asset class.
- d. Specify replacement or renewal cost data to be placed against the asset.
- e. Specify reliability, likelihood of failure, consequence of failure, risk level (business risk evaluation) data to be tied to assets.
- f. Develop SOPs to create, share, maintain and use this data.
- g. Determine training, staffing and funding needs to sustain and implement on asset management program.

2. *Underground Asset Management*

DWSD underground asset management requires reliable knowledge of the assets with characteristics and past work history. Its ESRI GIS is the critical element that will provide access to such asset knowledge, history, inventory, location and interconnections of the infrastructure (such as blind ties in the sewer system). The CIPMO shall review and update critical infrastructure data that is in the GIS system and work with DWSD’s GIS team to create a critical facilities layer that is evaluated based on “consequence of failure”. This data should be used to prioritize the CIP. The CIPMO, with DWSD’s GIS team, shall also develop a formal GIS data sharing plan with all contractors that interface with the GIS data. This GIS data

sharing plan will have provisions for data confidentiality, data “check-out”, quality control, redlining, as-built drawing coordination and data “check-in”. DWSD’s improvements to the current GIS system are ongoing and will feature uniform standards for all data types including water mains and sewers. These standards will improve operations and maintenance staff efficiency and enable ranking of replacement/rehabilitation prioritization. The CIPMO is expected to work collaboratively with the DWSD GIS team and follow and/or co-develop relevant DWSD GIS processes, procedures and standards during the engagement. GIS is a shared service between DWSD and GLWA.

The following GIS projects are planned or underway:

- a. Customer service billing system integration.
- b. Asset management program integration.
- c. Water and sewer piping networks modeling and remediation.
- d. Water main break work order process improvements.
- e. Capital improvement plan project mapping.
- f. Catch basin data collection.
- g. Water tunnel digitization project.
- h. Manhole inventory.
- i. Non-revenue water loss mapping.
- j. Fire hydrant inspection and repair project improvements.
- k. Valve exercising, flow and pressure/testing implementation.
- l. NPDES permit compliance.

Assets that are classified as critical will need to be addressed quickly. For example, the large, deep, combined trunk sewers will likely be classified as critical assets but have not been inspected for many years. Therefore, it will be important to consider the unique risks for critical assets in task identification and development. Similarly, the City’s central business district has its own unique challenges and it is expected that this area will be appropriately considered in the asset management strategy. The CIPMO shall be responsible for and have (or may subcontract) resources available as necessary to perform the field assessments and investigations (leak detection, CCTV, sonar, etc.) required to determine the condition of the assets. In addition, testing of materials and analyses may be included as part of the strategy to predict consequence of failure for an asset. The CIPMO will also train the engineering staff on how to utilize this information to create the capital investment strategy.

3. *DWSD's Four Pumping Facilities*

The CIPMO will review the four pumping facilities that solely handle sewage flow for Detroit (Belle Isle CSO Facility and Main Pump Station, Bluehill, Fischer, and Woodmere Sewage Pump Stations). Although GLWA operates the facilities, DWSD is responsible for the ongoing investment. The CIPMO should plan to conduct and provide a review of the capital needs for these four pumping facilities and recommend prioritization in the CIP so that long term maintenance costs are reduced and operating efficiencies are realized.

Task 4 - Asset Management Deliverable: Update GIS system as a result of Asset review. Produce a report that documents the processes and procedures adopted and implemented by the department on asset management. Develop program and accompanying materials to train engineering staff on the use of these techniques to develop future capital improvement plans.

v. **CIP Document (Q2 2017 – End of Contract)**

Historically, the City's retail water and sewer improvement program has been treated as an annual spending allowance, with specific work defined on an ad-hoc basis. The new DWSD leadership has begun the process of creating a specific program for the water and sewer network, with much greater definition of the locations and required improvements. It is expected that an annual CIP will be created/updated with a five-year rolling schedule. The lessons learned from the pilot program and subsequent work, as well as the evolving asset management program are to be used for continuous refinement to the CIP. Once the program has clearly advanced to the point of achieving the desired objectives, an acceleration of the program using more aggressive financing will be considered to reduce the implementation schedule.

DWSD's goal is to ensure the CIP is implemented at the lowest total cost of ownership. DWSD's objective is to maximize use of SRF loans available from the State of Michigan by developing a robust program with a goal to renew approximately 75 miles (a 1.5% replacement rate) of water and sewer infrastructure per year. To maximize use of the SRF funds, the CIPMO shall develop a project plan for water and sewer infrastructure. Likewise, any grant programs offered from state, federal or philanthropic agencies shall also be employed to maximize the dollars invested to replace, rehabilitate or construct water/sewer/green infrastructure.

The Lease Agreement between GLWA and DWSD requires DWSD to provide GLWA with a CIP by March 1st of each fiscal year. The Lease Agreement also provides that the GLWA may be used to secure financing for the GLWA and DWSD CIPs. Upon request, the CIPMO shall assist DWSD's CFO with determining the impact the CIP

may have on rates (based upon alignment of CIP expenditures and funding sources).

Suggestions for alternative approaches based on industry best practices or practical experience on past projects are encouraged. The process for DWSD decision-making should be clearly identified.

Task 5 - CIP Document Deliverable: Annually produce the five-year CIP on behalf of the City beginning with the FY 2018 CIP. Prepare a funding plan that optimizes the available sources, including the SRF as well as funds from state, federal, philanthropic, etc. agencies.

vi. CIP Implementation (Q4 2017 – End of Contract)

The CIPMO shall be responsible for overseeing the implementation of the CIP. This will include development of a process to define and track the scope of work, schedule, quality, and budget for each project. Descriptions of the project and supporting documentation need to be provided to parties that will be providing design and construction engineering services.

The project work needs to be tracked from project initiation to completion. Project development process should allow for timely review so problems can be identified early in the process, while the potential for appropriate adjustments is greatest. As projects are completed, the results should be evaluated against the original objectives. Any lessons learned should be identified and result in appropriate refinements to the program.

The tasks performed as part of the pilot program shall be performed, as appropriate, for each new area or program that is selected for the CIP based on lessons learned.

1. Engineering and Construction Program

- a. Development and implementation of a program management plan that will be used throughout the program and manage revision control.
- b. Assistance with the review and refinement of engineering design standards, contract specifications, including front end specifications, general requirements and design processes related to different program types.
- c. Development of a program to assure that design and construction complies with all requirements and commitments established during the planning phase, including any requirement of specific funding, and any requirements of different jurisdictional authorities

such as Michigan Department of Transportation, MDEQ, Wayne County, City departments, GLWA, rail road companies, etc.

- d. Support the development of a public/private partnership model where it may be beneficial including, but not limited to, allowing property owners to replace water or sewer services, as appropriate, based on the construction technology being employed.
- e. Final approval of contract documents. Alternative contracting methods and contractor prequalification processes to be considered.
- f. Issue RFPs, issue purchase orders and issue all payments to subcontractors for all aspects of the CIP and this scope of work.
- g. Organization and oversight of construction engineering teams to ensure project compliance and evaluation of contractor performance.
- h. Assistance with the review and modifications of construction administration procedures related to different project types including methods for change order control and management.
- i. Develop a resident engineering/resident project representation (“RE/RPR”) manual of practice (“MOP”) consistent with the construction contract documents adopted by DWSD. The RE/RPR MOP would document all procedures and policies to be used by in-house and contracted construction inspectors and resident engineering staff in the construction administration and on-site monitoring of the construction contractor’s progress and quality of work.
- j. Development and implementation of risk management plans that identify risks, performs qualitative and quantitative risk analyses and plans risk responses.

2. *Public Outreach/Stakeholder Engagement*

The CIPMO shall develop and implement a public outreach program that includes standard notices and procedures for public outreach and engagement. An important component of this work will relate to coordinating public communications regarding DWSD’s (evolving) approach to LSL replacements and addressing the potential for lead particulate releases associated with construction activity. The goal of this program is to ensure residents and businesses are aware of and have input into the plans under development or being implemented in their neighborhoods. Every attempt shall be made to minimize adverse impacts to quality of life for DWSD customers. Engagement may involve support of a mobile application or integration with existing applications the City uses for civic engagement.

Task 6 - CIP Implementation Deliverable: Ongoing management of CIP implementation including subcontractor, liaison and stakeholder coordination and outreach throughout the Contract Term.

vii. **Water and Sewer Standards and Policies Update (Q2 2017 – 2018)**

1. *Project Specifications and Bid Packages*

The program assessment will include a review of DWSD project specifications/bid packages and recommendations for improvements to make projects more cost competitive and in-line with best practices (a cost estimating toolkit). This includes general and detailed technical specifications for the water main replacement projects, and the technical requirements for the sewer rehabilitation/renewal projects.

2. *Design, Material and Construction Standards*

The Veolia report identified the policies for the automatic up-sizing of certain water mains and the use of thicker walls for pipes as policies that should be reconsidered. Similarly, there are other standards and policies in use that should be reviewed to see if they are delivering the results and cost-effectiveness expected by DWSD. Initial reviews have indicated that construction costs may be higher than neighboring communities.

The type of materials used for replacement/renewal/rehabilitation of water and sewer infrastructure should also be evaluated to determine the most economical materials for various scenarios. The water master plan suggests DWSD pilot the use of materials other than ductile iron for replacement of water distribution main. A ranking criteria should be established that includes factors such as population, effects from climate change, water loss for distribution piping and inflow and infiltration for sewer piping, ease of installation, installation costs, local experience with material, smart technology

compatibility, etc. to establish a process by which material selection can be navigated which allows for the lowest total cost of ownership.

3. *Other Policies and Factors Affecting Bidding Activity*

The number of contractors submitting bids in the City is low, with a smaller number actually being awarded work. It will be important to understand the policies and economic factors that are causing these current trends. Support functions, such as procurement, permitting and accounts payable, also need to be considered. It is expected the CIPMO will conduct research, engage the contractor community and, through this, develop recommendations for future outreach and modifications to stultifying procedures/processes.

4. *Lead Service Lines*

LSL are a major national issue for the water industry. Modifications to national guidance have been issued and significant discussion is underway on further requirements. The responsibility for property owners, particularly when financial affordability is an issue, is likely to result in difficulty reaching closure. DWSD is working with a consultant to develop a program that will meet or exceed proposed changes coming from both the state and federal governments. At this time, however, it is not clear what impact this may have on the CIP. At a minimum, the CIPMO will need to identify when appropriate decisions need to be made in order to keep the CIP implementation on schedule and assist DWSD in preparing the appropriate materials for decision-makers.

5. *Safety Procedures*

Safety procedures and programs should be reviewed, benchmarked against other utility agencies, enhanced and implemented as appropriate to reflect DWSD's commitment to worker safety.

6. *Program Control Methods*

Programmatic standards for controlling and scheduling work streams that are applicable across the design and construction delivery systems should be developed. Additionally, SOPs for estimating construction costs and engineering services costs in the development of the CIP are needed (aligned with best industry practices such as the AACE International and ASCE).

Task 7 - Water and Sewer Standards and Policies Update Deliverable: The CIPMO shall produce a report which documents the recommended changes to create a new set of standards including general and detailed specifications and policies the DWSD will need to implement for all water and sewer renewal and replacement projects.

viii. Sustainable Program Implementation (Q3 2017 – End of Contract)

Many aspects of the CIPMO work are expected to be tasks that can be handled by a major city water and sewer department. Therefore, the process to recruit, train, and transition the work back to DWSD needs to be identified. The sustainability program should also recognize the desire to maximize available opportunities for City residents to participate in the CIPMO, or as a sub-consultant or subcontractor.

1. Staff Assessment and Evaluation

A large portion of DWSD’s staff in the Field Services Engineering Division are eligible for retirement due to years of service or age. It is critically important for DWSD to assess staff skills and develop a succession plan to ensure successful ongoing implementation of the CIP. The CIPMO shall be responsible for performing this assessment and providing DWSD with a report that analyzes the gaps between existing resources and a plan for how to align resources with needs.

2. Staff Training and Development

DWSD’s goal is to work in conjunction with the CIPMO to develop a CIP that can be eventually transitioned to DWSD staff for program administration and execution during the tail end of the Contract Term. To successfully fulfill that goal, a formal training program must be developed (in collaboration with the DWSD unions, where appropriate) which allows DWSD staff to enhance program management skills and employ technology to improve program delivery. The program shall also include construction administration and inspection training.

3. Inclusion Programs

DWSD has a goal to ensure qualified businesses and residents in the City have the opportunity to participate in rebuilding the City’s infrastructure. To this end, the CIPMO shall work with DWSD to develop an inclusion program for Detroit residents, businesses and students.

a. Detroit-Based/Disadvantaged/Minority/Small/Woman-Owned Business Enterprise Program:

The CIPMO shall work with DWSD staff to refine and evaluate a DWSD inclusion/subcontracting program to encourage participation of Detroit-based, Minority Business Enterprise (“MBE”), Woman-Owned Business Enterprise (“WBE”), disadvantaged, and/or small businesses. The goal of the program is to create opportunities for these businesses as well as City residents on projects. The program shall provide for opportunities on both professional service contracts as well as construction contracts. The CIPMO shall evaluate, recommend and integrate a framework for CIP subcontracting into the DWSD program. Refined and expanded

program components should include, at a minimum, the following elements:

- 1) Program refinement to facilitate CIPMO driven CIP implementation.
- 2) Participation goals.
- 3) Market assessments.
- 4) Regulatory requirements.
- 5) Training and technical assistance program.
- 6) Outreach activities.
- 7) Bonding, insurance, and working capital assistance.
- 8) Workforce development.

The CIPMO shall provide DWSD with the opportunity to review program elements and accept or modify it prior to implementation and execution. This program shall be developed within the first 180 days of the Contract Term.

- b. DWSD encourages respondents to use Detroit residents in all employment opportunities including subcontracting. Particular attention should be given to Detroit resident groups experiencing high unemployment. Bidders should submit outreach programs which will be used for this purpose.

- c. Underrepresented Minority Internship Program:

The CIPMO shall be required to implement an internship program which recruits underrepresented minorities to participate in the CIP development and/or implementation. These students shall either be vocational or college educated individuals whose studies focus on science, technology, engineering or mathematics. The goal of this program is to train and develop potential field services maintenance and repair or engineering staff for DWSD.

Task 8 - Sustainable Program Implementation Deliverable: Execution of a succession/transition plan that includes specific, measurable outcomes related to building DWSD's internal capabilities with industry best practices and systems, along with knowledge transfer and staff development fundamental to program success – with the objective of transitioning the CIPMO back to DWSD by the end of the Contract Term.

ix. As-Needed Assistance (Q1 2017 – End of Contract)

DWSD has many challenges to overcome in providing best-in-class services to its water and sewer customers. Various support services may be needed to assist DWSD in understanding complex issues, identifying and evaluating alternatives, and providing guidance and/or recommendations. For example, projects related to the water and sewer services agreement with GLWA, master metering of non-metered customers, or a local water system audit may require as-needed assistance from the CIPMO. DWSD will establish a budget for as-needed assistance. At the time an as-needed request is made by DWSD, the CIPMO will be requested to furnish at least three resumes of professionals with the specific expertise being requested. DWSD would then have the option to interview the proposed professionals or select staff based solely on resume.

e. Contract Deliverables

The CIPMO shall prepare and submit the following contract deliverables:

- i. Project kickoff meeting agenda and summary.
- ii. Meeting agenda, summaries and sign-in sheets.
- iii. Project work plan and schedule including, but not limited to, project identification, evaluation criteria, prioritization, implementation of controls and methodologies.
- iv. Monthly reporting for implementation of project schedule, budget monitoring, performance reporting, etc.
- v. The following reports:
 1. Pilot program findings and recommendations.
 2. AMI technical memo with implementation plan recommendations.
 3. Inclusion program policy and implementation plan.
 4. Asset management program adoption and implementation plan.
 5. Water and sewer standards, specifications and policies update.
 6. Engineering and construction cost estimating toolkit and related SOPs.
 7. Annual Five-Year CIP (beginning in FY2018), including assistance with financing the plan.
 8. SRF Project Plan and SOPs related to plan development.
 9. RE/RPR MOP.
 10. Sustainable (i.e., transition) Program Plan.
 11. Monthly waiver and release documents from subcontractors indicating that vendors have been paid timely and that no contractor liens have been placed upon City assets.

- vi. Final design documents, including 50%, 90%, and 100% submittals, including all computer-aided-design (“CAD”) and GIS files associated with the project as constructed.
- vii. Permit applications and permit issuances.
- viii. Pre-bid meeting summary notes.
- ix. Bid evaluation and recommendation letters.
- x. Pre-award meeting evaluation and recommendation letters.
- xi. Correspondence and all required documentation that is standard and customary to fully execute the requirements of the construction administration.
- xii. SOPs to allow DWSD to maintain (post-contract) best practices with respect to coordination and liaison with other City, county and state activities as well as utilities and other third-party stakeholders.
- xiii. Document management should be coordinated by the CIPMO, in collaboration with DWSD IT, for project construction record documents, including but not limited to, the final as-constructed drawings, approved shop drawings, equipment manuals, training manuals, and all other documents specified in the construction bidding documents. All GIS files for the as-constructed project shall be submitted to DWSD.
- xiv. Operations and maintenance manuals, SOPs, and related training materials.
- xv. Comment resolution letters that provide the CIPMO responses to DWSD’s comments on all draft deliverables.
- xvi. Final hydraulic models for water and sewer infrastructure.

All deliverables shall be submitted in draft and final forms. The CIPMO shall address and incorporate DWSD’s and GLWA’s (where required) comments into the final deliverables. The CIPMO shall prepare and submit a comment resolution letter with each final deliverable that clearly shows DWSD and GLWA how each of the respective comments have been addressed in the final deliverable.
- xvii. Other submittals as required to satisfactorily perform the scope of services.

f. Contract Reporting Requirements

All deliverables (draft and final versions) shall meet the following requirements:

- i. Deliverables shall be submitted in hard copy and electronic formats.
- ii. An electronic copy of draft documents shall be submitted.
- iii. Four hard copies and an electronic copy of each final submittal.
- iv. Electronic copies shall consist of an Adobe Acrobat portable document file (“PDF”) searchable file format (the entire deliverable in one PDF), and shall also

- include the raw files (e.g., Microsoft Word, Microsoft Excel, AutoCAD, project scheduling files, GIS files, etc.).
- v. All electronic text document deliverables shall be in the Microsoft Office platform (Word, Excel, PowerPoint and Project).
 - vi. All CAD work shall be performed using AutoCAD® by Autodesk, Inc.
 - vii. All GIS work shall be performed using ESRI ArcGIS platform.
 - viii. All hydraulic models shall be delivered calibrated. Water model shall be an extended period simulation in InfoWater or EPANET format. Sewer model shall be a continuous simulation provided in SWMM format.
 - ix. Calculations shall be submitted in hard copy and electronic formats.
 - x. All hard copy deliverables, except final contract documents, shall be three-ring bound. Hard copy final contract documents shall be tape bound.

g. Self-Performance

The CIPMO is permitted to self-perform all functions of this contract other than construction services. To clarify, self-performance of design and engineering services will be permitted under this contract. Bidders that would like to propose self-performance of design and engineering services are requested to disclose such in the bid response, as well as propose a process for cost estimating or otherwise ensuring the cost of self-performed design and engineering services will be competitively priced with the market for comparable services. The “Bidder Pricing Form – Self-Performance of Design and Engineering” in Appendix I-C includes a form for this.

Self-performance of construction services, however, is not permitted in the ordinary course with this contract, subject to a Bidder proposing an alternative option whereby self-performance may be in the best interest of DWSD as discussed in section 1.f. Alternate Proposals of this RFP.

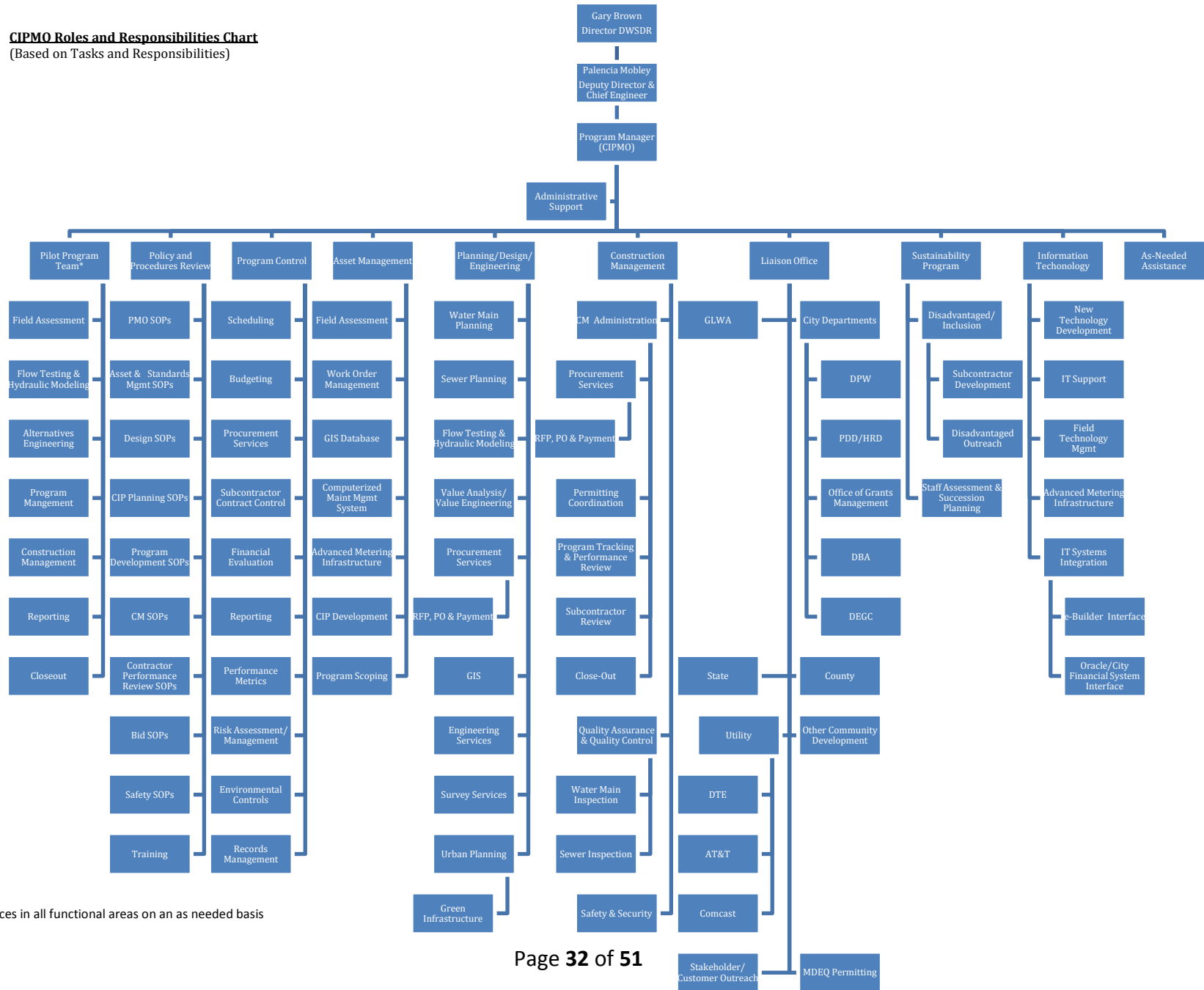
3. DWSD AND CIPMO ROLES, RESPONSIBILITIES AND AUTHORITIES

a. Tasks and Responsibilities Chart

The tasks and responsibilities of the CIPMO are graphically represented in the chart on the following page. Please note this is not intended to dictate an organizational chart for the Bidders. Rather, it is solely provided to demonstrate the breadth of responsibilities of the CIPMO. Each Bidder will be required to submit its own proposed organizational chart to fulfill the tasks and responsibilities of the CIPMO. Each Bidder will also be required to explain the logic behind the recommended organizational structure.

DWSD CAPITAL IMPROVEMENT PROGRAM MANAGEMENT ORGANIZATION – RFP# CS-1812

CIPMO Roles and Responsibilities Chart
(Based on Tasks and Responsibilities)



* Utilize resources in all functional areas on an as needed basis

b. Table of Authorities

Although the tasks and responsibilities are relatively easy to define, the authorities of the CIPMO and DWSD are a bit more difficult. The following criteria are an initial definition of authorities for the CIPMO:

Table of Authorities			
	Roles & Tasks	CIPMO	DWSD
1.	CIP Development	Recommends	Approves
2.	Program Scoping	Prequalifies*/prioritizes	Approves
3.	Metering Technical Specs	Recommends	Approves
4.	Design Management	Approves	Stamps
5.	Contractor Management**	Oversees contractors	May participate
6.	Contractor Inspection**	Approves	Audits
7.	RFP Issuance**	Issues RFP	Audits
8.	Contractor Selection**	Recommends	Approves
9.	PO Issuance**	Issues PO	Audits
10.	Change Orders**	Recommends	Approves
11.	Subcontractor Payment**	Makes payment	Audits
12.	Liaison with Other Depts./Agencies	Provides service	May participate
13.	Standards Development and Update	Drafts	Approves
14.	Program Control – day-to-day	Manages	None
15.	Program Control – strategic matters	Recommends	Approves
16.	CIPMO Initial Staffing Level	Recommends	Approves
17.	CIPMO Changes to Staffing Level	Recommends	Approves
18.	GIS Database Updating	Updates	Hosts
19.	Inclusion Program	Recommends	Approves

* CIPMO should ensure consistency with Master Plan and across individual projects.

** Includes design, construction and metering

c. Legal and Reporting Structure of CIPMO

The CIPMO is to provide a single-point of contact for DWSD, as well as a single-point of responsibility. Although DWSD expects and encourages “partnering” among firms to fulfill the CIPMO roles, DWSD expects there to be one “prime” firm to lead the CIPMO and provide the single-point of responsibility from a reporting, control and legal perspective.

d. Auditing Rights

DWSD will have the rights to audit the books and records of the Winning Bidder on matters directly related to the CIPMO, including, but not limited to, (a) salaries and wages of CIPMO team members, (b) salaries and wages of subcontractors or partners that provide staffing and resources for the CIPMO, (c) quotes, RFPs, selection documents, purchase orders, change orders, etc. regarding subcontract design, engineering and construction services, (d) calculation of the overhead factor on the

related pricing form and (e) other matters as may be pertinent to DWSD and in direct relation to the CIPMO contract. DWSD and Winning Bidder would agree on adequate notice and other requirements for conducting audits to minimize interference with the CIPMO's day-to-day responsibilities.

4. CO-LOCATION AND EQUIPMENT RELATED MATTERS

The CIPMO will be co-located with DWSD's engineering staff at the DWSD's Huber Avenue facility (6425 Huber Avenue, Detroit, MI 48211). DWSD will provide office space, basic office furniture, internet, utilities and parking. Bidders should assume responsibility for providing all other equipment (modular workstations, computers, hand-held devices, field devices, vehicles, office supplies, etc.) required to execute the scope of work. Bidders should also assume responsibility for all travel and living expenses for CIPMO team members that do not reside locally. DWSD will reimburse travel and expense costs on a pre-approved basis only (i.e., to access expertise not available locally or as otherwise needed on an expeditious basis).

5. CIPMO AND SUBCONTRACTOR INVOICING AND PAYMENT TERMS

a. CIPMO

The CIPMO shall invoice DWSD on a monthly basis within 30 calendar days of the preceding month.

b. Subcontractors (Design and Construction)

DWSD currently does not have the procurement resources needed to effectively manage the plethora of RFPs, POs and payments to the subcontractors for design and construction services required to execute the CIP. As such, the CIPMO will be required to issue the RFPs and POs to all of the subcontractors for design and construction, as well as issue payment, in accordance with its customary payment terms.

Additionally, DWSD recognizes the CIPMO will need to price the cost of providing these services as part of the contract. There is a "Bidder Pricing Form – Subcontractor Mark-Up" included in Appendix I-B where Bidders are expected to disclose a mark-up/carry cost as well as any other conditions that may be necessary to accommodate this requirement.

DWSD reserves the right to maintain responsibility for issuing POs and making payments directly to design and construction subcontractors, although the preferred course of action is for the CIPMO to perform these activities.

c. DWSD Payment Terms

DWSD's expected payment terms of approved invoices are described in the Detroit and BOWC Standard Form of Contract for Engineering Consultant Services (Appendix II), Article V, section 5.02. For planning purposes, Bidders can assume that payment is not expected to exceed 75 days from date of invoice issuance, barring exceptions to an invoice, which would be inclusive of DWSD's review and approval process.

6. DWSD-GLWA KEY DATES SUMMARY

As part of the agreement with GLWA, DWSD is required to fulfill certain CIP duties and deadlines. As a result, the CIPMO will be responsible to manage accordingly.

No later than February 1st of each year, the DWSD shall develop and provide the GLWA with an updated CIP for DWSD's assets. The DWSD CIP shall include the capital improvements and estimate of the costs which the DWSD plans to undertake in the next fiscal year, and projected capital improvement projects and estimates for the five years following. At least three months prior to finalizing each DWSD CIP and any modifications thereto, DWSD shall provide the proposed CIP to the GLWA for the purpose of (a) coordinating the DWSD CIP and the GLWA CIP to maximize economies of scale, minimize service disruptions and to achieve other efficiencies from a coordinated implementation effort, and (b) providing notice to the GLWA of any financing requirements for DWSD assets to be satisfied from Lease Payments and/or the issuance of GLWA bonds, and (c) requesting collaboration on grant applications or other funding opportunities.

Each fiscal year, no later than May 1st, DWSD shall provide to GLWA written direction ("Direction to Apply Lease Payment") concerning the application of the Lease Payment to be paid by GLWA in the next fiscal year. A Direction to Apply Lease Payment shall include direction as to the allocation of the full amount of the Lease Payment for that year, and may also reflect commitment of Lease Payments for future years to the payment of debt service on GLWA bonds. The Direction to Apply Lease Payment shall direct GLWA to allocate and credit to the DWSD identified portions of the Lease Payment for: (i) the payment of principal of and interest on that portion of the GLWA bonds issued to finance the cost of improvements to the DWSD assets; (ii) the payment of DWSD's share of the principal of and interest on GLWA Bonds issued to finance the cost of common-to-all improvements to the Leased Facilities; and (iii) the payment of the cost of improvements to and repairs of DWSD assets.

7. RFP TIMELINE

a. Question Deadline

Questions regarding the RFP procedures, evaluation procedures, the technical nature of the work, or any other matters regarding this RFP should be submitted to the Contract Administrator as follows:

Date: August 5, 2016
Time: 5:00 PM Eastern Standard Time
Location: All technical, procurement, and procedural questions regarding this RFP must be submitted in writing via email to the attention of the Contract Administrator.
No phone calls accepted.
DWSD will not respond to questions after this date and time.

Contract Administrator: Roderick French
City of Detroit, Water Sewerage Department
Purchasing
E-mail: dwsd-contracts@detroitmi.gov

b. Question Responses

DWSD will publicly post responses to the questions submitted by the Question Deadline, as follows:

Date: August 15, 2016
Time: 12:00 PM Eastern Standard Time
Location: MITN website (www.mitn.info)

c. Pre-Proposal Conference

Mandatory: Yes – either in person or via audio conference.
Date: August 15, 2016
Time: 2:00 PM Eastern Standard Time
Location: DWSD Huber Facility - Human Resources Building
2nd Floor Training Room
6425 Huber Street
Detroit, MI 48211-1677
or
Call-in if cannot attend in person at:
855-650-4133; Code: 55742

d. Site Tour

A site tour of the co-location office space will be conducted after the Pre-Proposal Conference to help Bidders assess the office work space.

Mandatory: No - optional
Date: August 15, 2016
Time: 4:00 PM Eastern Standard Time
Location: DWSD Huber Facility
6425 Huber Street
Detroit, MI 48211-1677

e. Proposal Deadline:

Bidders must submit an electronic proposal to DWSD via MITN.

Date: September 2, 2016
Time: 4:00 PM Eastern Standard Time
Location: MITN website (www.mitn.info)

MITN will not allow proposals to be uploaded after this date and time. Any late submittals will be rejected and not be considered for award.

8. RFP SUBMISSION REQUIREMENTS

a. No Communications with DWSD

Bidders shall not discuss or make contact with any DWSD staff or agent in relation to this program until a contract award has been announced, other than in the manner permitted in this RFP or as directed by the Contract Administrator in Purchasing, both as disclosed in section 7.a. above.

b. Submission of Proposal

Bidders interested in submitting a response to this RFP are required to be registered in MITN (registration is free). DWSD will only receive proposals uploaded by Bidders on the MITN website at www.mitn.info.

All solicitation information and documents shall be available to vendors registered in the MITN system. If your firm is not currently registered, you must register to obtain documents and submit a response. Please use the MITN website to register at www.mitn.info.

The MITN website has a limitation of 32 megabytes per file. If your file exceeds 32 megabytes, please submit additional files. The technical proposal (a PDF file), the price proposals (an Excel file) and the proposed organizational chart (either Excel or PDF file) must be uploaded in MITN by the Proposal Deadline. MITN will not allow proposals to be uploaded after the Proposal Deadline (date and time) for this RFP.

Cost information should only be submitted on the three Pricing Forms (Appendices I-A, I-B and I-C) as an Excel file. No fax, hard copy, email or any other method of submitting proposals will be accepted. No late proposals will be accepted.

Failure of any Bidder to submit proposals according to all instructions listed in this solicitation may result in proposal rejection at the City's discretion.

c. Preparation of Proposal

The preparation of a proposal shall be at the expense of the Bidder. It is the sole responsibility of the Bidder to fully examine this RFP, notices to this RFP, bulletins (if any) and referenced documents.

Only electronic proposals in accordance with the requirements of this RFP shall be submitted. All proposals submitted become the property of DWSD and will be subject to applicable public record laws.

All information pertaining to the Bidder's approach in meeting the requirements of the RFP shall be organized and presented in each Bidder's proposal. The instructions contained in these requirements must be strictly followed.

Accuracy and completeness are essential. Omissions and ambiguous or equivocal statements will be viewed unfavorably and can be considered in the evaluation. Since all or a portion of the successful proposal may be incorporated into any ensuing contract, all Bidders are cautioned not to make any claims or statements that cannot be subsequently included in a legally binding agreement.

d. Proposal Format and Contents

The proposal shall be in the format and with attachments and completed forms as specified in the RFP. Each proposal shall show the full legal name and business address of the Bidder, including street address if different from mailing address, and shall be signed and dated by the person or persons authorized to bind the Bidder. Proposals by a partnership or joint venture shall list the full names and addresses of all partners or joint ventures (although joint ventures without a single point of contact are discouraged). The state of incorporation shall be shown for each corporation that is a party to the proposed joint venture.

The name of each signatory shall be typed below each signature. If requested by DWSD, satisfactory evidence of the authority of a signatory on behalf of the Bidder shall be furnished.

DWSD reserves the right to reject any or all proposals and to waive any informality in proposals received, if it is in the best interests of DWSD to do so.

The proposal shall be provided as described in the following sections and in the sequence presented.

e. Page and Font Size Limitations

Bidders should limit the technical proposal to no more than 40 pages and the alternate proposals to no more than 10 pages. The proposal should be in a minimum of 10-point font size.

f. Letter of Transmittal

Each Bidder's proposal shall include a letter of transmittal not to exceed three pages, signed by an individual, or individuals, authorized to bind the Bidder contractually. The letter must state that the proposal will remain valid (a) for a period of six calendar months from its due date, (b) until the Bidder withdraws it, (c) a contract is executed, or (d) the RFP process is terminated by DWSD, whichever occurs first.

g. Minimum Requirements

DWSD, in its sole discretion, will consider the relevant factors to determine which Bidders meet the minimum requirements. DWSD, in its sole discretion, also reserves the right to waive certain minimum requirement on a case-by-case basis. The minimum bidding requirements include the following factors:

- i. Experience providing services for programs of similar scope.
- ii. Experience of a minimum of five programs in the past ten years that consist of program management services, comprehensive program planning, procurement and administration of design and construction subcontracts, subcontracted design/engineering/construction, permitting, program coordination, pre- and post-bid management services, construction assistance, quality control, training, document management, as-built drawings, GIS administration, hydraulic modeling, scheduling, asset management, financial planning and construction close-out for a large (population greater than 100,000) urban water and/or sewer systems. The CIPMO team must also include an urban planning professional to interface with PDD and HRD.
- iii. Single point of contact to lead the CIPMO as well as for contracting and legal matters.
- iv. Financial strength to fund an operating plan related to this RFP.
- v. A legal and/or organizational structure defining how the consortium of partners would operate.
- vi. Appropriate professional licenses.
- vii. Be in compliance with the Ethics Code, Section 2-6-91 et seq of the City of Detroit Code of Ordinances (see Reference Information 10.e.ix.)
- viii. Be in compliance with DWSD Procurement Policy (see Reference Information 10.e.viii.)

h. Technical Proposal Submission Requirements

Bidders should organize proposals into the following sections that describe the elements that should be included in each of the above proposal sections. In the scoring for this section, Bidders shall be evaluated on the clarity, thoroughness, and content of their responses to the below items.

i. Professional Qualifications/Quality of Work

1. State the full name and address of your organization and, if applicable, the branch office or other subsidiary element that will perform, or assist in performing, the work hereunder. Indicate whether it operates as an individual, partnership, or corporation. If as a corporation, include whether it is licensed to operate in the State of Michigan.
2. Include the name of executive and professional personnel by skill and qualification that will be employed in the work. Show where these personnel will be physically located during the time they are engaged in the work. Indicate which of these individuals you consider key to the successful completion of the project. Identify only individuals who will do the work on this project by name and title. Resumes and qualifications are required for proposed project personnel, including sub-consultants to the extent known.
3. State history of the firm in terms of length of existence, types of services provided, etc. Identify the technical details that make the firm uniquely qualified for this program management work. Identify the programs managed and provide information on those engagements including number of individual projects per annum, annual spend managed and in total for contract term, etc.
4. Provide program team personnel experience in capital improvement program implementation for a water and sewer infrastructure system for urban systems, including green infrastructure/storm water programs. Identify and provide background information on the key personnel who will take the most active role(s) in the administration and management of the program. Provide resumes and biographical information on key professionals that will be directly involved in the program. Include the number of years at your firm, total years of experience, and professional licenses and designations (if applicable). Resumes shall be no more than two pages. In addition to resumes, the use of a matrix to clearly show the staff experience is strongly encouraged.
5. The Bidder should have a minimum of five programs but should not list more than ten over the past ten years that involve capital improvement program implementation for a water and sewer infrastructure system for large urban systems. The Bidder should give a brief description of each program according to the work as described. The description should include the original consultant services contract budget, your firm's budget as a

percentage of contract budget, a brief statement on your firm's involvement in the program, final consultant services contract budget, any change orders included as part of the program, and any additional information which you believe will assist DWSD in evaluating past performance. Regardless of their inclusion on the listed projects, the Bidders performance on DWSD projects may be taken into consideration by the proposal evaluation committee.

6. Explain how your experience on the listed programs demonstrates:
 - a. Your ability to manage and coordinate simultaneous implementation of multiple projects of varying complexity through an integrated schedule that engages a broad array of consultants, contractors and interested stakeholders.
 - b. Your ability to provide the qualified and experienced personnel needed under this contract.
 - c. Your ability to retain the needed support personnel for the duration specified by DWSD.
 - d. Your ability to respond promptly to DWSD's staffing needs, including DWSD's requests for replacement of your personnel.
 - e. That you meet the minimum qualifications described in Section 8.g.
 - f. Your ability to work cooperatively with DWSD and other project stakeholders.
 - g. Evidence of past performance and ability to complete tasks on time and within budget.
 - h. Your knowledge of local conditions, DWSD requirements and procedures.
7. Provide the names, telephone numbers, and email addresses of at least three persons representing clients for whom the bidder has performed work similar to that proposed, and who may be contacted as references. These references should include municipal agencies similar to DWSD and should include the recent programs cited above.
8. List descriptions of any contracts which have been terminated, including the circumstances surrounding the termination. Provide the name and telephone number of your client's representatives of any such contracts.
9. List descriptions of all legal proceedings, lawsuits or claims which have been filed against any firm within the proposing team or any of the firm's past or present employees within the past five years. Indicate circumstance where you actually paid all or part of the claim.

ii. Proposed Work Plan

1. A detailed work plan is to be presented which lists all tasks determined to be necessary to accomplish the work detailed in the scope of services. The work plan shall define resources needed for each task. In addition, the work plan shall include a timeline schedule depicting the sequence and duration

of tasks showing how the work will be organized and executed. The Bidder may propose tasks and deliverables outside of those listed in the scope of services if they believe they are necessary to support DWSD’s objectives. Any local firm listed as providing services to the project must be assigned a corresponding percentage of the contract on the Local Economic Development Data in Appendix III.

i. Alternate Proposals

Bidders are highly encouraged to submit alternate proposals for consideration. Evaluation of alternate proposals will occur in the Round II Evaluation period (see Round II Evaluation Process in section 9.d. and 9.e. for further detail). For alternate proposals to be considered, Bidders must submit a base proposal in accordance with the scope of work and requirements in this RFP. Alternate proposals are not required to be submitted as part of the technical proposal. Rather, alternative proposals (for Bidders that choose to provide alternate proposals) will be required to be submitted prior to the interview date (deadline will be provided at interview scheduling time). Alternate proposals presented as part of technical proposals will be accepted.

Alternate proposals should be clearly identified with a description of the advantages and disadvantages of the approach. Alternate proposals should provide a meaningfully accretive economic benefit to the City.

j. Fee Proposal Submission Requirements (uploaded to MITN as a separate file)

Bidders are required to complete the four forms included in Appendix I which include (a) CIPMO Staffing, (b) Sub-Contractor Mark-Up, (c) Self-Performance of Design and Engineering and (d) CIPMO Organizational Structure (collectively, “Pricing Forms”). Each of the Pricing Forms is discussed below. DWSD requires completion of the Pricing Forms in the Excel file that was uploaded to MITN.

i. Bidder Pricing Form – For CIPMO Staffing (Appendix I-A)

1. Program Cost

The proposed program cost should be based upon the scope of work and requirements provided in this RFP and should be all inclusive. The proposed program cost should be based upon a weekly salary range by job classification or category. DWSD intends to manage the costs of this contract on an FTE/headcount basis and not on an hourly basis.

The CIPMO Staffing form should include the names, titles, weekly salary range, overhead factors, profit margin and other details as required therein. Bidders shall be capable of justifying the details of the fee proposal relative to personnel costs, overhead, how the overhead rate is derived, and time.

In development of the CIPMO Staffing form, please consider the potential impact from ramp up at the beginning of the contract and wind down at the end of the contract.

The fee proposed must include the total estimated cost for the project over the course of the five-year term (optional years are not required to be quoted at this time). This total may be adjusted through negotiations with DWSD prior to signing a contract.

2. Overhead Rate

The overhead rate should include any and all benefits and overhead costs, including the equipment necessary for the CIPMO to execute on the scope of work (computers, hand-held devices, field devices, vehicles, etc.). The overhead rate should be entered as a distinct cost component as defined on the CIPMO Staffing form. A detailed calculation of the overhead rate should be appended to the CIPMO Staffing form.

3. Profit Margin

The profit margin is considered a percentage of total program costs including overhead and should be entered as a distinct cost component as defined on the CIPMO Staffing form.

4. Incentive/Penalty Factor

DWSD would look favorably upon a balanced incentive/penalty system based on KPI performance, although DWSD is requesting Bidders to propose the structure. Bidders should also define any necessary changes to the proposed authorities in order to effectuate an incentive/penalty system. The incentive/penalty factor should be entered as a distinct cost component as defined on the CIPMO Staffing form for Bidders that choose to propose such.

5. Escalation Factor

Bidders may include an escalation factor in the fee proposal to reflect the impact of rising salaries and overhead costs over the Contract Term after the initial year. At each Bidder's discretion, the escalation factor should be entered as a distinct cost component as defined on the CIPMO Staffing form. The final escalation factor utilized will be the lesser of the U.S. Employment Cost Index and the proposed escalation factor. There may be an additional adjustment if economic conditions dictate which would be subject to negotiation with DWSD.

6. Performance Bond Cost

Bidders should include the annual cost to hold a \$100 million performance bond.

7. Payment Bond Cost

Bidders should include the annual cost to hold a \$100 million payment bond.

ii. *Bidder Pricing Form - Subcontractor Mark-Up (Appendix I-B)*

Bidders must provide a mark-up rate (if any) for procuring and paying subcontractors. The mark-up rate on subcontractors should be entered as a distinct cost component under both scenarios defined on the Subcontractor Mark-Up form.

iii. *Bidder Pricing Form - Self-Performance of Design and Engineering (Appendix I-C)*

Bidders that would like to propose self-performance of design and engineering services are requested to propose a process for cost estimating or otherwise ensuring the cost of self-performed design services will be competitively priced with the market for comparable services. The proposal description is requested to be included on the Self-Performance of Design and Engineering form.

iv. *Bidder Pricing Form - CIPMO Organizational Structure (Appendix I-D)*

Bidders must include a proposed organizational chart for the CIPMO at full staffing level as required on the CIPMO Organizational Structure form. The organizational chart should graphically define the total team size, management team (with proposed names to the extent known), job functions and job classifications, along with an FTE headcount.

v. *Staffing Level Flexibility*

DWSD understands that the scope of work, roles and responsibilities may be adjusted from time-to-time over the Contract Term. The Pricing Forms are intended to provide flexibility to staffing of the CIPMO accordingly. Please note, however, that DWSD will approve the initial staffing proposal. Any additions or deletions to the initial staffing level will require written approval from DWSD prior to making the change.

vi. *Expenses*

DWSD does not anticipate the CIPMO incurring expenses that would be passed through, other than for one-off matters that would require pre-approval from DWSD. Bidders should assume responsibility for office supplies, equipment, travel and living expenses for non-local team members. Travel expenses will be allowable on a pre-approved basis only (i.e., to access expertise not available locally or as otherwise needed). DWSD will only be responsible for providing the services discussed in section 4. Co-Location and Equipment Related Matters of this RFP.

vii. *Fee Cap Over Contract Term*

CIPMO contract will provide for a cap in fees over the Contract Term. In no event may the CIPMO or DWSD approve staffing or other cost additions that would cause the cap to be exceeded without obtaining approvals from BOWC, City Council and the Financial Review Commission.

k. Equal Employment Opportunity/Anti-Discrimination Statement

Submit a statement of Equal Employment Opportunity (EEO) policy on your firm's letterhead and sign the Covenant of Equal Opportunity Form (included on page 7 of Clearance Package in Appendix VII).

l. Conflict of Interest Statement

Submit a statement of avoidance of conflict of interest in accordance with Sec. 2-106 of the Detroit City Code Standards of Conduct (attached as Appendix V). Statements must be submitted on company letterhead.

m. Local Economic Development Data

Complete the Local Economic Development Data and, if applicable, the Detroit-Based Business (“DBB”) Questionnaire Forms as part of your proposal (Appendices III and IV, respectively).

n. Financial Capability

DWSD is obligated to ensure that the financial strength of each Bidder is adequate to carry out the services proposed. During the course of proposal evaluations, DWSD may ask any Bidder to provide proof of financial capability. Such proof must be provided to DWSD within 48 hours of the Bidder's receipt of DWSD's request. The submitted material will be reviewed by DWSD and returned to the Bidder.

Acceptable proof of financial capability includes, but is not limited to, a current Dun and Bradstreet "Business Information Report" with financial rating or income statements for the previous three fiscal years, audited by a certified public accountant.

Bidders for this project, if not previously asked to do so, will be required to present proof of financial capability at the time of interviews following the shortlisting process. The submitted information will be reviewed by DWSD and returned to the Bidder.

9. EVALUATION PROCESS

DWSD uses a structured qualifications-based selection process to evaluate proposals. An evaluation committee will be established to evaluate all proposals in accordance with the evaluation criteria point system to select a short-list of firms for further consideration. DWSD reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the Bidder to be a candidate for an interview. The evaluation committee or its designees may contact references to verify material submitted by the Bidders. The evaluation committee will also review the fee (pricing) proposals commensurate with the technical proposals.

a. Round I Evaluation Criteria

Criteria	Max. Points
<p>1. Work Plan</p> <ul style="list-style-type: none"> • Level of understanding of DWSD’s goals and objectives. • Soundness of methodology, including: <ul style="list-style-type: none"> ○ Efficiency of program management approach. ○ Integration with DWSD management and staff. ○ Availability and range of resources. ○ Knowledge and practicality of asset management and CIP development and management. ○ Thoroughness of program plan to accomplish the tasks requested. ○ Timeline. 	25
<p>2. Staff Experience</p> <ul style="list-style-type: none"> • Soundness of organizational chart for CIPMO. • Experience and qualifications of key personnel, including lead program manager and other key personnel. • Experience of any sub-consultants/partners proposed for the CIPMO. 	20
<p>3. Firm Experience</p> <ul style="list-style-type: none"> • Breadth and depth of experience in performing similar program management services to the scope described in this RFP. • Quality of reference checks, including completing projects on time, within budget, etc. 	10
<p>4. Transition Plan</p> <ul style="list-style-type: none"> • Completeness and reasonableness of plan to transition work back to DWSD upon conclusion of contract. 	15
<p>5. Inclusion/Disadvantaged Business Program</p> <ul style="list-style-type: none"> • Soundness of plan to utilize MBE/WBE content and to develop an inclusion/disadvantaged business program. 	10
<p>6. Fee Proposal</p> <ul style="list-style-type: none"> • Reasonableness and competitiveness of total cost. 	20

b. Shortlisting of Bidders

DWSD reserves the right to shortlist any number of Bidders for presentations and/or final selection based on its review of the minimum requirements and quality of the proposal. The evaluation committee will notify the shortlisted Bidders via e-mail and/or phone in advance to provide adequate time to arrange for travel.

c. Interview Process (Presentations/Webinars)

Shortlisted Bidders will be invited to provide an in-person presentation or webinar to discuss in more detail their qualifications, past experience, proposed work plan and fee proposal, including responding to questions from the evaluation committee and its advisors. When contacted regarding the interview schedule, shortlisted bidders will be notified of a submission deadline for alternate proposals.

The interview must include the program team members expected to complete a majority of work on the program, but no more than eight members total. The interview shall consist of a presentation of up to thirty minutes by the Bidder, including the person who will be the program manager on this contract, followed by approximately thirty minutes of questions and answers (time allotments subject to change at the City's discretion). Audiovisual aids may be used during the interviews. The evaluation committee may record the oral interviews.

Additionally, the shortlisted Bidders may be required to provide written documentation supporting any clarifications that came about during the interview process.

All costs incurred by the Bidders during the interview shall be the responsibility of the Bidder. DWSD reserves the right to waive the interview process and evaluate the consultants based on their proposals and fee (pricing) schedules alone, including review of the fee (pricing) schedules prior to interviews.

d. Round II Evaluation

The evaluation committee will re-evaluate and re-score each of the proposals from the shortlisted Bidders following the interview process. In this Round II evaluation phase, the evaluation committee will re-score based on confirmation of material provided in the technical proposal, fee proposal, presentation/interview and alternate proposal (if provided).

e. Round II Evaluation Criteria

Criteria	Max. Points
1. Plan Review <ul style="list-style-type: none"> • Confirmation of Work Plan. • Confirmation of Transition Plan. • Confirmation of Inclusion/Disadvantaged Business Program. • Level of understanding of DWSD’s goals and objectives. • Soundness of methodology for each plan. 	40
2. Experience Review <ul style="list-style-type: none"> • Validation of Staff Experience. • Validation of Firm Experience. • Soundness of organizational chart for CIPMO. • Quality of reference checks. 	20
3. Confirmation of Fee Proposal <ul style="list-style-type: none"> • Reasonableness and competitiveness of total cost. 	15
4. Alternate Proposal <ul style="list-style-type: none"> • Innovation of alternate proposal. • Level of economic benefit to the City. 	15
5. Presentation/Interview <ul style="list-style-type: none"> • Presentation of the plan. • Responses to questions posed during the interview. 	10

f. Final Negotiation

Further negotiation with the selected firm(s) may be pursued leading to the award of a contract by DWSD, if suitable proposals are received.

DWSD reserves the right to enter into final commercial negotiations and/or contract negotiations with more than one party, at its discretion.

10. OTHER RFP & CONTRACTUAL MATTERS

a. Sample DWSD Standard Form of Contract for Consultant Services (Appendix II)

This sample boilerplate contract is provided for reference purposes only. The actual contract developed from this RFP will be the product of contract negotiations with the Winning Bidder of this RFP.

b. Insurance Requirements

Prior to the award of the contract, the Winning Bidder shall furnish certificates of insurance coverage in accordance with the requirements included in the Exhibit F section of the City of Detroit and BOWC Standard Form of Contract for Engineering Consultant Services (Appendix II).

c. Bond Requirements

Prior to the award of the contract, the Winning Bidder shall furnish a performance and payment bond from a surety acceptable to DWSD. An acceptable surety must be licensed by the State of Michigan Insurance Bureau. The performance and payment bonds shall each be dated as of the contract award (or notice of intent to award) along with a separate certified copy of a power of attorney. The performance and payment bond shall each be in the amount of 10% of the total contract value over the Contract Term. For purposes of quoting this RFP, Bidders should assume a \$100 million performance bond and a separate \$100 million payment bond. The costs of all bonds furnished hereunder shall be included in the contract price.

d. Addendums

Each interpretation or correction, as well as any official changes, and modifications, responses to questions or notices relating to the requirements of the RFP that DWSD may decide to include, shall be distributed through the MITN system. It shall be the responsibility of the Bidder to check for addendum and/or notices posted on MITN and to make inquiry as to the changes or addenda issued. All such changes or addenda shall become part of the contract and all Bidders shall be bound by such changes or addenda. Bidders are advised that no oral interpretation, information or instruction by any agent, officer or employee of the City and/or DWSD shall be binding upon the City.

e. Reference Information

The following is a list of documents that Bidders may find helpful in preparing a proposal for this RFP:

- i. 2015 DWSD Water Master Plan
<http://www.glwater.org/system-planning-documents/master-plans/>
- ii. 2003 DWSD Wastewater Master Plan
<http://www.glwater.org/system-planning-documents/master-plans/>
- iii. DWSD Green Infrastructure Program Documents
<http://www.detroitmi.gov/How-Do-I/Find/Green-Infrastructure>

- iv. GLWA/DWSD Water Lease
<http://www.glwater.org/wp-content/uploads/2016/04/Regional-Water-Supply-System-Lease-as-of-010116.pdf>
- v. GLWA/DWSD Sewer Lease
<http://www.glwater.org/wp-content/uploads/2016/04/Regional-Sewage-Disposal-System-Lease-as-of-010116.pdf>
- vi. GLWA/DWSD Water and Sewer Services Agreement
http://www.glwater.org/wp-content/uploads/2015/11/WATER_SEWER_AGREEMENT_EXECUTED_0612151246_96746_1-2.pdf
- vii. NPDES Permit No. MI0022802 Issued March 1, 2013 (note that NPDES permit contains compliance requirements for DWSD solely and those shared with GLWA are found in the Water and Sewer Services Agreement)
http://www.michigan.gov/documents/deq/deq-wrd-npdes-DetroitWWTP_Permit_415424_7.pdf
- viii. DWSD Procurement Policy
<http://www.detroitmi.gov/How-Do-I/Do-Business-with-the-City/DWSD-Procurement-Forms>
- ix. City of Detroit Code of Ordinances Ethics Code
https://www.municode.com/library/mi/detroit/codes/code_of_ordinances?nodeId=PTIICICO_CH2AD_ARTVIET_DIV4BOET_SDAINGE_S2-6-91CHINDUPRRU
- x. Veolia Maintenance and Repair Review Report - available upon request prior to Proposal Due Date
- xi. RFP for the GLWA Units of Service Study (must be enrolled in MITN)
<http://www.mitn.info/Member/ViewAllOpenTitles2.asp?TN=145169>
- xii. RFP for the GLWA Wastewater Master Plan (must be enrolled in MITN)
<http://www.mitn.info/Member/ViewAllOpenTitles2.asp?TN=145114>

f. Related Projects Currently Underway or Planned

As previously mentioned GLWA and DWSD are updating the GIS. There are no other comprehensive programs underway in the current CIP. There are, however, other short term capital projects underway that include the following:

- i. CS-1673 Professional Engineering Service for Water Main Replacement within the City of Detroit.
- ii. DWS-889, 890, 900 and 901: Inspection and In-Place Rehabilitation/Repair of Existing Sewers- East, Central, North and West Side of the City of Detroit.
- iii. WS-693A, 697 and 698 Water Main Replacements Various Streets in the City of Detroit.

- iv. CS-1522 Green Infrastructure Program 2013-2018 (for further information see Reference Information DWSD Green Infrastructure Program Documents in section 10.e.iii.).

The above information is available upon request. In addition, further information on the ESRI ArcGIS system is available upon request.

g. Dissemination of Information

All (non-publicly available) information about DWSD's past, present and future activities disclosed by DWSD to the Winning Bidder shall be considered by the Winning Bidder as confidential and proprietary and shall not be disclosed to any entity or individual (unless required for legal compliance) without the prior written consent of the DWSD. With respect to a subpoena, court order or other legal process, the Winning Bidder shall notify the DWSD of the demand for information before responding, and the Winning Bidder shall comply with this provision to the extent practicable. The Winning Bidder shall inform the Winning Bidder's personnel (including personnel of all sub-consultants) that any such DWSD information is not to be disclosed to any entity or individual except as permitted by this provision. The Winning Bidder shall take appropriate action to ensure that these obligations are fully satisfied.

h. Errors and Omissions

DWSD's policy regarding consultant financial responsibility for errors and omissions is included in Appendix VI - Detroit BOWC Policy Regarding Design Compensation for Consultants, and will be followed by DWSD in administering this contract.

i. Sales Tax

In computing proposals, the Bidder shall include amounts for Michigan sales tax. Exemption from Michigan sales tax is only applicable when the utility itself procures the materials and equipment. At the present time DWSD is not prepared to procure and store all of the materials required to implement the CIP.

j. Compliance with All Laws

The Winning Bidder will be required to comply with all applicable laws and regulations, including without limitation, holding the proper credentials as a registered business entity with the Michigan Department of Commerce.

Appendix I - Pricing Forms

DWSD CAPITAL IMPROVEMENT PROGRAM MANAGEMENT ORGANIZATION – RFP# CS-1812

Example Pictures of Four Pricing Forms
(forms to be submitted in Excel spreadsheets provided, with the exception of Appendix I-D):



BIDDER PRICING FORM - FOR CIPMO STAFFING

REQUEST FOR PROPOSALS

DWSD RFP No. CS-1812

Professional Engineering and Construction Management Services for the Capital Improvement Program Management Office

APPENDIX I - A

Instructions
1. Bidders must complete a CIPMO Staffing Form for each of the 5 years on pages 2 - 6 of this form.
2. Bidders must input the proposed rates for the overhead multiplier, escalation factor and profit margin in cells J14, J15 and J17, respectively.
3. Bidders have the option to insert an incentive/penalty factor. The rate entered into the cell J16 should reflect the top end of the proposed range (which should be discussed in the bid proposal).
4. Bidders must input the performance and payment bond costs. The amount entered into the cell J19 and J20 should reflect annual cost for each of the bonds.
5. Data should only be entered into cells shaded in light gray -- the rest of this form is locked and will not accept changes or entries.
6. This completed form must be submitted to MITN in Excel format.

Cost Components	Description	Proposed Rate
Overhead Multiplier	Proposed multiplier to account for overhead, burden, fringes and other indirect costs not included in weekly salary range.	-
Escalation Factor	Proposed percentage to account for compensation increases for Years 2 - 5.	0%
Incentive/Penalty Factor	Optional proposed incentive and penalty percentage.	0%
Profit Margin	Proposed profit margin.	0%
Performance Bond Cost	Proposed annual cost to hold a \$100 million performance bond.	\$ -
Payment Bond Cost	Proposed annual cost to hold a \$100 million payment bond.	\$ -

YEAR 1							
Job Classification	Job Description (Role, Function, Experience Level)	Proposed # of Positions	Weekly Salary Range Minimum	Weekly Salary Range Maximum	Estimated Working Weeks	% of Time Committed to DWSD Project	Total Cost Per Position Per Year
1							\$ -
2							-
3							-
4							-
5							-
6							-
7							-
8							-
9							-
10							-
11							-
12							-
13							-
14							-
15							-
16							-
17							-
18							-
19							-
20							-
21							-
22							-
23							-
24							-
25							-
Wage Total		-					\$ -
Cost Component Effects							
Overhead Multiplier							-
Escalation Factor							N/A
Incentive/Penalty Structure							0%
Profit Margin							0%
Performance Bond Cost							\$ -
Payment Bond Cost							\$ -
Total Proposed Year 1 Budget							\$ -



BIDDER PRICING FORM - SUBCONTRACTOR MARK-UP

APPENDIX I - B

REQUEST FOR PROPOSALS

DWSD RFP No. CS-1812

Professional Engineering and Construction Management Services for the Capital Improvement Program Management Office

Instructions

1. Bidders must disclose on the mark-up rate on subcontractor invoices.
2. Bidder Payment Terms: mark-up rate to hold contracts and pay subcontractors on the Bidder's standard terms.
3. Pay When Paid Terms: mark-up rate to hold contracts and pay subcontractors upon receiving payment from DWSD.
4. Bidders should provide any requirements necessary that DWSD would need to accommodate in order for the Bidder to carry the subcontractor contracts.
5. Data should only be entered into cells shaded in light gray -- the rest of this form is locked and will not accept changes or entries.
6. This completed form must be submitted to MITN in Excel format.

Bidder Payment Terms To:	Number of Days
Design	
Construction	
Engineering	
Other	
Other	
Other	

Subcontractor Type	Proposed Mark-Up Rates	
	Bidder Payment Terms	Pay When Paid Terms
Design		
Construction		
Engineering		
Other		
Other		
Other		

Subcontractor Type	Other Considerations to Accommodate Holding Contracts of Subcontractors
Design	
Construction	
Engineering	
Other	
Other	
Other	



**BIDDER PRICING FORM - SELF-PERFORMANCE OF DESIGN AND ENGINEERING
REQUEST FOR PROPOSALS**

APPENDIX I - C

DWSD RFP No. CS-1812

Professional Engineering and Construction Management Services for the Capital Improvement Program Management Office

Instructions

1. Bidders that would like to propose self-performance of design and engineering services are requested to disclose such in the bid response.
2. Bidders that would like to propose self-performance of design and engineering services are requested to provide a process for cost estimating or otherwise ensuring the cost of self-performed design services will be competitively priced with the market for comparable services.
3. Data should only be entered into cells shaded in light gray -- the rest of this form is locked and will not accept changes or entries.
4. This completed form must be submitted to MITN in Excel format.

Self-Performance Design Cost Estimating/Assurance Process Description

A large rectangular area with a light gray background, intended for the bidder to describe their self-performance design cost estimating and assurance process. The area is currently blank.



BIDDER PRICING FORM - CIPMO ORGANIZATIONAL STRUCTURE

REQUEST FOR PROPOSALS

DWSD RFP No. CS-1812

Professional Engineering and Construction Management Services for the Capital Improvement Program Management Office

APPENDIX I - D

Instructions

1. Bidders must complete an organizational structure for the CIPMO which must include positions proposed on the CIPMO Staffing Form.
2. Bidders may include as many pages as necessary to complete the proposed organizational chart.
3. Responses should be in the format of an organizational chart (not a listing).
4. Data should only be entered into cells shaded in light gray.
5. This completed form (or comparable form) must be submitted to MITN either in Excel or PDF format.



Appendix II - City of Detroit and BOWC Standard Form of Contract for
Engineering Consultant Services

Appendix III - Local Economic Development Data

Appendix IV - Detroit-Based
Business Questionnaire Form

Appendix V- Detroit City Code Section 2-106 Standards of Conduct

Appendix VI - Detroit BOWC Policy Regarding Design
Compensation for Consultants

Appendix VII - Clearance Package



DETROIT
**Water & Sewerage
Department**

2018-2022 CIP Report
Appendix B:
**Project Proposal
Template**



CAPITAL IMPROVEMENT PROGRAM PROJECT PROPOSAL

Title: _____

CIP (Circle One): WATER SEWERAGE WATER & SEWERAGE

PLEASE PROVIDE THE FOLLOWING

1. Problem Statement

- Describe the problem or problems, which make the proposed capital project necessary.
- Identify and write (*as stated below*) which one category below describes the necessity of this proposed project:
 - a. Directly mandated projects (specific projects mandated by regulatory agencies or court ordered)
 - b. Projects mandated by regulatory requirements to maintain compliance
 - c. Projects required to maintain or improve system reliability and/or capacity
 - d. Projects that utilize technological advances to improve operational efficiency, worker productivity and/or managerial effectiveness
 - e. Projects required for new or amended service
- Make reference to relevant federal, state or county regulations or court orders with which the department must comply.
- Include information on contractual commitments, which commit the department to providing specific facilities.
- Include your assessment of the priority of this project.

2. History (Background)

- Provide background information on the facility, equipment, etc.

3. Potential Alternative Solutions (Project Objective)

- Include a range of solutions from minimal to most elaborate.
- Solutions may involve rehabilitation or replacement of equipment, new construction, purchase of technology, corrosion protection, etc.

4. Financial Analysis/Benefits

- Explain how the project is financially beneficial to the Department.
- If an existing equipment is being replaced with a new equipment, analyze the present value (PV)/life cycle cost (LCC) of rehabilitating the existing equipment with that of other alternatives for new equipment.
- If there is going to be a new project or equipment addition, then analyze different project/equipment options by analyzing the PV/LCC of all the available options.



CAPITAL IMPROVEMENT PROGRAM PROJECT PROPOSAL

- PV/LCC analysis should include the capital, operation, maintenance, and other known costs.

Continued:

- Typically, a project is selected if it has less PV compared to other available alternatives.

5. Operational Benefits

- Include the operational benefits of the project, for example, more efficient operations, increased capacity, or more reliable service, reduced maintenance, less down time, etc.

6. Preliminary Scope of Work

- Identify all major tasks to be performed as part of the project.
- Establish and define project deliverable subject to modification.

7. Related Projects Currently Underway or Planned

- Identify interrelated projects, for example, a meter pit rehabilitation project must be completed before suburban master meters are replaced.
- Identify coordination needs with City of Detroit or other agencies.

8. Time Requirements

- Outline the desired time frame for the completion of the project, from the start of the study phase to the completion of the construction phase.
- Allow adequate time for each phase, based on recent department experience.
- Refer to any externally imposed deadlines, such as those required by court orders, government regulations or contractual commitments.
- Refer to any deadlines required by the need to interface with other related projects.

9. Capital Cost Estimate

- Attach Capital Cost Estimate worksheet (*see example worksheet*).

CIP FISCAL YEAR EXPENDITURES PROJECTIONS

FY	FY	FY	FY	FY	REMAINING	TOTAL
\$	\$	\$	\$	\$	\$	\$

10. Present Value / Life Cycle Cost Analysis

- Attach a Present Value/Life Cycle Cost Analysis worksheet for available project alternatives (*see example worksheet*).

11. Implication of Deferring the Project

- If deferred, what would be the risks?
- If deferred, what are some identifiable negative impacts?
- If deferred, will this project's total cost increase?
- If deferred, will operations and maintenance costs increase?
- If deferred, will this project cause delays in other projects?



CAPITAL IMPROVEMENT PROGRAM PROJECT PROPOSAL

Continued:

12. Identification of In-House Responsibility

- Identify Lead Group's contact person.

13. Reference Materials

- Identify available reference materials.

Submitted By: _____ **Date:** _____

Recommended By: _____ **Date:** _____

Approved By: _____ **Date:** _____

DEFINITIONS:

Life Cycle Cost: The total discounted dollar cost of owning, operating, maintaining, and disposing of a facility or equipment over a period of time.

Life Cycle Cost Analysis: It is an economic evaluation technique that determines the total cost of owning and operating a facility over a period of time.

Present Value: The current value of one or more future cash payments discounted at some appropriate interest rate.

Salvage Value: The estimated value of an asset at the end of its useful life.

Equivalent Annual Cost: The annual cost of owning an asset over its entire life.

INSTRUCTIONS FOR COMPLETING THE ATTACHED WORKSHEETS

STEP 1: Download The Blank Worksheets From The CMG Web Page

STEP 2: You Must Complete Page 1 before you begin Page 2

REASON: the values from Page 1 will automatically carry over to Page 2

STEP 3: Input Information Requested In Blue Colored Cells On Page 1 first, then proceed to the Blue Cells on Page 2

Both pages have built-in formulas to make completing the form quick and easy.

STEP 4: After Populating The Blue Cells With Requested Information, The Forms Are Complete

STEP 4: Save Your Worksheets In Your Own Electronic File Folder For Future Use.

NOTE:

The Preparer should use reasonable, consistent, reliable, and well documented data or assumptions in completing the Present Value/Life Cycle Cost Analysis.

INSTRUCTIONS: Project Manager must input data in the blue cells. The white cells are automatically calculated.

CIP PROJECT PROPOSAL Capital Cost Estimate Worksheet

--

	Input Data Into Colored Boxes	Input Data Into Colored Boxes	
	Alt. "A"	Alt. "B"	Line Item #
Study Phase			
Consultant Fee			
In-house Force Account			
Sum Total of Study Phase	\$0	\$0	1
Design Phase			
Consultant Fee			
In-house Force Account			
Sum Total of Design Phase	\$0	\$0	2
Construction Phase			
Construction Cost			
Civil Items			
Mechanical Items			
Electrical Items			
Miscellaneous			
Subtotal Sum	\$0	\$0	3
Mobilization & Demobilization Costs:	\$0	\$0	4
Subtotal (Line Items# 3+4)	\$0	\$0	5
G.C./O.H./Profit: (15% of Line Item# 5).....	\$0	\$0	6
Subtotal (Line Items# 5+6)	\$0	\$0	7
Provisionary/Contingency Allowance:	\$0	\$0	8
Subtotal (Line Items# 7+8)	\$0	\$0	9
Consultant Fee for Construction Assistance Services			10
In-house Force Account for Construction Phase			11
(Line Items# 10+11+12)	\$0	\$0	12
GRAND TOTAL CAPITAL COST ESTIMATE:	\$0	\$0	13

INSTRUCTIONS: Project Manager must input data in the blue cells. The white cells are automatically calculated.

CIP PROJECT PROPOSAL Present Value/Life Cycle Cost Analysis Worksheet

	0
	0

(Provide information in the blue shaded cells only. All other cells are auto-calculated.)

	Alt. "A"	Alt. "B"	Line Item #
Capital Cost "C"			
Design & Installation Cost for the New Equipment			
Estimated Study Phase Consultant Fee	\$0	\$0	
Estimated Study Phase Force Account Cost	\$0	\$0	
Estimated Design Phase Consultant Fee	\$0	\$0	
Estimated Design Phase Force Account Cost	\$0	\$0	
Estimated Construction Cost (Contractor)	\$0	\$0	
Estimated Construction Phase Assistance Consultant Fee	\$0	\$0	
Estimated Construction Phase Assistance Force Account Cost	\$0	\$0	
Sum Total of "Present Value of Capital Cost" Items	C = \$0	\$0	1

Study, Design, and Construction Period Interest Value "I"

Total Project Period: $n_1 =$ 4 years (this includes study, design, and construction phases)			
Interest Rate: $i =$ 7.0 % per year			
Present Interest Value "I" = $(i * n_1 * C) * .5$	I =	\$0	\$0

Annual Operation & Maintenance Cost "A"

Operation Cost			
Maintenance Cost			
Energy Cost			
Sum Total of "Annual O & M Cost" Items	A_{O&M} =	\$0	\$0
Present Value of O & M Cost = $A_{O&M} * ((1+i)^n - 1) / (i * (1+i)^n)$	P_{O&M} =	\$0	\$0
or $P = A / (A/P, i\%, n_2)$	where: $i =$ 0.07 and $n_2 =$ 20 yrs.		3

NOTE: the useful life (n_2) is as follows:

n_2	
5	yrs. for Computers & Systems Equipment
20	yrs. for Equipment (non-computer systems)
40	yrs. for Structures
50	yrs. for Sewers & Water Mains

Salvage Value "S" (Assuming Present Salvage Value)	S =	\$0	\$0	4
Total Present Value (P) of Project of <u>20</u> Year Life = (Line Items#1+2+3+4)	P =	\$0	\$0	5
Equivalent Annual Cost (A) of the Project = $P * ((i * (1+i)^n) / ((1+i)^n - 1))$	A =	\$0	\$0	6