



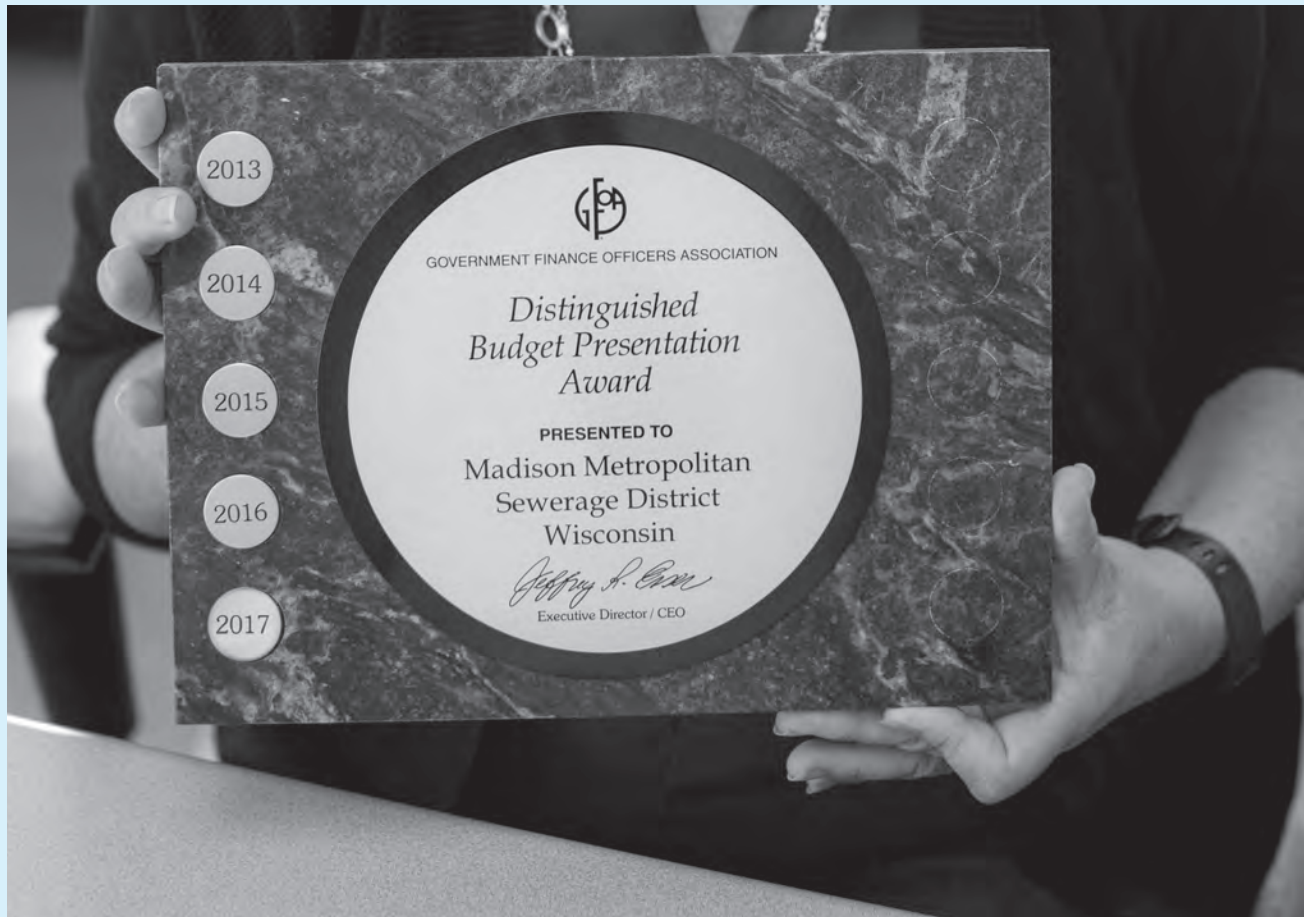
2018

OPERATING BUDGET &
CAPITAL IMPROVEMENTS PLAN

ADOPTED | October 26, 2017

Madison Metropolitan
Sewerage District





GFOA AWARD

The Government Finance Officers Association of the United States and Canada (GFOA) presented a Distinguished Budget Presentation Award to Madison Metropolitan Sewerage District for its annual budget for the fiscal year beginning January 1, 2017. In order to receive this award, a governmental unit must publish a budget document that meets program criteria as a policy document, as an operations guide, as a financial plan and as a communications device. This award is valid for one year only. We believe our current budget continues to conform to program requirements and we are submitting it to GFOA to determine its eligibility for another award.



COMMISSIONERS

James Martin

Ezra Meyer, *Vice President*

Brad Murphy

Tom Wilson

Brian Potts

Angela James, *Secretary*

Thomas Hovel, *President*

Sara Eskrich

Ken Clark

Table of Contents

SECTION ONE: INTRODUCTION TO THE DISTRICT BUDGET | 1

2018 BUDGET MESSAGE	2
OVERVIEW	4
<i>Figure 1: Budget Strategic Issues, Investments and Outcomes</i>	5
BUDGET PROCESS.....	7
<i>Figure 2: Budget Calendar</i>	8
<i>Table 1: Amendment Procedures</i>	9
BUDGET AMENDMENT PROCEDURES.....	9
BUDGET POLICIES AND PRACTICES	9
BUDGET POLICY GUIDANCE	10
DEFINITIONS	10
<i>Figure 3: Fund Structure for Budgets</i>	11
<i>Table 2: Combined Summary of Revenues & Expenditures</i>	12
<i>Table 3: Operating and Capital Budgets Combined</i>	13
2018 COMBINED SUMMARY OF OPERATING, CAPITAL PROJECTS AND DEBT SERVICE	13
<i>Figure 4: 2018 Combined Summary of Revenues & Expenditures</i>	14

SECTION TWO: 2018 OPERATING BUDGET SUMMARY | 15

OVERVIEW	16
2017 Revenues	16
2017 Expenditures.....	16
2018 Revenues	16
<i>Table 4: 2018 Operating Budget</i>	17
<i>Figure 5: 2018 Operating Budget</i>	18
2018 Expenditures.....	19
OPERATING FUND BALANCE	19
IMPACTS OF CAPITAL INVESTMENTS ON THE OPERATING BUDGET	19
OPERATING BUDGET PLANNING	20
2017 SERVICE CHARGE RATES	20
REVENUE CATEGORIES	21
<i>Figure 6: Number of Pumping Stations Serviced by Location</i>	21
EXPENDITURE CATEGORIES.....	22
PERSONNEL	25
<i>Table 5: Full-Time Equivalent Positions</i>	25
<i>Figure 7: Organizational Chart</i>	26

SECTION THREE: 2018 CAPITAL IMPROVEMENTS PLAN & BUDGET | 27

INTRODUCTION	28
OVERVIEW AND HIGHLIGHTS.....	29
2018 CAPITAL PROJECTS BUDGET SUMMARY	32
2017 Summary	32
2018 Revenues & Expenditures	32
<i>Table 6: Capital Projects Budget</i>	33
SIX-YEAR CAPITAL PROJECTS OVERVIEW	34
<i>Table 7: Six-Year Capital Projects Summary</i>	35
CAPITAL PROJECTS CASH FLOW SUMMARY	37
<i>Table 8: Capital Projects Cash Flow Summary</i>	37
Wisconsin Clean Water Fund Program	39

Table of Contents *continued*

SECTION FOUR: 2018 DEBT SERVICE | 41

OVERVIEW	42
ROLE OF DEBT IN DISTRICT FINANCES	42
DEBT LEVELS AND CONTROLS	42
TRENDS IN DISTRICT DEBT	43
<i>Table 9: Debt Service Collected in Rates 2006-2025</i>	44
<i>Table 10: Six-Year Debt Service Summary</i>	45
FUTURE DEBT SERVICE	45
<i>Table 11: 2018 Debt Service Budget</i>	46
NITROGEN REMOVAL PROCESS	46
<i>Table 12: Estimated Debt Service Payment Schedule</i>	47
DEBT SERVICE BUDGET AND SCHEDULE	47
CURRENT DEBT SERVICE SCHEDULE	47
<i>Chart 1: Historical and Projected Debt Service</i>	48

SECTION FIVE: STRATEGIC PLANNING | 49

OVERVIEW	50
<i>Figure 8: Strategic Plan</i>	52
FIVE PILLARS OF DISTRICT WORK	52

SECTION SIX: DEPARTMENTAL INFORMATION | 53

<i>Table 13: Departmental Budget Summary</i>	55
DISTRICT LEADERSHIP AND SUPPORT DEPARTMENT	56
ADMINISTRATIVE SERVICES DEPARTMENT	62
ECOSYSTEM SERVICES DEPARTMENT	66
ENGINEERING DEPARTMENT	72
PLANNING AND STRATEGY DEPARTMENT	78
OPERATIONS AND MAINTENANCE DEPARTMENT	84

APPENDICES | 89

APPENDIX A: PROJECT SUMMARIES	90
APPENDIX B: COMPLETED PROJECTS & RETAINERS	140
2016 Project Completions	140
2017 Project Completions/Anticipated Completions	141
Retainers	143
APPENDIX C: BUDGET SUMMARIES	145
APPENDIX D: 2017 WAGE SCHEDULE FOR HOURLY EMPLOYEES	148
APPENDIX E: 2017 SALARIED WAGE SCHEDULE	149
APPENDIX F: STATISTICAL & SUPPLEMENTAL DATA	150
<i>Figure 10: Dane County and District Data</i>	151
<i>Figure 11: Equalized Property Valuation for the District</i>	151
<i>Table 14: Estimated Wastewater Contributions</i>	152
<i>Figure 12: Collection Systems Overview Map</i>	153
<i>Table 15: Dane County Principal Taxpayers (Budget Year 2016)</i>	154
<i>Table 16: Dane County Largest Employers</i>	154
APPENDIX G: SUMMARY OF ORGANIZATIONAL CHANGES	155
APPENDIX H: GLOSSARY	156
Common Acronyms	156
District Definitions	156

SECTION ONE

INTRODUCTION TO THE DISTRICT BUDGET



Derek Steinhorst readying the monitoring services vehicle for a day in the field.



Nine Springs Wastewater Treatment Plant

INTRODUCTION TO THE DISTRICT BUDGET

BUDGET MESSAGE

2018 BUDGET SUPPORTS STRATEGIC GOALS AND PRIORITIES

Madison Metropolitan Sewerage District's "2018 Operating Budget and Capital Improvements Plan" reflects strategic goals and priorities established by the Madison Metropolitan Sewerage District Commission as well as local issues and broader trends affecting wastewater treatment systems nationwide.

Allocations for core work, ongoing programs and new initiatives in the 2018 budget support the district's strategic goals centered on the environment; employees; infrastructure; organizational effectiveness; and community benefits. Spending decisions are further informed by organization-wide factors and national trends including the need to replace aging infrastructure; accommodate community growth; and manage effectively during a time of diminishing federal cost-sharing for reinvestment in regional wastewater systems.

To carry out its mission, Madison Metropolitan Sewerage District manages three major categories of revenues and expenditures through an operating budget; a capital projects budget; and a debt service budget. For 2018, total revenue is projected at \$40.2 million, down less than 1 percent from \$40.6 million budgeted in 2017; total expenditures are projected at \$43.3 million, up less than 1 percent from \$43.1 million budgeted in 2017. To accomplish the expenditures, the district will reduce its overall reserves by \$3.1 million.

The district does not charge or receive revenues directly from customers; rather its costs are passed through its 27 customer communities. In turn, these customer communities bill households using their own cost recovery methodology.

Working in partnership with these communities, the district carefully weighs the impact of its budget decisions on citizens and seeks to quantify the effects each year. For 2018, the district's planned revenues and expenditures are expected to result in average household service charges of \$181, up 6.5 percent from \$170 in 2017. The increase amounts to 92 cents per month for an average customer. The projected impact on households is slightly less than the total budgeted increase in service charge revenue of 6.9 percent, which includes all users. Over the next eight years, upward pressure on general service charges will be mitigated by a commission decision to more fully recover the costs of providing service to new developments through a change in the connection charges rate structure.

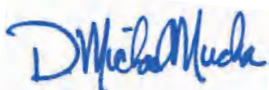
Among the strategic actions supported by the 2018 operating budget:

- Development and implementation of outreach and communication efforts to strengthen partnerships and achieve behavioral change that will lead to reductions in phosphorus and chloride concentrations in the region's surface waters.
- Development of a district energy management plan.
- Research into affordability issues and development of innovative solutions that ensure access to the public health and environmental benefits of reliable wastewater services.
- Continued operational planning work to identify short- and long-term revenue needs.
- Efforts to strengthen and diversify the district's portfolio of biosolids production and distribution activities through adoption of best practices for quality assurance, land application and integration of additional nutrient streams including food waste.
- Implementation of a training program to strengthen employee cultural competency and increase staff engagement through the employee leadership council.

Among the priorities for infrastructure addressed through the 2018 capital budget:

- Construction of a new interceptor extension near Morse Pond on Madison's southwest side to serve developing areas of the county.
- Relocation of a portion of the district's southeast interceptor near West Broadway and the Yahara River to facilitate major redevelopment in the City of Monona.
- Design of several treatment plant projects included in a liquid processing facilities plan to address peak capacity concerns and replace aging systems.
- Design of several collection system projects including replacement of the southwest interceptor on Haywood Drive to implement the collection system facilities plan.
- Development of a plant asset management plan and force main condition assessment program.

The 2018 budget continues mission-driven efforts to cost-effectively maintain district facilities and support regional collaboration while protecting public health and the environment. The district's vision to enrich life through clean water and resource recovery is evidenced by prudent expenditures aimed at enhanced phosphorus recovery, reduced chloride use and improved biosolids management. Thanks to the support and engagement of the commission, our staff, customer communities and stakeholders, the 2018 budget advances this critical work.



Michael Mucha, P.E., ENV-SP
Chief Engineer and Director

OVERVIEW

Madison Metropolitan Sewerage District's mission to protect public health and the environment requires consistent performance and continued investment in the network of pipes and pumps running beneath its 185-square-mile service area. While the district's traditional process of collecting, transporting and treating wastewater has proven reliable for more than 80 years, changing public expectations and regulatory requirements demand innovative leadership and prudent fiscal management for future success.

To sustainably recover resources and responsibly operate the system, district staff plan and proactively take action to identify challenges and opportunities. The following pages contain important examples of projects that address emerging issues such as plant peak capacity and highlight intergovernmental partnerships on priority projects that minimize costs to rebuild infrastructure while facilitating community redevelopment.

Approximately 95 percent of the district's resources are allocated to the construction, operation and maintenance of physical infrastructure. Unfortunately, changing social, economic and environmental factors point to diminishing returns from an investment strategy that is overly reliant on infrastructure to solve complex problems.

The following short and longer-term trends, identified as part of a triple bottom line framework for sustainability, are addressed within the budget through a variety of integrated solutions. **Figure 1** highlights key social, economic and environmental factors as well as the related strategic issues, district investments and desired outcomes.

CURRENT FACTORS: SOCIAL

Fractured civic dialogue¹ and a divisive climate² present new challenges when it comes to engaging stakeholders and achieving consensus. At the same time, highly publicized failures of wastewater, drinking water and other municipal systems have eroded public trust in government³.

The district's budget addresses current social trends through a combination of investments to assure infrastructure performance, build trust through more consistent communications and enhance community understanding of the district's operations. For example, in addition to planning for infrastructure improvements to manage plant peak capacity, the budget includes investments in communications and programming to help engage the community in sustainable approaches to meet regulatory and operational objectives.

The district is also investing in employee development to improve the leadership and collaboration skills needed to develop innovative solutions for the future.

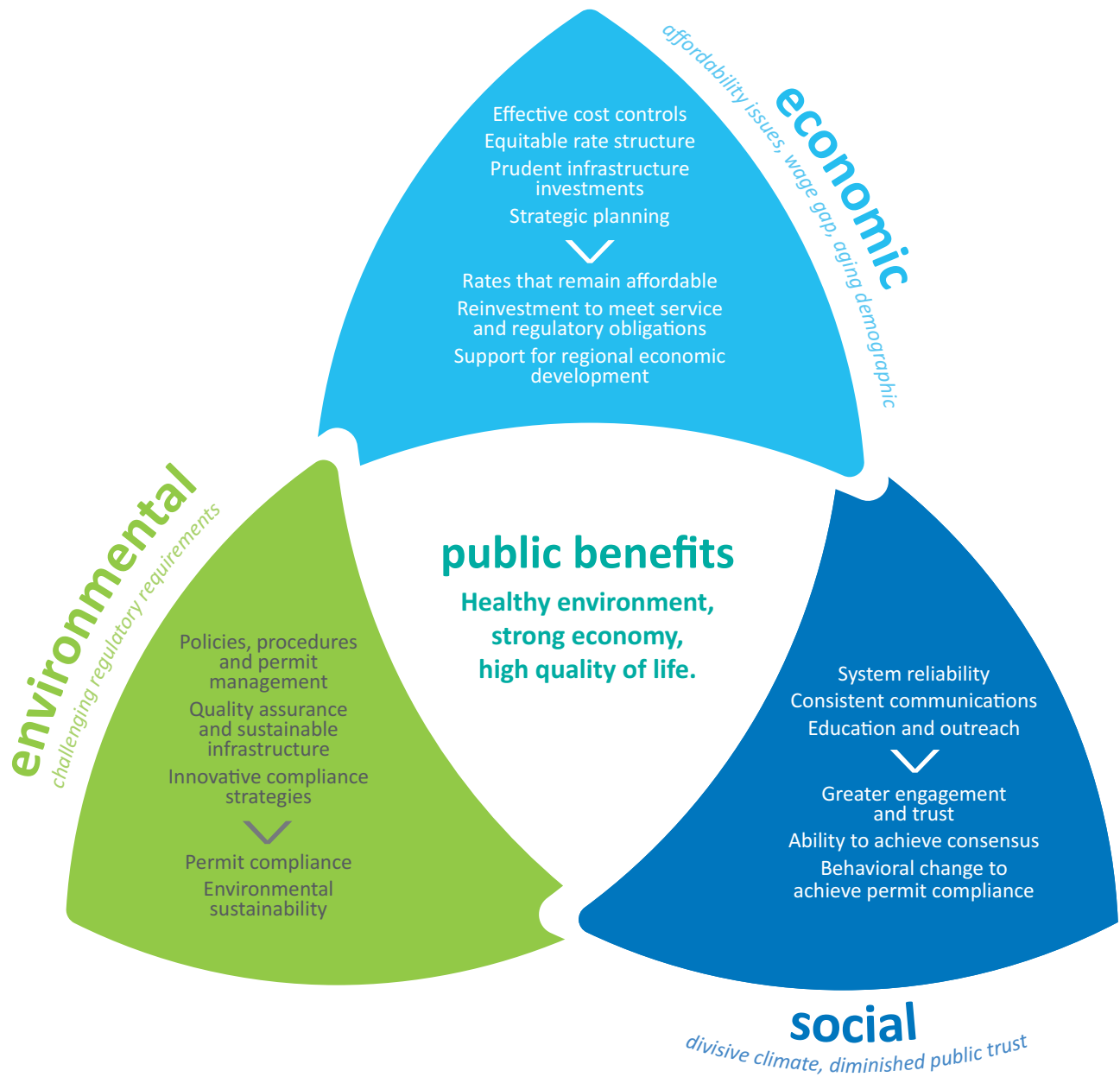
Outcomes of these investments are expected to include greater community engagement and trust in the district's leadership as well as an enhanced ability to achieve consensus on difficult issues. Ultimately, strategic communication and outreach efforts are expected to support the behavioral change needed to achieve least-cost, long-term permit compliance.

¹ Kristin Jordan Shamus, "Poll: 'Political Climate' is Freaking Most of us Out," *USA Today Network: Detroit Free Press*, February 16, 2017, <https://www.usatoday.com/story/news/nation-now/2017/02/16/poll-two-thirds-americans-stressed-future-us-politics/97986834/>

² American Psychological Association, *Stress in America: Coping with Change*, February 15, 2017; p. 1. <http://www.apa.org/news/press/releases/stress/2016/coping-with-change.PDF>

³ Jessica Mendoza, "In Flint Water Crisis, Biggest Problem to Fix May Be Trust," *Christian Science Monitor*, February 1, 2016. <https://www.csmonitor.com/USA/Society/2016/0201/In-Flint-water-crisis-the-biggest-problem-to-fix-may-be-trust>

FIGURE 1 | 2018 Budget Strategic Issues, Investments and Outcomes



CURRENT FACTORS: ECONOMIC

While the Madison area's economic performance outpaces that of many areas⁴, current regional trends include an aging demographic⁵, persistent wage and skills gap⁶ and housing costs that are out of reach for many⁷. Understandably, these challenges are top-of-mind for commission members charged with ensuring access to affordable and reliable wastewater services. However, fundamental change will be needed to produce revenue sufficient to address the impending wave of necessary infrastructure repair. The district's growing funding needs will require creative solutions to ensure sufficient revenue is available to protect public health and the environment while limiting rate impacts on disadvantaged communities.

The district's budget addresses these current economic trends through programs to effectively control costs, an equitable rate structure that recovers costs from those who benefit most and prudent infrastructure investments. For example, the 2018 budget includes development of a joint sustainability plan that addresses affordability issues (leadership and support); a commitment of staff time to resolve previously unpaid connection charges (engineering); and funding for completion of the southeast interceptor relocation project in conjunction with a major redevelopment project in the City of Monona (engineering).

Outcomes of these budget initiatives are expected to include service charges that remain competitive when compared with regional and national indices and increased understanding of the value of district services. Through its prudent financial stewardship and strategic management, the district is poised to facilitate regional economic development that will further address the challenges identified above.

CURRENT FACTORS: ENVIRONMENTAL

Increasingly stringent permit requirements preclude the district's ability to buy its way to compliance through ever increasing expenditures on infrastructure⁸. In the case of phosphorus loading and chloride concentrations, the cost of technology to remove dissolved chloride and capture enough phosphorus to achieve permit requirements is too high for the rate base to bear. For example, costs to achieve water quality limits of 395 mg/L for chloride carry a minimum net present value of \$400 million and would increase service charges by more than 50 percent.

To ensure compliance now and in the years to come, the budget includes investments in several quality assurance efforts as well as document management to improve tracking of the policies and procedures necessary for compliance. The district's budgetary commitment to the Yahara Watershed Improvement Network represents an innovative approach to compliance on phosphorus known as adaptive management. By demonstrating its commitment to chloride reduction, the district also is expected to gain regulatory flexibility in its chloride limits to account for seasonal fluctuations in the water entering the plant. For 2018, the district budget anticipates Wisconsin Department of Natural Resources approval of its Wisconsin Pollutant Discharge Elimination System permit with new winter and summer chloride interim target limits of 465 mg/l and 430 mg/l, respectively. As part of its strategy to meet these goals, the district intends to expand market penetration of its chloride reduction grants program.

In addition to regulatory compliance, outcomes of these budget initiatives will include reduced pollution in the region's surface waters, increased nutrient recovery, reduced energy use and enhanced environmental sustainability.

⁴ Wisconsin Department of Workforce Development, "Wisconsin County Unemployment Rates, July 2017," July 2017.

http://worknet.wisconsin.gov/worknet_info/maps/pdf/uRatesCo.pdf

⁵ David Egan-Robertson, "Wisconsin's Future Population Projections for the State, Its Counties and Municipalities, 2010-2040," UW-Madison Applied Population Laboratory, Report Prepared for: Demographic Service Center, Wisconsin Department of Administration, December 2013, p. 21. <https://www.nrc.gov/docs/ML1404/ML14042A022.pdf>

⁶ Competitive Wisconsin, "Be Bold 2: Growing Wisconsin's Talent Pool," October 2012, http://wiroundtable.org/resources/BeBold2_Study_October2012.pdf

⁷ U.S. Census Bureau, "Poverty Status in the Past 12 Months," 2011-2015 American Community Survey 5-Year Estimates, Dane County and City of Madison, Wisconsin, 19 percent of population for whom poverty status is determined ranked below the federal poverty level. https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_S1701&prodType=table

⁸ Emily Jones, "Salt Wise Soft Water Presentation," Madison Metropolitan Sewerage District Website, April 25, 2017. http://www.madsewer.org/Portals/0/ProgramInitiatives/ChlorideReduction/Salt%20Reduction%20Examples/1_2017%20MMSD%20Introduction.pdf



Citizen enjoying wildlife observation area.

BUDGET PROCESS

The purpose of the annual budgeting process is to ensure that the district has adequate resources to deliver its planned services during the upcoming year and in future years. As part of this process, the following questions need to be answered:

1. What are the estimated expenses for operating the district's facilities and programs next year?
2. What are the estimated costs for construction of new or replacement facilities over the next six years?
3. How much money can the district expect from the various revenue sources next year, and how much money will the district need to recover through service charges?
4. How much money will the district need to borrow to finance construction work?
5. How much money does the district need in the bank to ensure adequate cash flow, to fulfill promises made when borrowing money and to address unforeseen emergencies?

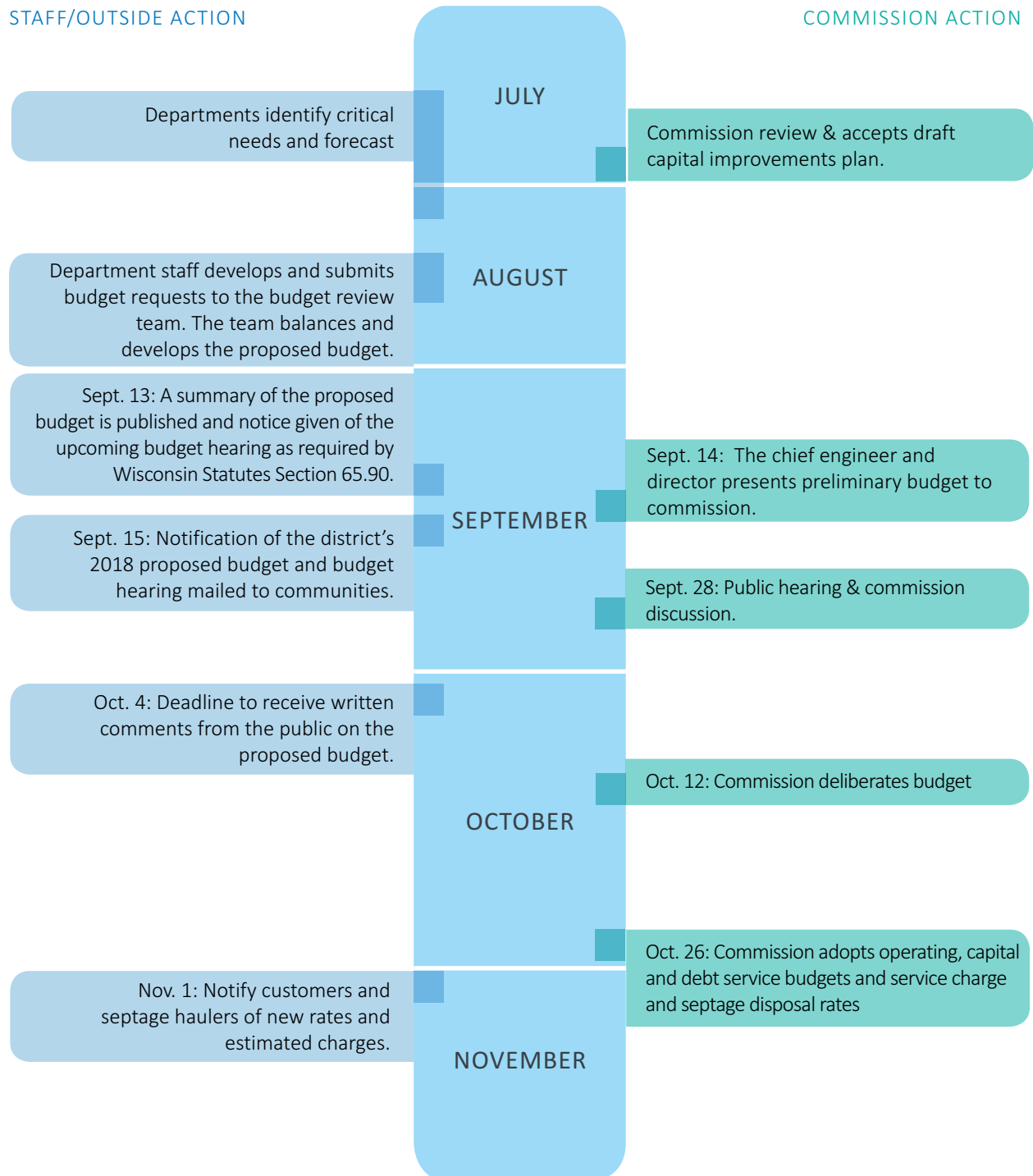
The annual budget process addresses the upcoming year's financial management plan in three areas:

1. The **operating fund budget** addresses the operation of facilities and includes recovery of future years' debt service costs to comply with promises made at the time the district borrows money to finance construction projects. Service charge revenue is the primary source of funds used to pay for the operation of facilities.
2. The **capital projects fund budget** addresses construction of new or replacement facilities. Larger projects are typically funded with proceeds from a Clean Water Fund loan. These loans are administered by the State of Wisconsin. The district uses its taxing authority as collateral for these loans; however, the intent is to repay these loans with revenues generated through service charges. Smaller construction projects are funded through connection charge revenue and interest earned on the fund's investments.

FIGURE 2 | Budget Calendar

STAFF/OUTSIDE ACTION

COMMISSION ACTION



3. The **debt service fund budget** addresses debt service, the annual principal and interest payments due on borrowed funds. When the district borrows money from the state in the form of a Clean Water Fund loan, the district promises to place the amount of the next year's debt service payments on the tax roll unless the debt service fund has a balance by Oct. 1 sufficient to make those payments. Since the district intends to repay its debt through service charges, each year's operating fund budget includes sufficient amounts of principal and interest in its operating expenses to fulfill this requirement. This money is transferred from the operating fund to the debt service fund prior to Oct. 1 each year to ensure that no debt service payments need to be placed on the tax roll.

Each year, the chief engineer and director submits proposed operating, capital projects and debt service budgets. These proposed budgets are typically submitted at the first commission meeting in September. After a public hearing and further consideration by the commission, the commission commonly approves the operating, capital projects, and debt service budgets in late October (see figure 2).

BUDGET AMENDMENT PROCEDURES

Amendments to the proposed operating, capital projects and debt service budgets, or to the approved budgets, can be initiated by either the commission or staff. Once the commission approves the budgets for the succeeding calendar year, amendments to the budgets must be approved by the commission as shown in Table 1.

BUDGET POLICIES AND PRACTICES

Several overarching policies and practices combine to form the district's approach to budgeting for the services provided by the district:

1. Users pay charges based on the cost of the service.
2. Operating costs are funded on a "pay-as-you-go" basis. Annual costs for operating the district's facilities are recovered from current users through the payment of service charges that reflect the customer's use of the service and the current costs of providing that service. The district does not use borrowed money to pay for current operating costs.
3. Construction of new facilities is financed primarily with debt. New facilities are built to last 20 years or more, and designed with sufficient capacity to handle increasing loads caused by expected growth over their useful lives. Debt for new facilities is generally paid back over a 20-year period. This spreads the up front construction costs over those users that actually use the facility during its service life.
4. Detailed long-range planning helps to ensure stable rates and charges. The district's capital projects fund budget includes a six-year projection of construction-related expenses and revenues. The financial plan that evaluates the impacts of long-term borrowing on future budgets uses a 20-year projection.

TABLE 1 | Amendment Procedures

BUDGET	REQUIREMENTS FOR BUDGET AMENDMENTS
OPERATING	Any increase in the total authorized expenditures.
CAPITAL PROJECTS	Any increase in the budget total for the year. The addition of a new project not previously included in the adopted budget. Any increase to a previously approved total project cost.
DEBT SERVICE	Any change to the approved amount to be transferred from the Operating Fund to the Debt Service Fund.



Maintenance Worker Karen Bennett evaluates a pressure gauge.

BUDGET POLICY GUIDANCE

A number of policies guide the preparation of the annual budget for each of the three district funds.

The operating fund budget policies:

1. Maintain a minimum fund balance equal to 180 days of the annual operating costs (does not include debt service), to ensure adequate cash flow capabilities.
2. Balance the budget by calculating the required service charge revenues so that total revenues equal total expenditures. Service charge rates are reviewed and set annually so projected flows and loadings will provide the required service charge revenue.

The capital projects fund budget policies to:

- Maintain a minimum fund balance of \$3 million to fund any unforeseen project that may arise during the year.
- Utilize reserve funds, interest earnings and connection charge revenues to pay project costs before borrowing additional funds, unless the estimated project cost significantly exceeds the sum of these sources. In such cases, money is borrowed to finance the project. Since the early 1990s, the Clean Water Fund Program has been the lowest cost source of debt financing for the

district. All district loans since 1992 have been through the Clean Water Fund Program.

The debt service fund budget policies to:

- Maintain a minimum balance in the debt service fund to ensure that no debt service payments need to be placed on the tax roll.

DEFINITIONS

Fiscal year: The fiscal year for Madison Metropolitan Sewerage District begins on Jan. 1 of each year and ends on Dec. 31 of that year. The fiscal year is the accounting and budget year.

Enterprise fund: The district prepares its financial statements on an enterprise fund basis. Generally accepted accounting principles require state and local governments to use the enterprise fund to account for “business-type activities”—activities similar to those found in the private sector. Business type activities include services primarily funded through service charges.

Balanced budget: The Madison Metropolitan Sewerage District is required to adopt a balanced budget each year. A balanced budget is one in which anticipated district revenues equal anticipated district expenditures for the fiscal year. The district achieves this with the operating budget by offsetting expenditures with service charge billings, other operating income and fund reserves. The district's capital projects budget is balanced by offsetting total project expenditures with Clean Water Fund loans, connection charge revenues, fund reserves and all other capital projects fund income. The district's debt service budget achieves balance by offsetting total debt service expenses with funds transferred from the operating fund, debt service reserves and interest income.

Fund balance: Fund balance is the difference between the assets and liabilities of a fund. It is a measure of the amount available to budget or spend in the future.

Figure 3 summarizes the fund structure for the operating, capital projects and debt service budgets. The connection between the operating budget and the debt service budget is the transfer of service charge revenues to the debt service fund. The connection between the debt service budget and the capital projects budget is an indirect one. Loan proceeds are used to fund projects budgeted in the capital projects budget.

On the following page Table 2 provides a combined summary of revenues and expenditures for 2016 through 2018.

FIGURE 3 | Fund Structure for Budgets

**Net operating expenses do not include transfers to the capital projects fund or the debt service fund.*

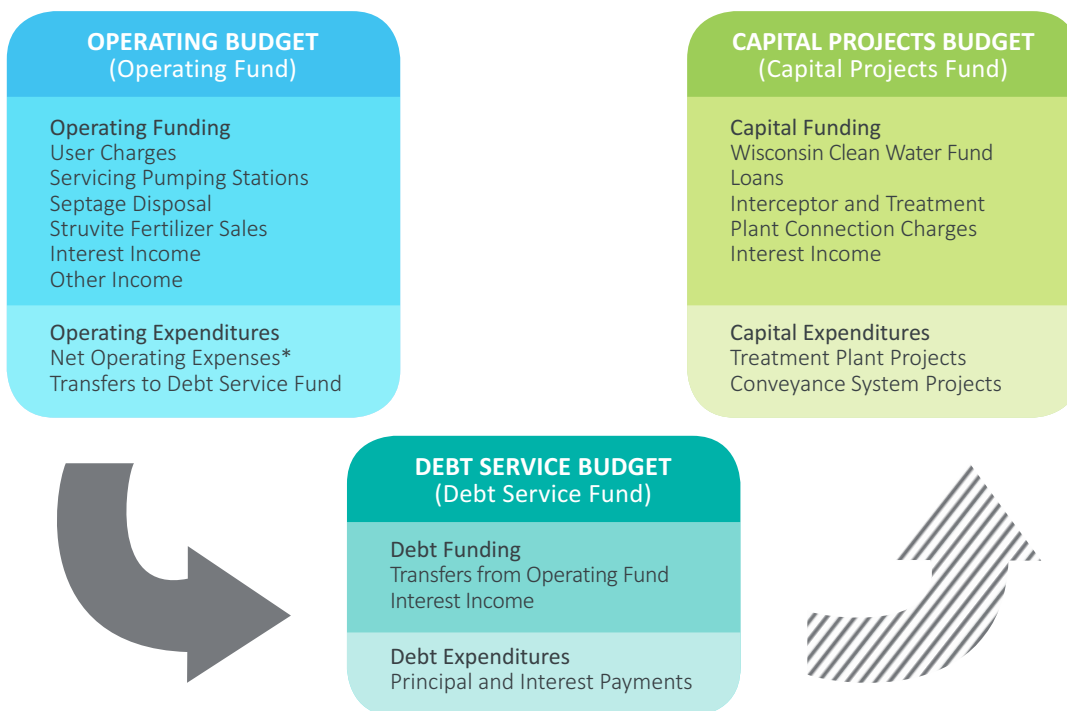


TABLE 2 | Combined Summary of Revenues & Expenditures

	2016 Actual	2017 Estimated	2017 Budget	Proposed 2018 Budget	Change from 2017 Adopted Budget	% Change
REVENUE CATEGORY						
OPERATIONS AND MAINTENANCE						
Sewer Service Charges	\$33,236,530	\$33,500,000	\$33,132,000	\$35,432,000	\$2,300,000	6.94%
Septage Disposal Revenue	556,137	510,000	555,000	540,000	(15,000)	-2.70%
Servicing Pumping Stations	287,010	360,000	320,000	344,000	24,000	7.50%
Struvite Fertilizer Sales	142,664	160,000	140,000	160,000	20,000	14.29%
All Other Operating Income	290,015	266,000	213,000	255,000	42,000	19.72%
Cash Reserves	-	-	796,000	300,000	(496,000)	-62.31%
TOTAL OPERATIONS AND MAINTENANCE REVENUES	\$34,512,356	\$34,796,000	\$35,156,000	\$37,031,000	\$1,875,000	5.33%
CAPITAL PROJECTS						
Clean Water Fund Loans	\$9,363,373	\$7,337,759	\$4,398,000	\$1,857,000	(\$2,541,000)	-57.78%
Interceptor and Treatment Plant Connection Charges	1,170,428	1,300,000	1,800,000	1,575,000	(225,000)	-12.50%
Interest on Investments	41,254	30,000	43,000	32,000	(11,000)	-25.58%
Contribution from Operating Fund	-	172,000	172,000	-	(172,000)	-100.00%
TOTAL CAPITAL PROJECTS REVENUES	\$10,575,055	\$8,839,759	\$6,413,000	\$3,464,000	(\$2,949,000)	-45.98%
DEBT SERVICE						
Transfer from Operating Fund	\$12,909,000	\$13,684,000	\$13,684,000	\$14,505,000	\$821,000	6.00%
Interest on Investments	73,683	50,000	28,000	34,000	6,000	21.43%
TOTAL DEBT SERVICE REVENUES	\$12,982,683	\$13,734,000	\$13,712,000	\$14,539,000	\$827,000	6.03%
TOTAL REVENUES (net of transfers and reserves)	\$45,161,094	\$43,513,759	\$40,629,000	\$40,229,000	(\$400,000)	-0.98%
EXPENSE CATEGORY						
OPERATIONS AND MAINTENANCE						
Administration, Engineering & Planning	\$3,970,653	\$4,872,000	\$5,236,000	\$5,407,000	\$171,000	3.27%
User Charge & PreTreatment Program	610,983	622,000	758,000	710,000	(48,000)	-6.33%
Wastewater Collection	2,173,583	2,532,000	2,360,000	2,534,000	174,000	7.37%
Wastewater Treatment	9,949,728	10,761,000	10,671,000	11,464,000	793,000	7.43%
Effluent Division	108,018	83,000	102,000	117,000	15,000	14.71%
Metrogro Biosolids Reuse Program	1,410,256	1,495,000	1,533,000	1,606,000	73,000	4.76%
Capital Outlay	393,273	181,000	220,000	219,000	(1,000)	-0.45%
Servicing Pumping Stations Owned by Others	286,406	360,000	320,000	344,000	24,000	7.50%
Contribution to Capitol Projects Fund	-	172,000	172,000	-	(172,000)	-100.00%
Contribution to Equipment Replacement Fund	75,000	100,000	100,000	125,000	25,000	25.00%
Transfer to Debt Service Fund	12,909,000	13,684,000	13,684,000	14,505,000	821,000	6.00%
TOTAL OPERATIONS AND MAINTENANCE EXPENDITURES	\$31,886,900	\$34,862,000	\$35,156,000	\$37,031,000	\$1,875,000	5.33%
CAPITAL PROJECTS						
Nine Springs Wastewater Treatment Plant Projects	\$2,788,512	\$968,903	\$1,376,000	\$1,479,000	\$103,000	7.49%
Interceptors	980,445	4,232,000	4,785,000	3,797,000	(988,000)	-20.65%
Pumping Stations and Force Mains	5,939,770	3,803,535	1,932,000	2,035,000	103,000	5.33%
Capital Budget Expenses	293,297	542,000	695,000	618,000	(77,000)	-11.08%
TOTAL CAPITAL PROJECTS EXPENDITURES	\$10,002,023	\$9,546,438	\$8,788,000	\$7,929,000	(\$859,000)	-9.77%
DEBT SERVICE						
Principal Payments	\$8,834,587	\$9,227,000	\$9,449,000	\$9,619,000	\$170,000	1.80%
Interest Payments	3,547,406	\$3,489,000	3,625,000	3,400,000	(225,000)	-6.21%
TOTAL DEBT SERVICE EXPENDITURES	\$12,381,993	\$12,716,000	\$13,074,000	\$13,019,000	(\$55,000)	-0.42%
TOTAL EXPENDITURES (net of transfers and reserves)	\$41,286,916	\$43,168,438	\$43,062,000	\$43,349,000	\$287,000	0.67%

NMF= No Meaningful Figure

TABLE 3 | Operating and Capital Budgets Combined

	OPERATIONS	CAPITAL
SOURCES OF FUNDS	Service charges, servicing pump stations, struvite fertilizer sales, reserve funds, interest and other income	Wisconsin Clean Water Fund loans, interceptor and treatment plant connection charges, reserve funds, and interest
USE OF FUNDS	Operating and maintenance expenses, debt service	Project expenses and all other capital expenses
BUDGETARY BASIS OF ACCOUNTING	Actual revenues and expenses are recorded on a full accrual basis in accordance with generally accepted accounting principles. Revenues and expenses are budgeted on a full accrual basis, except capital outlays. These are budgeted as expense in the year incurred, but capitalized and depreciated for financial reporting purposes. Depreciation is not budgeted.	For financial reporting, actual revenues and expenses are recorded on a full accrual basis in accordance with generally accepted accounting principles. Revenues are budgeted on a cash basis. Because the capital budget serves as a financing plan, it is important to plan when revenues are received rather than when they are earned. Expenses are budgeted according to what is projected to be completed for that particular year.
BASIS FOR EXPENSE	Costs of operating and maintaining the sewerage system. Costs also include asset repair and replacement that is necessary to maintain the capacity and performance to meet the needs of the communities we serve, our regulatory requirements, and to protect the environment.	Costs of acquiring, purchasing, planning, designing, construction, extending and improving all or any part of the sewerage system.

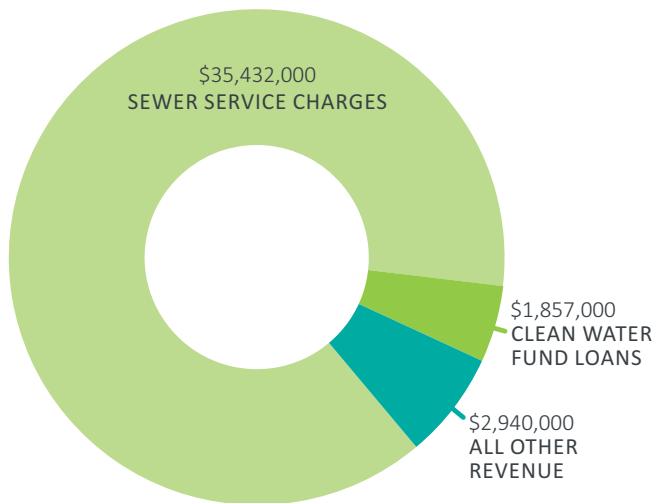
2018 COMBINED SUMMARY OF OPERATING, CAPITAL PROJECTS AND DEBT SERVICE

The district prepares its financial statements and budgets on an enterprise fund basis. The district's operating expenses are funded within the operating budget, the capital expenditures are funded within the capital projects budget and the debt service budget is funded by transfers from the operating fund. The operating fund is the main fund. The operating budget authorizes use of the operating fund. The capital projects budget authorizes use of the capital projects fund. The debt service budget authorizes use of the debt service fund.

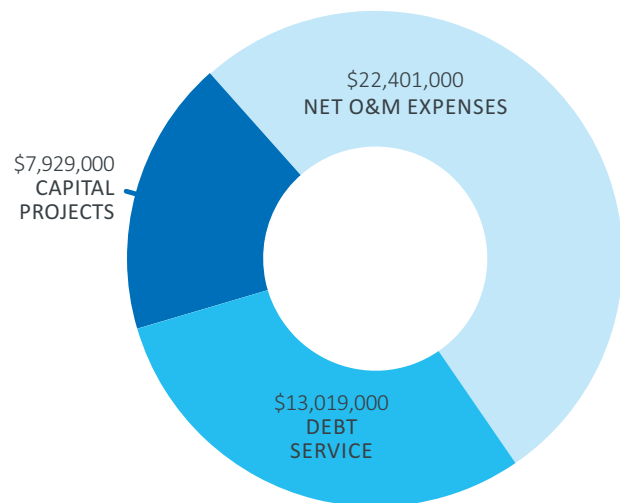
Table 3 provides details on the sources of funds, use of funds, basis of accounting and basis for accounting and expense in the operating and capital projects budgets

FIGURE 4 | 2018 Combined Summary of Revenues & Expenditures

2018 COMBINED SUMMARY OF REVENUE



2018 COMBINED SUMMARY OF EXPENDITURES



2018 COMBINED SUMMARY OF REVENUES AND EXPENDITURES

The district's 2018 combined budget totals approximately \$40.2 million in revenue and \$43.3 million in expenditures. As seen in **Figure 4**, the primary sources of revenue in the 2018 combined budgets are sewer service charges, 88.1 percent, and Clean Water Fund loans, 4.6 percent. On the expenditure side, the capital budget comprises 18.3 percent of the 2018 combined budget while operations and maintenance of the district facilities net of debt service totals 51.7 percent. Debt service is 30.0 percent of 2018 expenditures.

SECTION TWO

2018 OPERATING BUDGET SUMMARY



Relief Operator Sean Johnson takes a sample from one of the district's aeration tanks.

OPERATING BUDGET SUMMARY

OVERVIEW

The operating budget is the annual financing plan for the district's operating fund expenditures. The operating fund is the general fund of the district and accounts for revenues and expenses used to support daily operations and maintenance of all district facilities.

Table 4 summarizes the district's operating expenditures, revenues and operating reserves for the years 2016 through 2018.

Figure 5 summarizes the amounts for the revenues and expenditure categories for the proposed 2018 budget. The proposed 2018 operating budget includes a 5.3 percent increase (\$1.9 million) in expenses over the current year's budget and will require a 6.9 percent increase (\$2.3 million) in service charge revenues.

Staff projects 2017 revenues to be \$440,000 more than budgeted with 2017 expenses \$300,000 less than budgeted. Operating budget reserves are projected to essentially unchanged in 2017. The expected operating reserves at the end of this year are \$16.2 million.

2017 Revenues

Staff estimates 2017 revenues will be approximately \$436,000 or 1.3 percent more than budgeted after accounting for the budgeted use of reserves. This is due to revenues from estimated service charges being \$368,000 or 1.1 percent more than budgeted, septage disposal fees \$45,000 less than budgeted, miscellaneous income \$41,000 more than budgeted and revenues from servicing pumping stations \$40,000 more than budgeted. The higher estimated service charges are the result of above average precipitation through July leading to higher than budgeted wastewater volumes.

Income from servicing pumping stations is estimated to be \$40,000 more than budgeted due to higher than expected levels of required maintenance for pumping stations owned by others. Septage revenues are estimated to be \$45,000 lower than budgeted due primarily to lower than expected volumes of septic tank wastes. Miscellaneous income is estimated to be \$41,000 more than budgeted because of a liability insurance dividend

and increased laboratory services performed for others. Struvite fertilizer sales are estimated to be \$20,000 higher than budgeted due to greater than expected production of struvite. Interest on investments, annexation and plan review fees and rent revenue are all estimated to be close to the budgeted amounts.

2017 Expenditures

The district anticipates expenditures for 2017 to be \$294,000 or 0.8 percent, less than budgeted. Amounts under budget for user charge and pretreatment (\$136,000), administration, engineering and planning (\$364,000), capital outlay (\$39,000), the Metrogro program (\$38,000) and effluent diversion (\$19,000) offset amounts over budget for wastewater collection (\$172,000), wastewater treatment (\$90,000) and servicing pumping stations owned by others (\$40,000). The expenses for servicing pumping stations owned by others are offset by the revenue collected for that service.

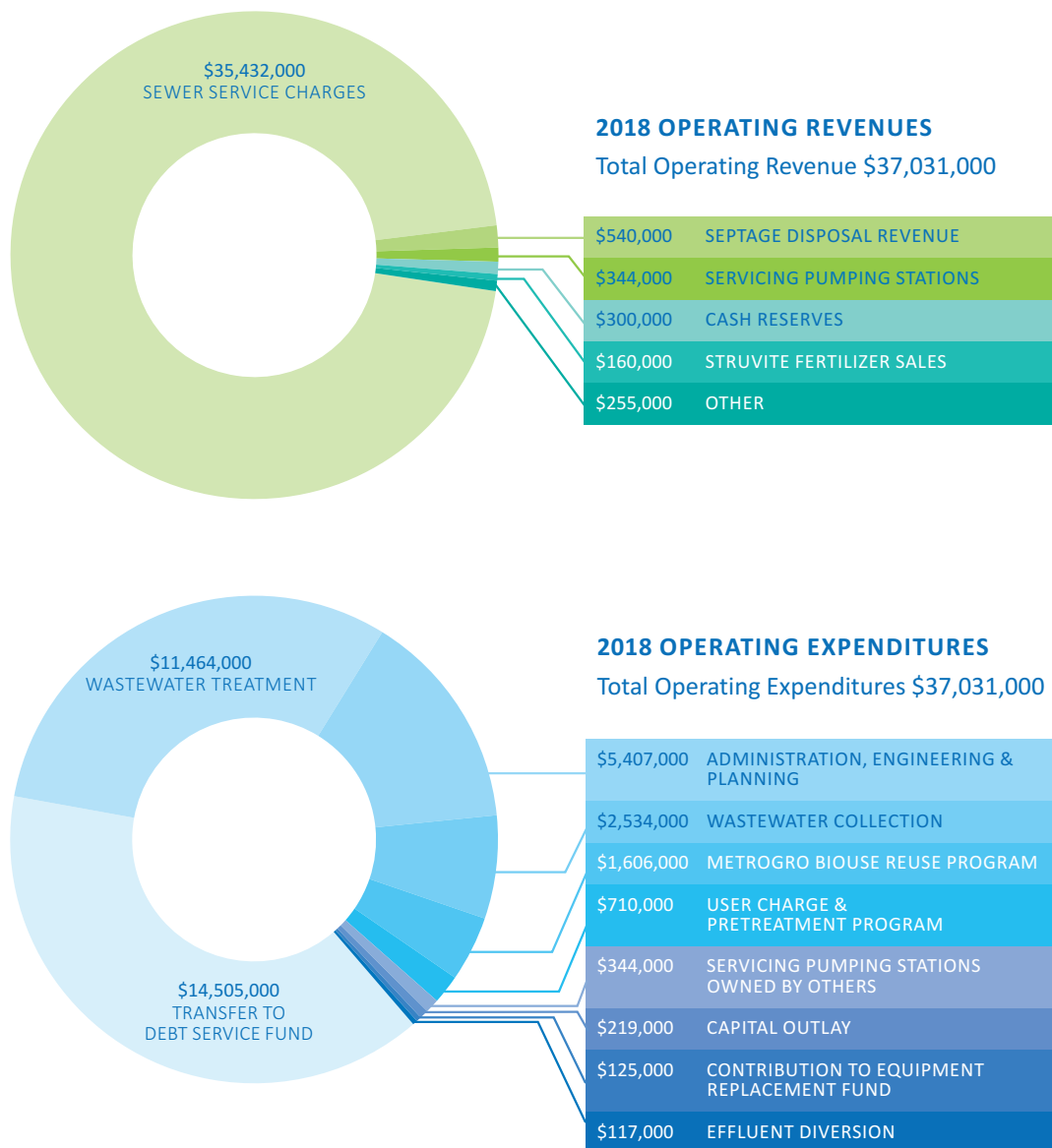
2018 Revenues

The budgeted revenues for 2018 of \$37.0 million are 5.3 percent greater than budgeted revenues for 2017 of \$35.2 million and 6.4 percent more than the estimated 2017 revenues. Required service charge revenues will increase \$2.3 million (6.9 percent) over the 2017 budgeted amount and \$1.9 million over the estimated 2017 service charge revenues. Revenues from septage disposal are expected to decrease by \$15,000. Revenues from servicing pump stations are expected to increase by \$24,000. Revenues from struvite fertilizer sales are estimated to increase by \$20,000. Staff expects interest rates to remain low and interest income to increase slightly by \$4,000 to \$19,000. Plan review and annexation fees are projected to increase by \$38,000 and miscellaneous income by \$20,000 to better match recent experience with these revenues. The proposed 2018 budget includes the use of reserves in the amount of \$300,000. The commission decided during 2017 budget deliberations that \$150,000 of reserves would be used in 2018 for funding the geographic information system ESRI implementation and the Work and Asset Management Version 2 implementation planning initiatives. Staff recommends that an additional \$150,000 in reserves be budgeted for a vehicle replacement fund in 2018.

TABLE 4 | 2018 Operating Budget

	2016 Actual	2017 Thru June	2017 Estimated Total	2017 Budget	2018 Budget	% Change
REVENUE CATEGORY						
Sewer Service Charges	\$33,236,530	\$16,438,601	\$33,500,000	\$33,132,000	35,432,000	6.94%
Servicing Pumping Stations	287,010	166,058	360,000	320,000	344,000	7.50%
Rent	70,858	37,869	71,000	71,000	49,000	-30.99%
Interest	21,914	11,102	19,000	15,000	19,000	26.67%
Annexation and Plan Review Fees	54,600	36,450	67,000	61,000	99,000	62.30%
Miscellaneous Income	117,521	55,471	87,000	46,000	66,000	43.48%
Septage Disposal Revenue	556,137	196,349	510,000	555,000	540,000	-2.70%
Pretreatment Monitoring	25,122	-	22,000	20,000	22,000	10.00%
Struvite Fertilizer Sales	142,664	75,203	160,000	140,000	160,000	14.29%
Cash Reserves	-	-	-	796,000	300,000	-62.31%
TOTAL REVENUES	\$34,512,356	\$17,017,103	\$34,796,000	\$35,156,000	37,031,000	5.33%
EXPENSE CATEGORY						
Administration, Engineering, and Planning	\$3,970,653	\$2,174,610	4,872,000	5,236,000	5,407,000	3.27%
User Charge & PreTreatment Program	610,983	266,932	622,000	758,000	710,000	-6.33%
Wastewater Collection	2,173,583	951,246	2,532,000	2,360,000	2,534,000	7.37%
Wastewater Treatment	9,949,728	5,183,468	10,761,000	10,671,000	11,464,000	7.43%
Effluent Diversion	108,018	29,789	83,000	102,000	117,000	14.71%
Metrogro Biosolids Reuse Program	1,410,256	572,351	1,495,000	1,533,000	1,606,000	4.76%
Capital Outlay	393,273	124,829	181,000	220,000	219,000	-0.45%
Servicing Pumping Stations Owned by Others	286,406	147,182	360,000	320,000	344,000	7.50%
Contribution to Capital Projects Fund	-	-	172,000	172,000	-	-100.00%
Contribution to Equipment Replacement Fund	75,000	-	100,000	100,000	125,000	25.00%
Transfer to Debt Service Fund	12,909,000	-	13,684,000	13,684,000	14,505,000	6.00%
TOTAL EXPENDITURES	\$31,886,900	\$9,450,407	\$34,862,000	\$35,156,000	37,031,000	5.33%
OPERATING FUND BALANCE						
BEGINNING BALANCE	\$13,509,203	\$16,209,659	\$16,209,659	\$15,488,000	\$16,244,000	4.88%
TOTAL REVENUES LESS CASH RESERVES USED	34,512,356	17,017,103	34,796,000	34,360,000	36,731,000	6.90%
TOTAL EXPENDITURES LESS CONTRIBUTIONS TO ERF	31,811,900	9,450,407	34,762,000	35,056,000	36,906,000	5.28%
ENDING BALANCE	\$16,209,659	\$23,776,355	\$16,244,000	\$14,792,000	\$16,069,000	8.63%

FIGURE 5 | 2018 Operating Budget



2018 Expenditures

The budgeted expenditures of \$37.0 million are \$1.9 million, 5.3 percent, more than the budget for 2017. Total operating budget personnel services related costs (salaries, benefits, payroll taxes, etc.) increase by \$736,000, 7 percent, to \$11.2 million. Non-personnel related costs increase by \$1.1 million, 4.6 percent, to \$25.8 million.

The personnel services increase is due to the following factors:

- A 3 percent market increases for all employees and a catch-up provision for some employees.
- Step and/or longevity increases for hourly employees.
- Performance increase for salaried employees.
- Net addition of two full-time equivalent positions starting in Jan. 2018– total salary and benefits cost of \$128,000 for a database administrator position and \$54,500 for an accounting clerk position.
- A 10 percent increase in rates and enrollment changes for health insurance – resulting in an increase of \$200,000 for health insurance costs, to \$1.3 million for 2018.

Significant non-personnel related operating expenditure increases include:

Clean Water Fund debt service	\$821,000
Contribution to vehicle replacement fund	\$150,000
Energy cost increases	\$134,000

See departmental information in section six for more detail on department budgets.

OPERATING FUND BALANCE

The operating fund balance is projected to decrease by \$175,000, 1.1 percent, in 2018 compared to the estimated 2017 ending balance. The 2017 ending balance is projected to be \$16.2 million, the 2018 ending balance, \$16.1 million. This decrease is due to the contribution of \$125,000 to the equipment replacement fund and the use of \$300,000 of operating reserves. The district expects the actual operating fund 2017 ending balance to essentially hold steady at \$16.2 million, increasing slightly by \$34,000, 0.2 percent, compared to the 2016 ending balance.

The district’s 2017 operating fund estimated ending balance includes the district’s equipment replacement fund of \$3,175,000 and unrestricted operating reserves of \$13.1 million or 225 days of operating expenses. This meets the district’s minimum targeted end-of-year reserves of 180 days. Operating expenses for this purpose are defined as the operating budget expenditure total less the debt service expenditures and contributions to reserves. The projected operating fund balance at the end of 2018 of \$16.1 million includes an equipment replacement fund balance of \$3.3 million and unrestricted operating reserves of \$12.8 million, 208 days operating expenses and meets the district’s end-of-year minimum balance of 180 days operating expenses.

IMPACTS OF CAPITAL INVESTMENTS ON THE OPERATING BUDGET

The district’s capital investments have a major effect on the district’s operating budget. The largest effect is from debt service expenses. Debt service accounts for 39.2 percent of the proposed operating budget expenditures in 2018 and accounted for 38.9 percent of budgeted expenditures in 2017. The \$821,000 increase in debt service in the 2018 budget is 44 percent of the total increase in expenditures of \$1.88 million. The debt service expenses are paid through service charges.

The district also funds some smaller capital investments in the capital outlay line item of the operating budget. The proposed 2018 operating budget includes \$219,000 of capital outlay items, or 0.6 percent of total operating expenditures. Capital outlay items were budgeted at \$220,000 or 0.6 percent of total operating expenditures in 2017.

Debt service increases to support the capital improvements program have driven the operating budget increases in the last five years. This driver for the operating budget will lessen in the coming years. The last six budgets covering the years 2012 through 2017 have seen operating budget increases for debt service of 12 percent in 2012, 10 percent for 2013 and 2014 and 9 percent in 2015 and 2016, and 6 percent in 2017. The 2018 budget includes a 6 percent increase in debt service. In the coming years the debt service increases will trend lower with the annual debt service increase projected to be 6 percent in 2019, 4.5 percent in 2020, and 3.5 percent per year for the period from 2021 to 2025. This reduced rate of increase in debt service will reduce pressure on the district operating budget in future years.



District teams perform checks on the system throughout the 185 square mile service area.

OPERATING BUDGET PLANNING

The district has committed to developing a more detailed operating budget plan covering a three to five year period. The district currently has a good long-range budget forecast for its capital projects but has no comparable plan for its operating expenses. Projecting operating expenses over a five-year period is a key element in the development of a multi-year operating budget forecast. In 2017 the district began developing a five-year plan for operating budget expenses. The plan to be completed in time to inform the 2018 budget will better integrate in a proactive manner the strategic plan, new initiatives and existing programs and activities into our annual budgeting work.

2017 SERVICE CHARGE RATES

The district service charge rates depend on the budget and the predicted pollutant loadings for the coming year. The budget determines the service charge revenues required to cover expenditures. The service charge rates are determined by dividing the required service charge revenues by the loadings expected to be received at the treatment plant.

$$\text{Rate} = (\text{Required Revenue}) / \text{Loading}$$

The district has seven billing parameters: five wastewater parameters and two customer parameters. District expenses are allocated to these seven parameters and loadings to the treatment plant are estimated from recent loadings history. Rates are determined for each parameter. The district therefore has seven rates that we use to determine billings to our customer communities. More details about the district's rate structure can be found in our sewer use ordinance at <http://www.madsewer.org/Planning/Permits-Ordinances>.

The current year has shown slightly higher than expected volumes and slightly lower than budgeted loadings on average for the other pollutant parameters. This mixed experience with loadings will lead to overall increases in rates that are approximately the same as the increase in required service charge revenues. Overall service charge rates for 2018 are therefore expected to increase about the same as the 7 percent increase in service charges. The service charge rate determinations are made in October after the third quarter service charge billings are completed.

REVENUE CATEGORIES

Sewer Service Charges

This category covers charges paid by the district's customer communities for the wastewater conveyance and treatment services provided by the district. Customer communities pay these charges according to the volume and strength of the wastewater they discharge to the district. These charges are the primary revenue source for the district. The district currently serves five cities, eight villages and 14 sanitary or utility districts.

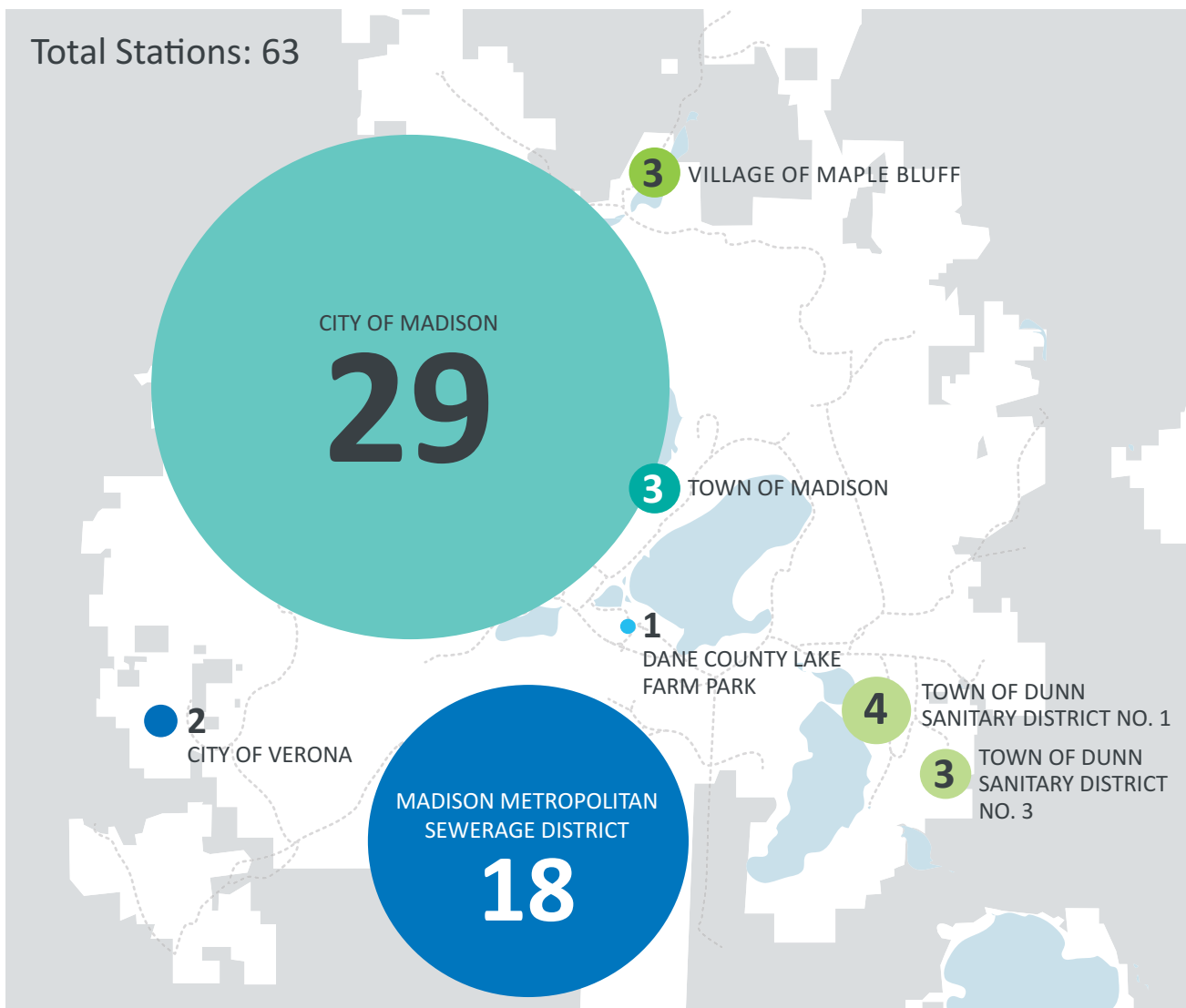
Servicing Pumping Stations (Figure 6)

This category covers charges to various customer communities for district services to operate and maintain pumping stations owned by the communities. The district currently services 45 pumping stations owned by others. The station owner and the number of stations served as of Aug. 31, 2017, are shown in Figure 6.

Rent

This category covers rent the district receives for use of district-owned property. The district rents three houses, one set of farm buildings including a house, barn, sheds and associated acreage, 157 acres of farmland and land for an electrical substation.

FIGURE 6 | Number of Pumping Stations Serviced by Location



Interest

This category covers interest earned on the district's cash reserves.

Annexation & Plan Review Fees

This category covers district expenses for the annexation process and sewer plan review and approval processes. Customer communities pay annexation fees when new lands are added to the district. Customer communities pay sewer plan review fees for modifications or additions to their sewer systems.

Miscellaneous Income

This category covers income received for various revenues that do not fit in other categories. For instance, the income from the sale of scrap materials and income for laboratory services performed for others are placed in this category.

Septage Disposal Income

This category covers income received for wastes delivered by truck to the Nine Springs Wastewater Treatment Plant. The largest single source of waste delivered by truck is septage from homes and businesses on septic systems. Thirty-one haulers have permits to discharge at the treatment plant as of Aug. 31, 2017.

Pretreatment Monitoring

This category covers the district's expenses for industrial monitoring. The fees are paid by businesses that are required to have industrial treatment permits issued by the district. Eighteen businesses have industrial discharge permits issued by the district as of Aug. 31, 2017.

Struvite Fertilizer Sales

This category covers the income from the sale of struvite fertilizer pellets. The district operates a process to recover phosphorus from the wastewater treated at the Nine Springs Wastewater Treatment Plant. The process recovers phosphorus in the form of struvite pellets, which are sold as a fertilizer.

Cash Reserves

This category covers funds used from our cash reserves.



Badger Mill Creek is one of two outfall locations.

EXPENDITURE CATEGORIES

Administration, Engineering and Planning

This cost center includes the chief engineer's office, accounting, information systems, communications, engineering, human resources/safety, planning and strategy and ecosystem services.

District Leadership and Support: Provides organizational leadership to the district. Oversees communication and public information, coordinates district strategic efforts and oversees overall district performance and general administration of district business.

Accounting: Provides general accounting, payroll, purchasing and grants and loan administration.

Information Systems: Ensures data integrity, optimal network functionality and provides hardware, software and user support. Information systems also provides technological expertise to district staff.

Communications: Provides district-wide communications and business support.

Engineering: Provides engineering, design and construction of projects within the district's capital improvements plan.



Chief Engineer and Director Michael Mucha facilitates a customer community meeting on how best to phase-in a new rate structure for connection charges.

Human Resources/Safety: Provides opportunities for growth of the organizational culture and performance. Provides cost-effective employee management services for recruitment, safety and leadership development while minimizing the district's liability in employment matters.

Planning and Strategy: Provides strategic and capital improvements planning, sustainable infrastructure program management, customer service charge billing, connection charge and annexation management and geographic information system services.

Ecosystem Services: Oversees a wide range of regulatory, legislative and environmental and strategic initiatives that impact district operations and/or help establish overall district focus and oversees the Metrogro resource recovery program.

User Charge & Pretreatment Program

This cost center implements state and federal requirements directed towards industrial users and implements strategies for pollution prevention and source control. In addition, this cost center includes wastewater flow and loadings data sampling and analysis for customer billing.

Wastewater Collection

This cost center provides funding to operate and maintain the district's gravity sewers, pumping stations and raw wastewater force mains. The district operated and maintained 92 miles of gravity sewer, 18 pumping stations and 32 miles of raw wastewater force mains serving 13 cities and villages and 14 sanitary and utility districts as of Aug. 31, 2017.

Wastewater Treatment

This cost center includes funding to operate and maintain the Nine Springs Wastewater Treatment Plant. This plant treats about 40 million gallons of wastewater per day from our customer communities and districts and 80,000 gallons per day of hauled wastes.

Effluent Diversion

This cost center includes operations and maintenance for the district's 15 miles of force mains that discharge treated effluent to Badfish Creek and the Badger Mill Creek. The cost center also includes monitoring to determine the impact on receiving streams.

Metrogro Biosolids Reuse Program

This cost center recycles biosolids to agricultural land through the Metrogro Program.

Capital Outlay

This cost center funds asset purchases such as vehicles and equipment.

Service Pumping Stations Owned by Others

This cost center funds activities to operate and maintain, on a contract basis, local pumping stations owned by other cities and districts. The district operated and maintained 45 such pumping stations as of August 31, 2017.

Contribution to Capital Projects Fund

This cost center accounts for the transfer of funds to the capital projects fund.

Contribution to Equipment Replacement Fund

This cost center accounts for additions to the equipment replacement fund required by the State of Wisconsin Clean Water Fund Program.

Transfer to Debt Service

This cost center pays the annual debt service on the district's long-term debt.



Relief Operator Cory Pieper inspects the ultraviolet power supply.

TABLE 5 | Full-Time Equivalent Positions

DEPARTMENT	2016 FTE COUNT	2017 FTE COUNT	2018 PROPOSED	CHANGES FOR 2018
Administration	15	15	14	<i>Addition of two positions: accounting assistant and database administrator</i>
District Leadership and Support	3	4	7	<i>Reorganized resource team from administrative department to district leadership and support in 2017</i>
Ecosystem Services	17	17	17	<i>No Changes</i>
Engineering	7	7	7	<i>No Changes</i>
Operations and Maintenance	51	51	51	<i>No Changes</i>
Planning and Strategy	6	6	6	<i>No Changes</i>
TOTALS	99	100	102	

PERSONNEL

The Employee Leadership Council is in its second year serving as an advisory body to the executive team. The council is comprised of eight district employees representing all major departments and members are voted onto the council by their fellow employees. The council worked diligently in 2016 and 2017 on the implementation of the wage survey and made recommendations to the executive team which were incorporated into the final options presented to the commission. The council's operating guidelines were finalized in 2017 and the group is currently working on issues submitted by employees.

In 2017, a new wage schedule was approved by the commission based on a wage survey completed in 2016 to ensure wages paid by the district are competitive. This resulted in market-based wage increases that varied and were not across the board in 2017. In years in which a wage survey has not been completed, the district will base the market increase off of local and national data.

The district completed its first inclusion and diversity strategic plan in 2017. This resulted in the formation of an inclusion and diversity committee, organizational inclusion and diversity training, individual coaching sessions with all managers and two employees obtaining certification to administer

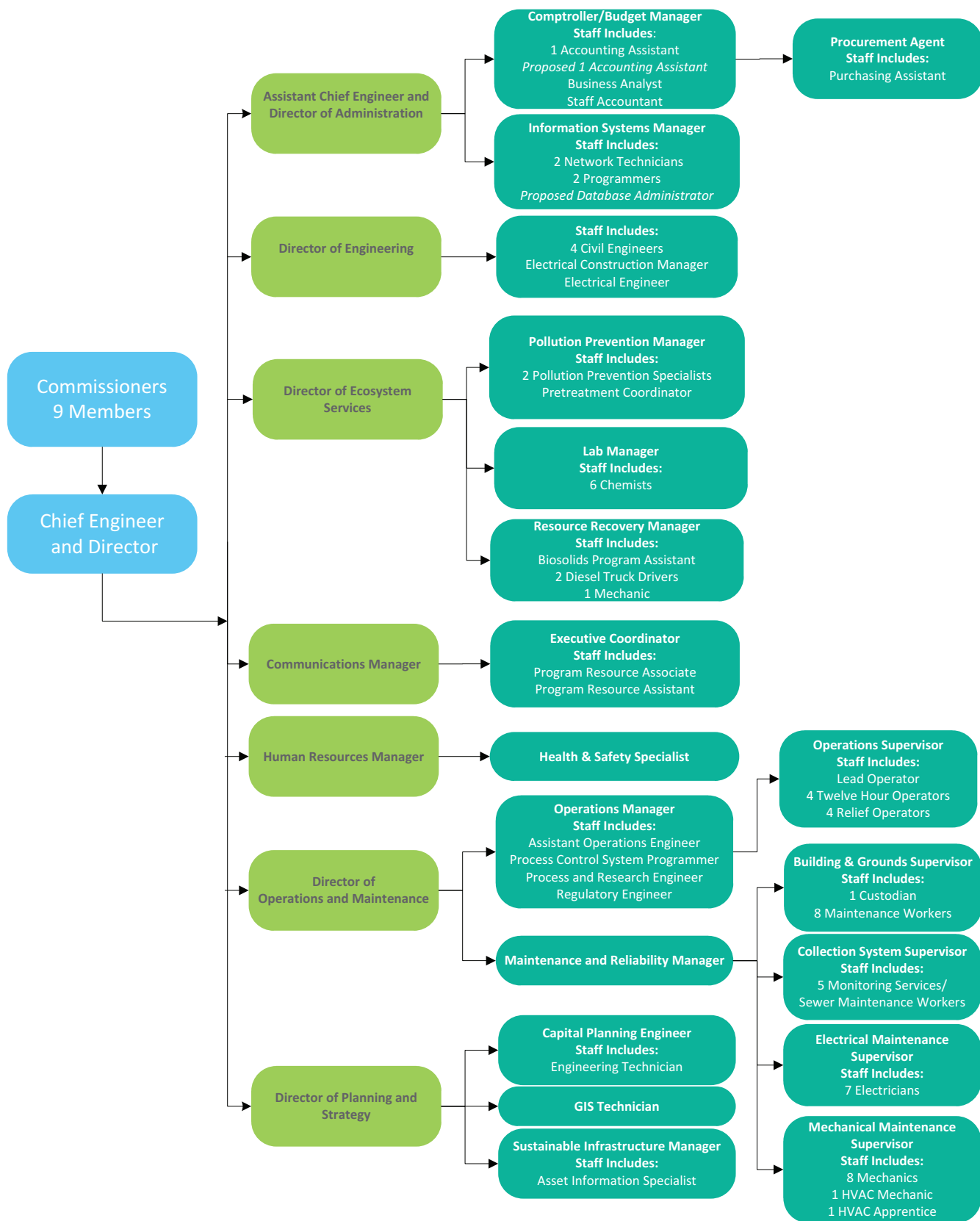
the Intercultural Development Inventory, which is regarded as the premier tool for assessing organizational cultural competence.

In 2017, the district began a new partnership with the Boys and Girls Club of Dane County. The district hosted a high school intern who spent six weeks working at the district learning about three different career paths. In addition, the district sponsored a half-day session with the career exploration academy exposing a group of 20 high school juniors to careers at the district.

Table 5 shows changes in the district's overall staffing from 2016-2018. Two full-time positions are proposed in 2018, an accounting assistant and a database administrator (administration department).

Figure 7 is a representation of the district's hierarchy with the proposed positions included. For more information on the proposed positions, please see the departmental information (administration) section of this document. The district will experience five retirements in 2017 and expects to onboard a total of 21 temporary and regular employees by the end of the year.

FIGURE 7 | Organizational Chart



SECTION THREE

2018 CAPITAL IMPROVEMENTS PLAN & BUDGET



Work on Pumping Station 15 continued in 2017.



INTRODUCTION

The district's capital improvements plan represents the foreseen major capital projects for the next six years and, in some cases, beyond. The projects included represent the best estimate of what might happen over the next six-year period. Staff update this plan on an annual basis using the latest information and estimates available, integrating the district's current financial situation.

As a planning document, one of the main purposes of the district's capital improvements plan is to set the stage for development of the next year's capital projects fund budget (also known as the capital budget or capital projects budget). Therefore, the plan includes proposed projects for the next six-year period with approximate costs and timeframes for planning, design and construction.

The proposed 2018 capital budget is based on the capital improvements plan, the status of ongoing and pending projects and the district's current financial situation. The capital budget shows past actual revenues and expenditures through 2016, anticipated revenues and expenditures through the remainder of 2017 and projected revenues and expenditures for 2018. In addition, the capital budget includes anticipated total project expenditures for projects underway and those that will be approved prior to the end of 2018. Projects in the plan that will begin after 2018 will require approval in subsequent budgets; approval of the

capital budget on an annual basis provides a means to reauthorize funding for ongoing projects.

The present revenues and expenditures information and total project costs typically change somewhat between the development of the draft plan (the draft 2018 capital improvements plan was published on July 13, 2017) and the completion of the budget process. The district takes a conservative approach to budgeting and anticipates project spending as "early and often." This typically means that subsequent projections show less spending in the near term and more spending later. Additionally, estimates are updated to reflect the most recent best estimate, which can be less or more than previously anticipated.

Project summaries for some existing projects and for new projects which are anticipated within the next six years are included in **Appendix A**. The project summaries highlight the scope, need, cost and schedule for each project. Detailed project information can be found at the district's website at <http://www.madsewer.org/Planning/2018-CIP-Full-Business-Cases>. For each project, the project's anticipated financing mechanism has been identified with any resulting debt included in the debt service projection.

A brief discussion of recently completed projects can be found in **Appendix B**, along with the status of maintenance retainers for recently completed or soon to be completed projects.

OVERVIEW AND HIGHLIGHTS

For 2018, the capital improvements plan anticipates total funds received (identified as revenues) of \$3.5 million, expenditures of \$7.9 million and a projected 2018 year-end operating reserve of \$4.2 million. The plan predicts that the district will incur additional debt of \$1.9 million from construction activities during 2018 and that debt service revenue collected from service charges will increase from \$13.68 million to \$14.51 million. This level of increase, \$830,000 or 6 percent, is necessary to address debt service related to the 11th addition (\$48 million), Pumping Station 18 related projects (\$32 million) and to position the district for the construction of projects related to the liquid processing facilities plan which will be constructed in phases over the next 10 years.

Major construction activities in 2018 are expected to include the following:

- Construction of a new interceptor extension near Morse Pond.
- Lining of the West Interceptor and a portion of the Pumping Station 10 force main.
- Relocation of a portion of the Southeast Interceptor near West Broadway and the Yahara River in order to facilitate a major redevelopment project in the City of Monona.

Lesser activities include the following:

- Stabilization of the earthen dike that separates the effluent in Badfish Creek from Grass Lake in the Town of Dunn.
- Concrete repairs to the wet wells and inlet channels at Pumping Stations 13 and 14.
- Coating of two final clarifiers and pavement replacement at the Nine Springs Wastewater Treatment Plant.

The design of several treatment plant projects included in the liquid processing facilities plan will be underway in year 2018. Design will also begin on several collection system projects, including replacement of the Southwest Interceptor on Haywood Drive, lining of the Nine Springs Valley Interceptor north of McKee Road, a relief sewer on the Northeast Intercepting system near the Dane County Regional Airport and improvements to Pumping Station 7.

Planning work in 2018 will include an update to the collection system facilities plan. The original plan was prepared in 2002 and was updated in 2011. The 2018 update will incorporate the population and flow projections prepared by the Capital Area Regional Planning Commission in 2017-18 as part of the collection system evaluation. The district's sustainable infrastructure program will continue to develop in 2018. Planned activities include work on a plant asset management plan and an update to the asset management strategic framework project. The plant asset management plan is the first comprehensive effort undertaken by the district to evaluate and analyze all assets at the treatment plant in a comprehensive manner.

In addition to those projects previously mentioned, numerous other projects are anticipated during the years 2019 through 2023. **Table 7** highlights these projects and includes a six-year projection of estimated annual capital expenditures. Please note that some projects scheduled for construction in 2017 are included in **Table 7** to provide updated project costs. It is expected that the majority of these projects will be substantially completed in 2017, although final completion and full closeout may not occur until 2018. A summary of each of the projects in **Table 7** is included in **Appendix A**, except for those projects scheduled for construction beyond the year 2023.



Maintenance Worker Team Lead Chad Petersen is among district staff charged with operating and maintaining 92 miles of gravity sewer, 18 pumping stations and other facilities.

Table 6 provides a summary of the district’s 2018 capital budget. This table includes a summary of actual results from 2016, ongoing information related to 2017 and expected 2018 activities. The anticipated capital projects fund cash flow for 2018 to 2023 is included in **Table 8**. The plan’s impact on the district’s debt and debt service is summarized in **Table 9** through **Table 12** in the next section (Section 4 – Debt Service). **Chart 1** in **Section 4** provides a look at projected debt service over the next 10 years.

The 2018 capital improvements plan forecasts an annual increase in the amount of debt service collected from service charges of 6 percent for this year and in 2019. After this time the rate of annual increase begins to slow, reducing to 4.5 percent in 2020 and then falling to 3.5 percent in 2021 and in subsequent years. The anticipated 6 percent increases in 2018 and 2019 are primarily the result of construction of the 11th addition to the plant and construction of a new Pumping Station 18 and its force main. Rather than a one-time very large increase in 2012, the district implemented multiple-year, yet still larger-than-normal, increases in the amount of debt service collected from service charges to address the debt impacts of these new facilities.



Tim Stieve focuses on a set of drawings as he works to help map out the district’s engineering priorities.

In addition, several other trends continue to drive higher levels of construction and incurrence of debt. These include the need to replace or refurbish aging facilities, many of which the district constructed around the same timeframe, and the need for more capacity in certain parts of the district’s system due to long-term growth and lower amounts of connection charge revenues and interest since 2010. Connection charge revenues were at historically low levels from 2008 to 2010 due to the 2008 housing crisis but have begun to rebound in recent years.

It should be noted that the 2018 capital improvements plan assumes increased connection charge revenues for the six-year planning period in accordance with the provisions of the district’s recently adopted connection charge regulation. The 2018 plan assumes that the increase in the treatment plant connection charge rate will be phased in over an eight-year period beginning in 2019.

CONFORMANCE WITH ADOPTED PLANS AND PROGRAMS

As with the 2017 capital budget, current projects assume conformance with master plan alternative 1A, or potentially Alternative 1B or 1C and relief of the Nine Springs Valley Interceptor and other similar capacity relief projects.

Per the district’s master plan, alternative 1 options (1A, 1B, 1C or 1D) are centralized treatment options as opposed to alternative 2 options, which would require construction of a satellite treatment plant in the Sugar River Basin. Alternative 1 options rely on continuing to pump all wastewater to the Nine Springs Wastewater Treatment Plant and returning a portion of the effluent to the Sugar River Basin. Specifically, alternative 1A maintains the present effluent flow of up to 3.6 million gallons per day to Badger Mill Creek, while alternatives 1B or 1C would increase flows to match the amount of flow (as groundwater) taken out of the Sugar River Basin. Future regulations and decisions will help determine if either alternative 1B or 1C is a feasible option. Alternative 1D, returning a portion of the effluent to the Upper Sugar River, was determined nonviable.

While the 50-year master plan provides long-term guidance, shorter-term planning is required to assess the condition and capacity of the district's systems and assets. The district relies upon facility planning efforts, its sustainable infrastructure program and other planning efforts to help direct annual updates to its capital improvements plan. The following planning efforts provide the most significant guidance to the district's annual capital improvements planning.

1. Collection System Facilities Plan

Last updated in 2011, the collection system facilities plan provides a list of recommended capital improvements to the district's collection system. The Capital Area Regional Planning Commission will be updating its 2009 evaluation of the district's collection system in 2017 and 2018. This update will in turn allow the district to update its collection system facilities plan.

2. Solids Handling Facilities Plan

This facilities plan formed the basis for work constructed during the eleventh addition to the plant. This addition, completed in 2014, essentially revised the plant's entire solids handling processes, providing upgrades which will allow it to meet loadings for the next 20 years.

3. Liquid Processing Facilities Plan

While the solids handling facilities plan investigated the plant's solids streams and processes, the liquid processing facilities plan, to be completed in 2017, is reviewing the plant's liquid streams and processes. The outcome of this planning effort includes multiple projects that will address the plant's liquid processing needs. For purposes of the 2018 capital improvements plan, it is assumed that the 17 projects identified in the facilities plan will be combined into separate bid packages that will be constructed in multiple phases over the next ten years.

4. Sustainable Infrastructure Management Program and Plant Asset Management Program

The district developed a draft plant asset management plan in 2011 that has helped guide improvements and planning at the plant. In 2017 the district is conducting a pilot asset

management plan for the solids handling processes at the treatment plant and for all HVAC assets that the district owns. This pilot program will use advanced asset management principles and will help inform the requirements and scope of work needed to develop a full-scale plant asset management plan in 2018. The sustainable infrastructure management program and the plant asset management plan are both ongoing efforts that will continue to guide capital planning efforts.

5. Operational Planning

In 2017, the district began working with a consultant to develop a five-year operational plan for the district, including individual operational plans for each department. Department operational plans will include ongoing requirements, or baseload work, individual projects that vary in scope and timing and strategic projects that involve a longer planning horizon and aim to translate the district's vision into actionable steps. These operational plans will be used in the preparation of the district's operating budget, including the annual capital improvements plan. By integrating capital planning more closely with operational planning it is believed that decision-making related to district priorities, budget capacity and staff availability will be enhanced.

District staff cannot anticipate all projects that may become necessary in the future, but we believe that the district's asset management efforts, which include plant asset management planning and collection system facilities planning, coupled with annual capital improvements and operational planning, reasonably anticipate most necessary major expenditures and reflect good long-term planning. Planning efforts continue throughout the year, not just at budget time, with a process that is continuous and constantly evolving. Staff updates their formal plans annually for presentation to the district's commission and to the general public. However, as new information becomes available, plans, schedules and corresponding estimates are changed to reflect the most recent information.

2018 CAPITAL PROJECTS BUDGET SUMMARY

Table 6 provides a summary of the capital budget for years 2016 through 2018. For 2016, the summary shows the actual year-end totals for revenue and expenses for each project. For the current year, 2017, the summary shows the budgeted amount, the actual revenue and expenses through June, and the estimated year-end totals. For 2018 the summary shows anticipated revenues and expenditures. Please note that estimates are rounded to the nearest thousand dollars.

2016 SUMMARY

2016 revenues of \$10.6 million exceeded 2016 expenditures of \$10.0 million, leaving an end-of year balance of \$9.4 million. Revenues included clean water loan proceeds of \$9.4 million, connection charge revenues of \$1.2 million and investment income of \$41,000. Expenditures included \$2.8 million in treatment plant project expenses, \$980,000 in interceptor project expenses, \$5.9 million in pumping station and force main project expenses and \$293,000 of capital budget expenses.

2017 SUMMARY

The 2017 capital budget showed 2017 expenditures exceeding revenues by \$2.4 million; we now anticipate that expenditures will exceed revenues by \$700,000. The estimated year-end fund balance will be \$8.7 million, which is greater than the budgeted \$7.4 million. Most of the difference can be attributed to several large existing projects taking slightly longer to complete than anticipated and their completion moving into the subsequent budget year. In general these delays cause actual revenue to be received later than assumed in the budget projections. The difference can also be attributed to some new projects that were included in the 2017 budget being delayed, including the NSVI-Morse Pond Extension and rehabilitation of the Northeast Interceptor (Truax Extension).

For Clean Water Fund loan projects, the district pays for planning and design from reserves until projects have been bid and move into the construction phase. For larger projects, planning and design costs can be significant and at times in the future, short-term lending may be required to fund these

costs until loans close after the bidding process. Another possible way to cover these costs would be to increase the amount that the district keeps in reserves. The district's minimum balance is presently set at \$3 million, or 10 percent of the next year's total capital expenditures, whichever is greater. Presently, no changes in the minimum reserve amount are contemplated. However, this does not mean that the district cannot increase reserves if it is advantageous to do so based upon anticipated spending.

2018 REVENUES & EXPENDITURES

The proposed 2018 capital improvements plan anticipates revenues from all sources totaling \$3.5 million and expenditures of \$7.9 million with a resulting year-end fund balance of \$4.2 million. The projected year-end fund balance for 2018 represents a fund balance decrease of \$4.5 million relative to the estimated year-end balance for 2017. The decrease in the capital fund balance for 2018 has been anticipated for several years and is due to the fact that many of the 2018 expenditures will not be eligible for loans through the Clean Water Fund in 2018. Planning and design costs for many of the projects to be initiated in 2018 will be eligible for loans through the Clean Water Fund in subsequent years.

As detailed in **Table 6**, anticipated 2018 revenues include \$1.86 million in Clean Water Fund Loan proceeds for the two projects listed below:

- Pumping Station 10 Force Main Rehabilitation (\$1.16 million)
- West Interceptor – Pumping Station 5 to Gammon Extension (lining project, \$700,000)

Other anticipated revenues include \$1.58 million in interceptor and treatment plant connection charges (connection charge revenues) and \$32,000 in interest on investments. The estimate for connection charge revenues assumes that the new treatment plant connection charge rate, as set forth in the district's recently completed connection charge study, will be phased in over a period of eight years starting in 2019. New rates for conveyance facility connection charges will be implemented beginning in 2018 with no phase-in period. Interest on investments continues to remain at historically low amounts and we do not anticipate any significant changes in the near-term.

TABLE 6 | Capital Projects Budget

	2016 Actual	2016 Thru June	2017 Estimated Total	2017 Budget	Proposed 2018 Budget	% Change
REVENUE CATEGORY						
CWF LOANS	\$9,363,373	\$1,993,145	\$7,337,759	\$4,398,000	\$1,857,000	-57.78%
Process Control System Upgrades	203,531	-	-	-	-	NMF
Maintenance Facility/Space Needs Improvements	2,412,237	158,537	384,756	-	-	NMF
PS 11 & 12 Rehab	2,907,562	-	1,072,129	-	-	NMF
Rimrock Int. Replacement/Relief	921,227	-	38,773	-	-	NMF
Pumping Station 15 Rehabilitation	1,445,680	1,577,332	2,656,212	1,678,000	-	-100.00%
PS 12 Force Main Relocation at Verona Road	1,473,137	257,276	565,889	100,000	-	-100.00%
West Int. - West Randall to Near PS 2 (lining project)	-	-	1,590,000	1,590,000	-	-100.00%
Southeast Interceptor Rehab Upstream of PS 9	-	-	1,030,000	1,030,000	-	-100.00%
PS 10 Force Main Rehabilitation	-	-	-	-	1,156,000	NMF
West Interceptor- PS 5 to Gammon Ext (lining project)	-	-	-	-	701,000	NMF
CONNECTION CHARGE REVENUES	\$1,170,428	\$987,467	\$1,300,000	\$1,800,000	\$1,575,000	-12.50%
INTEREST ON INVESTMENTS & MISC. INCOME	\$41,254	\$25,922	\$30,000	\$43,000	\$32,000	-25.58%
CONTRIBUTION FROM OPERATING FUND	\$0	-	\$172,000	\$172,000	\$0	-100.00%
TOTAL SOURCES OF FUNDS	\$10,575,055	\$3,006,534	\$8,839,759	\$6,413,000	\$3,464,000	-45.98%
EXPENSE CATEGORY						
NINE SPRINGS WTP PROJECTS	\$2,788,512	\$336,660	\$968,903	\$1,376,000	\$1,479,000	7.49%
Process Control System Upgrade	14,003	-	-	-	-	NMF
New Maintenance Facility/Space Needs Improvements	1,815,904	157,578	168,000	-	-	NMF
Liquid Processing Facilities Plan	717,799	164,492	214,903	100,000	-	-100.00%
Struvite Harvesting Facility & W4 System Improvements	-	-	-	212,000	-	-100.00%
Capital City Recreational Trail Relocation at Vehicle Loading Bldg.	29,394	4,888	40,000	-	-	NMF
Shop One Site Improvements ⁽¹⁾	-	7,871	10,000	-	103,000	NMF
Liquid Processing Improvements ⁽²⁾	-	-	200,000	519,000	1,036,000	99.61%
Plant Energy Generation Projects	28,975	-	-	109,000	-	-100.00%
Annual Clarifier Coating	155,892	1,832	175,000	175,000	180,000	2.86%
Annual Pavement Improvements	26,545	-	55,000	55,000	57,000	3.64%
Minor Capital Improvements	-	-	106,000	206,000	103,000	-50.00%
Metrogro Applicators & Equipment	-	-	-	-	-	NMF
INTERCEPTORS	\$980,445	\$1,294,518	\$4,232,000	\$4,785,000	\$3,797,000	-20.65%
West Int.- Randall Avenue to Near PS 2 (lining project)	71,271	1,195,256	1,510,000	1,522,000	-	-100.00%
Rimrock Int. Replacement/Relief	860,499	10,193	11,000	-	-	NMF
Northend Int.- Sherman Avenue (lining project)	10,717	4,983	95,000	40,000	-	-100.00%
Lower Badger Mill Creek Int.- Phase 4	33,667	68,592	1,201,000	942,000	-	-100.00%
NSVI-Morse Pond Extension	4,290	10,868	325,000	1,030,000	1,960,000	90.29%
SEI - Rehab upstream of PS 9 (lining project)	-	2,625	1,040,000	1,040,000	-	-100.00%
Southeast Int. Relocation- Monona Waterfront Redevelopment	-	2,001	50,000	-	250,000	NMF
West Int.- PS 5 to Gammon Extension (lining project)	-	-	-	-	711,000	NMF
Southwest Interceptor- Haywood Ext. Replacement	-	-	-	-	88,000	NMF
NSVI-McKee Road to Dunn's Marsh (lining project)	-	-	-	-	67,000	NMF
NEI- Truax Extension Relief	-	-	-	-	721,000	NMF
West Int. Relief Sewer- Walnut Street to Whitney Way	-	-	-	-	-	NMF
NEI- Truax Extension Rehab (lining project)	-	-	-	211,000	-	-100.00%
PUMPING STATIONS AND FORCE MAINS	\$5,939,770	\$1,844,598	\$3,803,535	\$1,932,000	\$2,035,000	5.33%
PS 18 Construction	184	-	-	-	-	NMF
PS 18 Force Main Construction	11,601	-	-	-	-	NMF
PS 11 & 12 Rehab	2,936,470	114,565	753,527	-	-	NMF
PS 15 Rehab	1,405,777	1,467,638	2,566,660	1,698,000	-	-100.00%
PS 12 FM Relocation at Verona Road	1,585,737	262,395	401,347	100,000	-	-100.00%
Grass Lake Dike Stabilization	-	-	-	-	155,000	NMF
PS 10 Force Main Rehab	-	-	52,000	52,000	1,118,000	2050.00%
Pump Stations 13 & 14 Wet Well Repairs	-	-	-	-	319,000	NMF
PS 7 Improvements	-	-	30,000	-	443,000	NMF
PS 17 Force Main Relief- Phase 1	-	-	-	82,000	-	-100.00%
CAPITAL BUDGET EXPENSES	\$293,297	\$83,315	\$542,000	\$695,000	\$618,000	-11.08%
Capital Budget Expenses	16,722	97	10,000	103,000	52,000	-49.51%
Sustainable Infrastructure Management Program	276,575	73,209	412,000	412,000	424,000	2.91%
Collection System Evaluation	-	10,009	120,000	180,000	62,000	-65.56%
Collection System Facilities Plan Update	-	-	-	-	80,000	NMF
TOTAL EXPENDITURES	\$10,002,023	\$3,559,092	\$9,546,438	\$8,788,000	\$7,929,000	-9.77%
CAPITAL PROJECTS FUND BALANCE						
BEGINNING BALANCE	\$8,838,970	\$9,412,002	\$9,412,002	\$9,768,000	\$8,706,000	-10.87%
TOTAL SOURCES OF FUNDS	10,575,055	3,006,534	\$8,840,000	6,413,000	3,464,000	-45.98%
TOTAL EXPENDITURES	10,002,023	3,559,092	\$9,546,000	8,788,000	7,929,000	-9.77%
ENDING BALANCE	\$9,412,002	\$8,859,000	\$8,706,000	\$7,393,000	\$4,241,000	-42.63%

NMF= No Meaningful Figure

1: An allowance of \$100,000 for this project was included in the 2017 Capital Improvements Plan under the 'Minor Capital Improvements' project.

2: Liquid Processing Improvements includes multiple projects in the Liquid Processing Facilities Plan (Project ID's A02.01, A02.02, A02.05, A02.06, A02.07, A02.08, A02.11, A02.13 & A02.16). See Table 7 for breakdown of budgeted amounts for each project.

Also detailed in **Table 6**, the highest expense items for 2018 include the following projects:

- Liquid Processing Improvements – Project Design (\$1.04 million)
- Nine Springs Valley Interceptor – Morse Pond Extension (\$1.96 million)
- West Interceptor – Pumping Station 5 to Gammon Extension (lining project) (\$710,000)
- Northeast Interceptor – Truax Extension Relief (\$720,000)
- Pumping Station 10 Force Main Rehabilitation (\$1.12 million)

Other anticipated expenditures include an additional \$1.77 million in other capital project expenditures as well as \$618,000 in capital budget expenses.

2018 CAPITAL PROJECTS FUND BALANCE

The 2018 capital projects fund ending balance of \$4.24 million is projected to decrease by 42.6 percent, or \$3.15 million, in 2018 compared to the budgeted 2017 ending balance of \$7.39 million and to decrease by 51.3 percent, or \$4.47 million compared to the present estimated 2017 ending balance of \$8.71 million. The end-of-year capital projects fund balance varies significantly from year-to-year depending upon the timing of project expenses and loan proceeds.

Per district policy, we aim to maintain a minimum capital projects fund balance (or reserve) of the greater of \$3 million or 10 percent of anticipated expenditures. Therefore, for 2018, the minimum acceptable balance should be \$3 million (10 percent of \$7.9 million is less than \$3 million). The projected 2018 end-of-year balance is projected to be \$4.2 million, which is above the minimum acceptable amount.

SIX-YEAR CAPITAL PROJECTS OVERVIEW

Included in the district's six-year capital improvements plan projection are projects currently underway that will continue into 2018 as well as those future projects that will begin in the associated period. District staff has identified these projects as higher priority needs during the planning process. Drivers include addressing condition and capacity needs as well as meeting other facility needs or regulatory requirements.

Table 7 provides a summary of the six-year capital projects plan. The base scenario shows approximately \$132 million worth of expenditures over the six-year period from 2018 to 2023, representing projects whose costs total \$176 million (see "totals before nitrogen removal projects" in **Table 7**). At the bottom of the summary, the advanced nitrogen removal scenario speculates additional expenditures based upon constructing advanced nitrogen removal facilities. Note that the scenario anticipates advanced nitrogen removal facilities as a requirement in the district's 2020 discharge permit. At this time, we are uncertain when more stringent nitrogen limits would require this additional level of treatment.

PROJECT SUMMARIES AND BUSINESS CASES

Summary descriptions for each of the projects in **Table 7** are included in **Appendix A**. Projects are categorized as Nine Springs Wastewater Treatment Plant projects, interceptor projects, or pumping station and force main projects. Projects are identified using an alphanumeric identifier. Specific identifiers included in **Table 7** will match those used in the appendices. Project identification for Nine Springs Wastewater Treatment Plant projects begin with the letter A, those for interceptor projects begin with the letter B, those for pumping station and force main projects begin with the letter C and those for capital budget expenses begin with the letter D.

TABLE 7 | Six-Year Capital Projects Summary

No.	Project	Total Project Cost	2018 - 2023 Cost	2018	2019	2020	2021	2022	2023
NINE SPRINGS WTP PROJECTS		\$88,722,000	\$52,501,000	\$1,479,000	\$10,184,000	\$9,866,000	\$7,835,000	\$11,884,000	\$11,253,000
A01	Shop One Site Improvements	1,720,000	1,710,000	103,000	1,061,000	546,000	-	-	-
A02.01	Plant Peak Capacity Improvements	5,584,000	5,484,000	196,000	2,605,000	2,683,000	-	-	-
A02.02	UV Disinfection System Replacement	4,080,000	4,030,000	175,000	1,899,000	1,956,000	-	-	-
A02.03	Headworks Flow Metering	2,465,000	2,465,000	-	-	-	135,000	1,148,000	1,182,000
A02.04	Septage Receiving Modifications	3,404,000	3,404,000	-	-	-	180,000	1,588,000	1,636,000
A02.05	East Blower Controls	419,000	419,000	21,000	196,000	202,000	-	-	-
A02.06	Primary Tanks 1 and 2 Rehabilitation	483,000	483,000	31,000	223,000	229,000	-	-	-
A02.07	54" Primary Influent Rehabilitation	860,000	860,000	52,000	398,000	410,000	-	-	-
A02.08	East-West Plant Flow Metering	160,000	160,000	10,000	74,000	76,000	-	-	-
A02.09	Nitrite Shunt Pilot	2,614,000	2,614,000	-	-	-	214,000	2,400,000	-
A02.10	Headworks Screening	3,991,000	3,991,000	-	-	-	214,000	1,861,000	1,916,000
A02.11	Badfish Creek Effluent Force Main Standpipe	105,000	105,000	41,000	64,000	-	-	-	-
A02.12	Plant Aeration System Projects (Nitrite Shunt)	22,908,000	N/A	-	-	-	-	-	-
A02.13	Plant Unit Substation Improvements	3,328,000	3,278,000	134,000	1,549,000	1,595,000	-	-	-
A02.14	East and West Switchgear	2,617,000	N/A	-	-	-	-	-	-
A02.15	Headworks Grit Management	2,681,000	N/A	-	-	-	-	-	-
A02.16	Activated Sludge Projects	10,670,000	7,976,000	67,000	69,000	426,000	3,652,000	3,762,000	-
A02.17	Process Control System Upgrade- Phase 2	1,602,000	1,602,000	309,000	637,000	656,000	-	-	-
A03	Metromix Facility Expansion	2,202,000	2,202,000	-	56,000	290,000	1,856,000	-	-
A04	Plant Energy Generation Facilities Plan	861,000	861,000	-	424,000	437,000	-	-	-
A05	Plant Energy Generation Projects	12,592,000	7,673,000	-	-	-	597,000	742,000	6,334,000
A06	Annual Clarifier Coating	957,000	957,000	180,000	186,000	191,000	197,000	203,000	-
A07	Annual Pavement Improvements	367,000	367,000	57,000	58,000	60,000	62,000	64,000	66,000
A08	Minor Capital Improvements	666,000	666,000	103,000	106,000	109,000	113,000	116,000	119,000
A09	Metrogro Applicators & Equipment	1,386,000	1,194,000	-	579,000	-	615,000	-	-
INTERCEPTORS		\$57,846,000	\$50,730,000	\$3,797,000	\$7,988,000	\$11,538,000	\$7,776,000	\$12,341,000	\$7,290,000
B01	Northend Int. - Sherman Avenue (lining project)	171,000	N/A	-	-	-	-	-	-
B02	Lower Badger Mill Creek Int. - Phase 4	1,235,000	N/A	-	-	-	-	-	-
B03	NSVI-Morse Pond Ext.	2,300,000	1,960,000	1,960,000	-	-	-	-	-
B04	SEI - Rehab upstream of PS 9 (lining project)	1,040,000	N/A	-	-	-	-	-	-
B05	Southeast Int. Relocation - Monona Waterfront Redevelopment	300,000	250,000	250,000	-	-	-	-	-
B06	West Int.- PS 5 to Gammon Extension (lining project)	711,000	711,000	711,000	-	-	-	-	-
B07	Southwest Interceptor-Haywood Ext. Replacement	1,426,000	1,426,000	88,000	923,000	415,000	-	-	-
B08	NSVI-McKee Road to Dunn's Marsh (lining project)	2,120,000	2,120,000	67,000	2,053,000	-	-	-	-
B09	NEI- Truax Extension Relief	9,604,000	9,604,000	721,000	4,376,000	4,507,000	-	-	-
B10	West Int. Relief Sewer - Walnut Street to Whitney Way	14,246,000	14,246,000	-	583,000	4,753,000	4,389,000	4,521,000	-
B11	West Int. - Spring Street Relief (lining project)	1,741,000	1,741,000	-	53,000	1,688,000	-	-	-
B12	NEI- Truax Extension Rehab (lining project)	5,761,000	5,761,000	-	-	175,000	2,757,000	2,829,000	-
B13	NEI- Waunakee Ext. Relief- Phase 1	10,644,000	10,644,000	-	-	-	630,000	4,933,000	5,081,000
B14	NEI- Far East Int. to SEI Junction (lining project)	1,921,000	1,921,000	-	-	-	-	58,000	1,863,000
B15	Lower Badger Mill Creek Int. - Phase 5	4,626,000	346,000	-	-	-	-	-	346,000

TABLE 7 | Six-Year Capital Projects Summary *cont.*

No.	Project	Total Project Cost	2018 - 2023 Cost	2018	2019	2020	2021	2022	2023
PUMPING STATIONS AND FORCE MAINS		\$25,599,000	\$25,521,000	\$2,035,000	\$2,997,000	\$7,633,000	\$7,541,000	\$1,727,000	\$3,588,000
C01	Grass Lake Dike Stabilization	155,000	155,000	155,000	-	-	-	-	-
C02	PS 10 Force Main Rehab	1,166,000	1,118,000	1,118,000	-	-	-	-	-
C03	Pump Stations 13 & 14 Wet Well Repairs	319,000	319,000	319,000	-	-	-	-	-
C04	PS 7 Improvements	3,833,000	3,803,000	443,000	1,655,000	1,705,000	-	-	-
C05	PS 17 Force Main Relief - Phase 1	1,166,000	1,166,000	-	90,000	1,076,000	-	-	-
C06	PS 13 Rehabilitation	5,117,000	5,117,000	-	631,000	2,207,000	2,279,000	-	-
C07	PS 14 Rehabilitation	5,036,000	5,036,000	-	621,000	2,175,000	2,240,000	-	-
C08	PS 4 Rehab	4,918,000	4,918,000	-	-	470,000	3,022,000	1,426,000	-
C09	PS 17 Capacity Upgrade	1,352,000	1,352,000	-	-	-	-	104,000	1,248,000
C10	PS 17 Force Main Relief - Phase 2	2,537,000	2,537,000	-	-	-	-	197,000	2,340,000
CAPITAL BUDGET EXPENSES		\$3,690,000	\$3,572,000	\$618,000	\$599,000	\$563,000	\$580,000	\$597,000	\$615,000
D01	Capital Budget Expenses	632,000	632,000	52,000	109,000	113,000	116,000	119,000	123,000
D02	Sustainable Infrastructure Management Program	2,745,000	2,745,000	424,000	437,000	450,000	464,000	478,000	492,000
D03	Collection System Facilities Plan Update	133,000	133,000	80,000	53,000	-	-	-	-
D04	Collection System Evaluation	180,000	62,000	62,000	-	-	-	-	-
TOTALS BEFORE NITROGEN REMOVAL PROJECTS		\$175,857,000	\$132,324,000	\$7,929,000	\$21,768,000	\$29,600,000	\$23,732,000	\$26,549,000	\$22,746,000
NITROGEN REMOVAL PROJECTS									
	Advanced Nitrogen Removal Facilities (\$78 million over 7 years)	78,000,000	195,000	-	-	-	-	-	195,000
TOTALS INCLUDING NITROGEN REMOVAL FACILITIES		\$253,857,000	\$132,519,000	\$7,929,000	\$21,768,000	\$29,600,000	\$23,732,000	\$26,549,000	\$22,941,000

Additional project information for most projects is contained in comprehensive business cases, located on the district's website at <http://www.madsewer.org/Planning/2018-CIP-FULL-Business-Cases>. Excluded are some of the projects already underway and routine annual expenditures. Since some projects are closely connected or contingent upon other projects, more than one project may be included in a single business case. A table of contents identifies which projects are included in which business case summary. Note that some business cases, and hence associated costs, are more developed than others. Where costs have not been fully developed, amounts have been included as placeholders or allowances to identify the need. As with all projects, these costs will be modified as project scopes are refined and better estimates become available.

CAPITAL PROJECTS BUDGET EXPENSES

Planning for the future ensures long-term quality service for the district's customers. The final category of expenditures in **Table 7** is capital budget expenses (letter D). These expenses typically include expenses related to planning and studies assessed against the capital fund but which would be difficult to capitalize to a specific asset. The 2017 budget included \$695,000 related to ongoing planning efforts in the collection system and at the treatment plant including, but not limited to, sustainable information program expenses. The 2018 budget allocates a similar level of funding for these longer-term planning efforts (\$618,000).

To continue sustainable infrastructure program support going forward, \$424,000 is included for this item in the 2018 capital improvements plan. Further details are included in the business case on the sustainable infrastructure management program on the district's website. Increasing levels of funds for the sustainable infrastructure management program are included annually for each year beyond 2018, anticipating this as an annual inflation-adjusted expense.

Additional expenditures that are anticipated in 2018 for this category include: (general) capital budget expenses (\$52,000) and preparation of the collection system facilities plan update (\$80,000). The first expenditure covers general planning expenses related to development of the capital improvements plan. The second item is for resources to study and prepare an update to the district's collection system facilities plan. While the original plan, completed in 2002, and the 2009 update were completed by district staff, it is anticipated that a portion of the 2018 update will require an engineering consultant.

CAPITAL PROJECTS FUND CASH FLOW SUMMARY

Table 8 provides a summary of the district's construction account cash flow for the period 2018 to 2023. The table includes anticipated revenue and expenditures for this six-year period. Total revenues for the period are anticipated at \$131 million with total expenditures anticipated at \$132 million. It should be noted that the end of year fund balance for 2022 is projected to be \$2.7 million, slightly below the district's policy minimum of \$3.0 million. Since the ending balance for 2023 is expected



Reliability and Maintenance Manager, Erik Rehr, Electrical Construction Engineer, Dave Lundey and Project Engineer, Jeff Klawes.

to be \$7.1 million, no adjustments to the capital improvements plan are deemed necessary at this time with regard to the minimum fund balance.

TABLE 8 | Capital Projects Fund Cash Flow Summary 2018-2023

REVENUES	2018	2019	2020	2021	2022	2023
CLEAN WATER FUND LOANS	1,857,000	18,800,000	27,921,000	21,086,000	23,127,000	24,059,000
CONNECTION CHARGES	\$1,575,000	\$1,825,000	\$2,100,000	\$2,375,000	\$2,675,000	\$2,975,000
INTEREST REVENUES	32,000	37,000	67,000	70,000	61,000	98,000
TOTAL REVENUES	\$3,464,000	\$20,662,000	\$30,088,000	\$23,531,000	\$25,863,000	\$27,132,000
EXPENDITURES	2018	2019	2020	2021	2022	2023
NINE SPRINGS WTP PROJECTS	\$1,479,000	\$10,184,000	\$9,866,000	\$7,835,000	\$11,884,000	\$11,253,000
INTERCEPTORS	3,797,000	7,988,000	11,538,000	7,776,000	12,341,000	7,290,000
PUMPING STATIONS AND FORCE MAINS	2,035,000	2,997,000	7,633,000	7,541,000	1,727,000	3,588,000
CAPITAL BUDGET EXPENSES	618,000	599,000	563,000	580,000	597,000	615,000
TOTAL EXPENDITURES	\$7,929,000	\$21,768,000	\$29,600,000	\$23,732,000	\$26,549,000	\$22,746,000
CAPITAL PROJECTS FUND CASH FLOW	2018	2019	2020	2021	2022	2023
BEGINNING BALANCE	\$8,706,000	\$4,241,000	\$3,135,000	\$3,623,000	\$3,422,000	\$2,736,000
TOTAL REVENUES	3,464,000	20,662,000	30,088,000	23,531,000	25,863,000	27,132,000
TOTAL EXPENDITURES	7,929,000	21,768,000	29,600,000	23,732,000	26,549,000	22,746,000
ENDING BALANCE	\$4,241,000	\$3,135,000	\$3,623,000	\$3,422,000	\$2,736,000	\$7,122,000



Operations and Maintenance Director Paul Nehm and his team work to maintain the aeration tanks and other district infrastructure.

CAPITAL PROJECTS FUND CASH FLOW SUMMARY (CONT)

The district's construction account includes revenues from three sources: loan proceeds, interceptor and treatment plant connection charges and interest received on account balances. The projection anticipates funds from each of these sources during the six-year period; \$117 million from loan proceeds, \$13.5 million from collection of connection charges and \$0.4 million from interest.

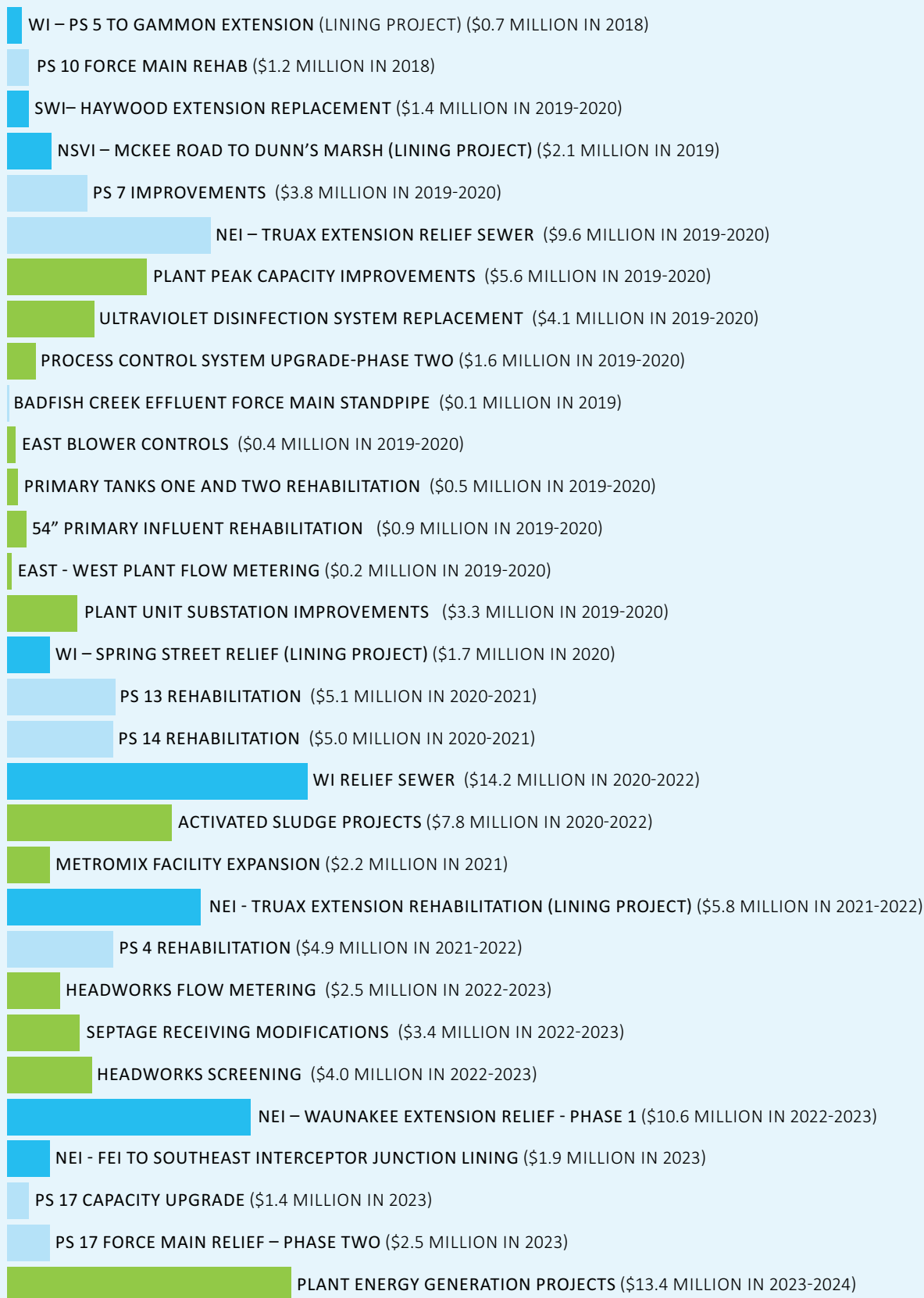
Wisconsin Clean Water Fund Loan Program

Although the district can, and may, fund future projects with general obligation bonds, we anticipate continued use of the Wisconsin Clean Water Fund Loan Program to fund most of our larger projects and to ensure adequate capital reserves to address any unforeseen capital costs. As of Aug. 21, 2017, the district has borrowed \$230 million from this program for the following projects:



The district also anticipates that it will require funding for many of the following future projects. We anticipate that many of them will be funded through Clean Water Fund Program:

- WI – RANDALL AVENUE TO PS 2 (LINING PROJECT) (\$1.6 MILLION IN 2017)
- SEI – REHABILITATION UPSTREAM OF PS 9 (LINING PROJECT) (\$1.0 MILLION IN 2017)



If facilities are required for advanced nitrogen removal, the district will incur additional borrowing related to construction of these facilities. We anticipate that this additional borrowing would most likely be from the Clean Water Fund Loan Program and would represent significant additional borrowing, anticipated at \$78 million.

SECTION FOUR

2018 DEBT SERVICE



Need caption

DEBT SERVICE

OVERVIEW

Service charge revenue collected for debt service in the 2018 capital improvements plan is consistent with levels anticipated in the 2017 plan. The 2018 plan incorporates the connection charges phase in adopted by the commission in July 2017. That yields an estimated \$1.2 million more through 2027 than was estimated in the 2017 budget. The plan also estimates higher costs for liquid process facilities projects than was estimated in 2017, reflecting greater information from the planning process.

The 2018 plan retains the year-over-year increases in debt transfer rates from the 2017 plan.

ROLE OF DEBT IN DISTRICT FINANCES

Debt is a tool for paying for capital projects while managing increases in service charges. The district could — in principle — fund the entire capital improvements plan on a pay-as-you-go basis. Under that approach, district service charges would rise and fall in concert with capital costs over time. Such year-over-year rate changes would be significantly larger than current district practice.

To avoid large swings in required service charges, the district spreads capital costs over many years. The district borrows for capital costs when needed for projects, and then repays those loans over time, typically 20 years. Even when the district's capital spending needs are high for a period, the immediate effect on service charge amounts is limited through use of debt.

When a loan is needed for a given capital project, proceeds from the loan are deposited in the capital projects fund. Generally, a project will have more than one loan disbursement, to match the progress of construction. Loan proceeds join connection charge revenues as the primary sources of money in the capital projects fund. A small amount of interest is also earned on fund balances.

The district's debt service obligations are paid not from the capital projects fund, but from a separate debt service fund. Revenue for this fund is received from one main source: transfers from the district's operating fund. In other words, debt service is ultimately paid from service charges, after a stop in the debt service fund.



Mechanic Ross Hossfelder, left, and Metrogro Manager Kim Meyer plan application of biosolids.

Having a separate debt service fund facilitates smoothing revenue requirements. The debt service fund balance rises and falls gradually over the years. At the end of each year the balance must, at a minimum, be sufficient to cover debt service obligations for the succeeding year. The balance is allowed to rise in anticipation of future debt service obligations. Rather than raise service charges immediately for capital projects, the district raises service charges gradually to meet the debt service requirements created by those projects.

DEBT LEVELS AND CONTROLS

There are important policy considerations with district debt. First, unlike a household or commercial business, the district's ability to repay debt is comparatively stable. District service charge revenue is reliable because of the financial stability of the district's customer communities. The ultimate safeguard against default is the district's ability to levy a property tax. In recognition of that option, state statute limits district debt to 5 percent of the equalized property valuation of the district.



An aquatic invasive species removal station is a featured element of the district's new Pumping Station 15 project. The boat wash station, public restrooms and bike repair stand were included in the project thanks to suggestions from neighbors and stakeholders.

Currently, the equalized property valuation is approximately \$42 billion. The district's debt limit is 5 percent of that, or approximately \$2 billion. The district's projected debt at the end of 2022, \$177 million, is well-below this limit. (The district does not currently collect property tax and has no plans to do so.)

A second consideration is the interest cost of using debt. Interest payments are the price of the rate-smoothing benefits discussed above. The state's Clean Water Fund Loan Program provides low-interest-rate funding, for which most district capital projects are eligible.

To reduce interest payments yet still achieve smoothing of required revenues, the district could shift to a strategy of growing the capital fund balance in advance of capital project needs. This would allow cash funding of projects, with smoothing accomplished through gradual increases in the capital project fund balance. The disadvantage of this approach is the need to maintain a large capital fund balance to fund large projects and to guard against unanticipated needs or schedule changes.

A third and final consideration is the potential for debt financing to encourage greater capital spending than is needed. This is an important concern.

However, the district has spending controls in place in capital planning, asset management, engineering project management and commission spending review. Limitations on use of debt could provide a fifth control, but would risk jeopardizing the district's service level or causing undesirable — and ultimately more costly — delays in needed projects.

TRENDS IN DISTRICT DEBT

At the start of the decade of the 1980s, the district had no outstanding debt. The district had benefited from significant federal and state grants for wastewater treatment infrastructure in the 1960s, 1970s and 1980s. Some grants covered as much as 80 percent of project costs. Thus, the district was able to expand to meet growing needs, install equipment required by stricter environmental limits and be debt free in 1982.

Since 1992, grant funding has been unavailable (with minor exceptions). Furthermore, the assets created during the grant-funded period are now coming due for repair or replacement. Reflecting these changes, and following the smoothing approach, the district's outstanding principal has risen from \$46.2 million in 2000 (\$63.6 million in present dollars) to \$140.6 million in 2016.

District debt service payments have similarly trended upward, from \$5.7 million in 2000 (\$7.9 million in present dollars) to \$12.7 million in 2016. As a percentage of the district's operating budget, debt service has averaged 36 percent since 2004. Recent years have seen a slight trend upwards with debt service constituting 39 percent of the operating budget in 2017. Debt service has been a main driver of operating budget increases in recent years.

The 2018 capital improvement plan's use of debt is consistent with the district's debt smoothing approach and with plans from recent years. The 2018 plan reflects two important changes: anticipated increases in connection charges revenue and higher estimated costs for liquid process facilities projects.

The district has evaluated its connection charges rate-setting methods to more fully recover the costs of system capacity. The commission approved the new rate-setting methods in July 2017. New higher rates will be phased in gradually through 2026.

The phase-in schedule will yield approximately \$1.2 million more in connection charges revenue over the 10-year period ending in 2027 than was estimated in the 2017 budget. That estimate assumes that areas connect to the district at the average annual rate seen in the last five years.

The anticipated revenue increase is offset by higher estimated costs for liquid process facilities projects. The district has completed its liquid process facilities plan. The plan estimates approximately \$9.5 million in additional costs compared to the rougher estimate in the 2017 capital improvements plan. (The increase is net of a contingency amount in the 2017 plan.)

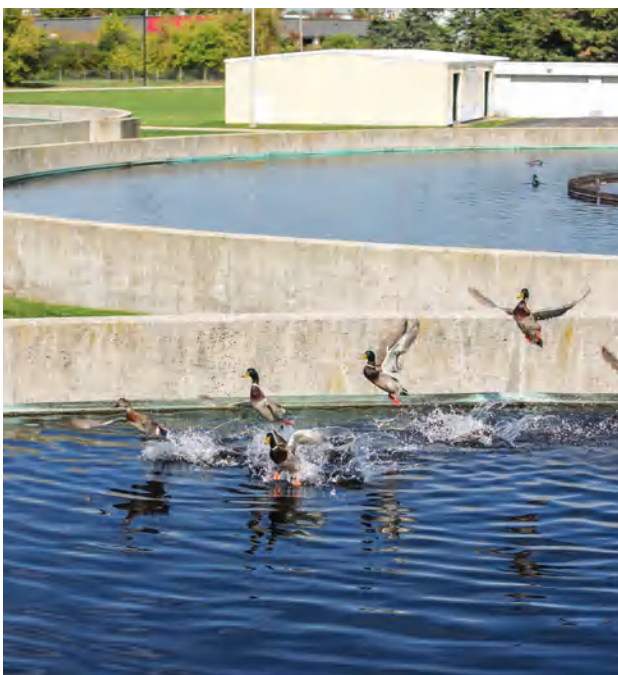
TABLE 9 | Debt Service Collected from Service Charges 2006-2025

YEAR	AMOUNT COLLECTED FOR DEBT SERVICE	PERCENT INCREASE OVER PREVIOUS YEAR	TYPE OF DATA
2006	\$6,603,480	2.0%	Actual
2007	\$6,828,000	3.4%	
2008	\$7,060,000	3.4%	
2009	\$7,300,000	3.4%	
2010	\$7,650,400	4.8%	
2011	\$8,017,600	4.8%	
2012	\$8,980,000	12.0%	
2013	\$9,878,000	10.0%	
2014	\$10,865,000	10.0%	
2015	\$11,843,000	9.0%	
2016	\$12,909,000	9.0%	
2017	\$13,684,000	6.0%	
2018	\$14,505,000	6.0%	<i>Proposed</i>
2019	\$15,375,000	6.0%	Projected
2020	\$16,067,000	4.5%	
2021	\$16,629,000	3.5%	
2022	\$17,211,000	3.5%	
2023	\$17,814,000	3.5%	
2024	\$18,437,000	3.5%	
2025	\$19,083,000	3.5%	

TABLE 10 | Six-Year Debt Service Summary

	2018	2019	2020	2021	2022	2023
DEBT SERVICE PAYMENTS	\$13,019,000	\$13,249,000	\$14,352,000	\$16,717,000	\$18,120,000	\$19,800,000
DEBT SERVICE COLLECTED IN RATES						
DEBT SERVICE REQUIREMENTS FOR SUCCEEDING YEAR	\$13,249,000	\$14,352,000	\$16,717,000	\$18,120,000	\$19,800,000	\$18,390,000
ADDITIONS TO (USE OF) DEBT SERVICE RESERVE	1,256,000	1,023,000	(650,000)	(1,491,000)	(2,589,000)	(576,000)
DEBT SERVICE INCLUDED IN SERVICE CHARGE RATES	\$14,505,000	\$15,375,000	\$16,067,000	\$16,629,000	\$17,211,000	\$17,814,000
PRINCIPAL AMOUNT OF OUTSTANDING DEBT AT FIRST OF THE YEAR	\$138,720,000	\$130,958,094	\$139,827,206	\$157,482,056	\$166,530,161	\$176,715,314

The 2018 capital improvements plan assumes the same year-over-year increases in transfers from the operating fund to the debt service fund as did the 2017 plan: 6 percent in 2018 and 2019, 4.5 percent in 2020 and 3.5 percent in 2021 and thereafter. The intent is to reflect anticipated connection charges revenues and higher project costs, without assuming or proposing substantive changes in debt policy compared to the 2017 plan. **Table 9** lists debt transfer rates and year-over-year increases.



Ducks, sandhill cranes, turkeys and other wildlife call the Madison Metropolitan Sewerage District campus home.

FUTURE DEBT SERVICE

Chart 1 illustrates the debt service requirements and debt transfer amounts extending to 2027. Solid lines are historical actual amounts. Dashed lines are the anticipated amounts from the capital improvements plan.

Over the period 2018–2027, amounts collected for debt service are above projected debt service requirements in early years and below in later years. This indicates that the debt service fund balance will be added to in early years and drawn from in later years, consistent with the smoothing strategy.

The point is also represented in **Table 10**, which shows debt service requirements over the first six years of the plan. Projected debt service payments are shown in the top row. The next rows show debt service amounts drawn from the operating fund and therefore included in service charges. The amount in service charges reflects two factors: (a) the debt service needed for the succeeding year; and (b) amounts added to (or reduced from) the debt service fund balance for rate smoothing. Separately, the table notes the total amount of outstanding principal at the start of each year shown.

Debt levels are one of several factors affecting a residential customer's service charges. Others include district operating expenses and user charges added by the district's customer communities.

TABLE 11 | 2018 Debt Service Budget

	2016 Actual	2017 Thru June	2017 Estimated Total	2017 Budget	Proposed 2018 Budget	% Change
REVENUES						
Transfer from Operating Fund	\$12,909,000	\$0	\$13,684,000	\$13,684,000	\$14,505,000	6.00%
Interest	73,683	35,000	50,000	28,000	34,000	21.43%
TOTAL REVENUES	\$12,982,683	\$35,000	\$13,734,000	\$13,712,000	\$14,539,000	6.03%
EXPENDITURES						
First Half Interest	\$1,808,180	\$1,788,136	\$1,788,136	\$1,858,000	\$1,755,000	-5.54%
Principal	8,834,587	9,226,901	9,226,901	9,449,000	9,619,000	1.80%
Second Half Interest	1,739,226	-	1,701,000	1,767,000	1,645,000	-6.90%
TOTAL EXPENDITURES	\$12,381,993	\$11,015,037	\$12,716,000	\$13,074,000	\$13,019,000	-0.42%
DEBT SERVICE FUND BALANCE						
BEGINNING BALANCE	\$17,865,387	\$18,466,077	\$18,466,077	\$18,388,000	\$19,484,000	5.96%
TOTAL REVENUES	12,982,683	35,000	13,734,000	13,712,000	14,539,000	6.03%
TOTAL EXPENDITURES	12,381,993	11,015,037	12,716,000	13,074,000	13,019,000	-0.42%
ENDING BALANCE	\$18,466,077	\$7,486,040	\$19,484,000	\$19,026,000	\$21,004,000	10.40%

Holding other factors constant, \$1.0 million in new debt service currently equates to approximately \$6 to \$7 for a typical household's annual bill. Using that rule of thumb, the \$4.1 million debt service increase anticipated between 2017 and 2023 would increase a typical household's annual bill between \$25 and \$29 over that period.

NITROGEN REMOVAL PROCESS

The 2017 capital improvements plan estimated the effects on debt of adding a nitrogen removal process to the treatment plant. The estimate relied on the district's nutrient removal cost study completed in 2012 by CH2M Hill. At that time, future costs were estimated at \$78 million over the 2021–2026 period. Adding such a large capital cost would significantly increase debt requirements and subsequent debt service payments.

The 2017 plan did not include an increase in the debt service transfer rate in anticipation of a nitrogen removal requirement. The possibility of the project being pursued was too speculative to justify changes in projected debt service requirements. That remains true for the 2018 plan. Furthermore, the cost estimates from the 2012 study grow less reliable over time, as technology changes. No estimate of debt requirements is made for 2018 for a nitrogen removal project.



The district's Crystal Green struvite harvesting facility produced strong results last year.

TABLE 12 | Estimated Debt Service Payment Schedule

YEARS ENDING DECEMBER 31	PRINCIPAL	INTEREST	TOTAL
2018	9,424,000	3,271,000	12,695,000
2019	9,668,000	3,024,000	12,692,000
2020	9,919,000	2,769,000	12,688,000
2021	10,050,000	2,510,000	12,560,000
2022-2026	44,000,000	8,910,000	52,910,000
2027-2031	39,345,000	3,831,000	43,176,000
2032-2036	11,561,000	416,000	11,977,000
TOTAL	\$133,967,000	\$24,731,000	\$158,698,000

DEBT SERVICE BUDGET AND SCHEDULE

Table 11 summarizes the debt service budget. Operating fund transfers are the main revenue source for the debt service fund. For Clean Water Fund loans, the district pays principal payments on May 1 and interest payments on both May 1 and Nov. 1. **Table 12** projects debt service payments. Amounts are per year for the first few years and then grouped by period for later years.

DEBT SERVICE FUND BALANCE

The debt service fund ending balance is projected to increase by 10.4 percent to \$21.0 million in 2018. This amount is adequate to pay the required principal and interest payments on existing and anticipated Clean Water Fund loans. The budgeted debt service balance at the end of 2018 meets the

district's policy requirement to maintain a balance sufficient to avoid levying a property tax to satisfy our debt service obligations.

CURRENT DEBT SERVICE SCHEDULE

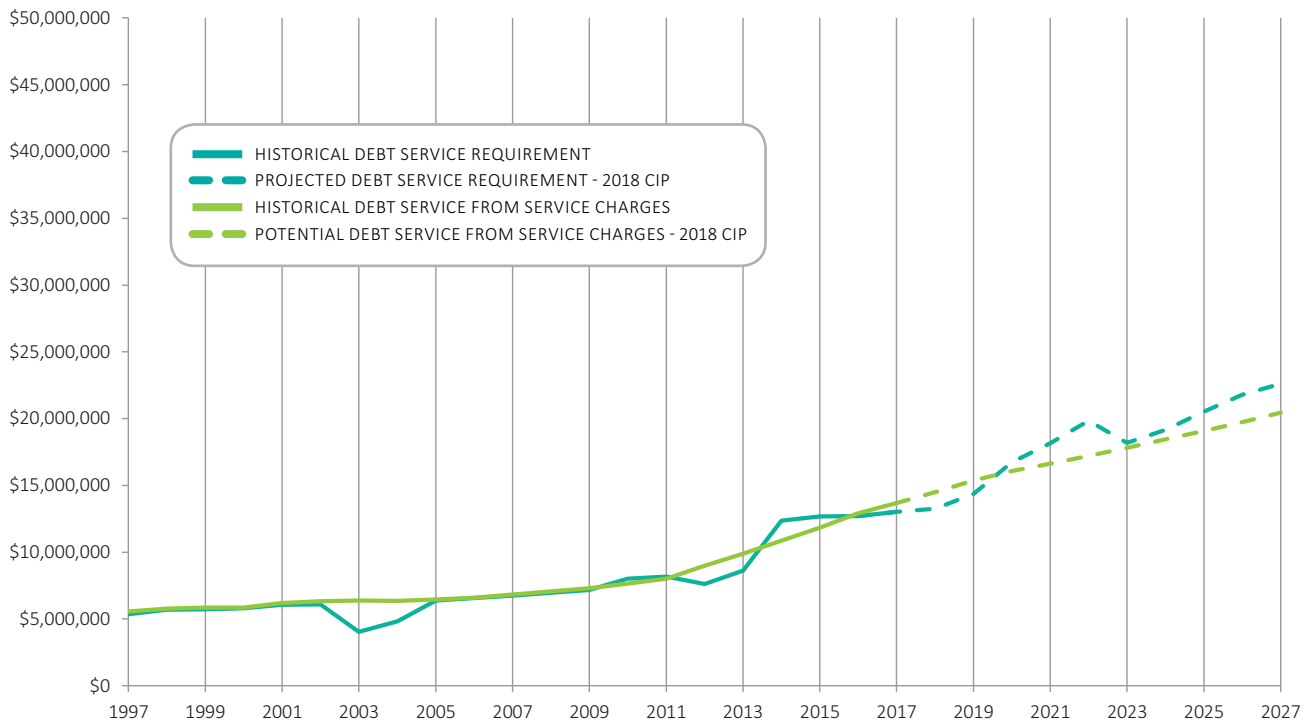
Currently all debt is financed through the State of Wisconsin Clean Water Fund Program. The district makes principal payments on its long-term debt in May of each year and interest payments in May and November of each year. Future principal and interest due on long-term debt incurred as of July 31, 2017 are approximately as shown in **Table 12**. Note that this does not include any debt that will be incurred beyond July 31, 2017.



A sandhill crane hunts near Madison Metropolitan Sewerage District's ponds. The ponds are used to store treated effluent during periods of high flow and help control the volume of effluent discharged into Badfish Creek.

CHART 1 | Historical and Projected Debt Service

Annual Debt Service Included in Service Charges and Annual Debt Service Requirements



Future debt service is based on estimates for actual anticipated projects through 2023 plus average estimated project costs of \$18 million per year for the period from 2024-2027. Assumes no advanced nutrient removal projects and Clean Water Fund loan rates of 4% for loans beyond 2018. Transfer amount increases by 6.0% in 2018 and 2019, 4.5% in 2020 and 3.5% thereafter.

SECTION FIVE

STRATEGIC PLANNING



Operations Manager Alan Grooms inspects primary tanks.



Assistant Operations Engineer Matt Allen scans the plant horizon.

STRATEGIC PLANNING

OVERVIEW

The district seeks both to do things right and to do the right things. The best efforts are wasted if they do not support the right things. The best objectives fail if not supported by doing things right. Strategic planning supports both.

The district has planned throughout its history. The quality and scope of district facilities are a credit to all who contributed to that work. Now, to improve its strategic planning and meet new challenges with funding, collaboration and accountability, the district has formed a new department, focused specifically on strategic planning.

Strategic planning affects many parts of the district including capital planning, asset management, information technology, facilities planning, cross-department collaboration, project management and financial planning. Important principles guide strategic planning in all of these areas and support the district's and the planning department's efforts to improve.

Strategic choices are based on value. There is always more work than the district has time or money for. There are always more projects, initiatives or ideas than the district could pursue. How can we choose the right projects from the many possibilities? The answer: value.

The district chooses work that it expects to yield the highest value. This is familiar to anyone who has made a choice, whether small — like which car to buy — or large — like where to build the corporate headquarters. One lists the options, assesses their likely net value and chooses those that score highest.

In planning circles, that is usually called the “portfolio” decision. One chooses a portfolio of projects and initiatives for the next few years. The district already has a process for choosing the portfolio of capital projects. The capital improvement plan is the result. We are adding processes for other areas too, especially for activities like information technology.

Value is easy to talk about, but harder to evaluate. The district's work yields value in many categories. The obvious and central category is reducing pollutants in the region's wastewater. But there are other important categories that support the wastewater category or are in addition to it.

These include supporting the regional economy, supporting the community and quality of life, reducing risks and developing employees.

The district is developing its portfolio management tools to more systematically identify options and assess value.

Strategic planning is guided by commission priorities. Often, a project or initiative will yield value in more than one category. For instance, a repair project may increase reliability of the system and reduce risk of employee injury at the same time.

Although it is good for our projects to yield value in several categories, that presents a challenge. For example, one hypothetical project would reduce air emission while another would reduce risk of power failure. When resources are insufficient to support both, the district turns to commission priorities for guidance.

If the commission has indicated — still hypothetically — that it prioritizes system reliability first and air emissions second, then district staff has enough information to choose which project to pursue. Although some commission priorities are clear, the commission has not had an opportunity to discuss, develop and document all commission priorities. That is a district goal for 2018.



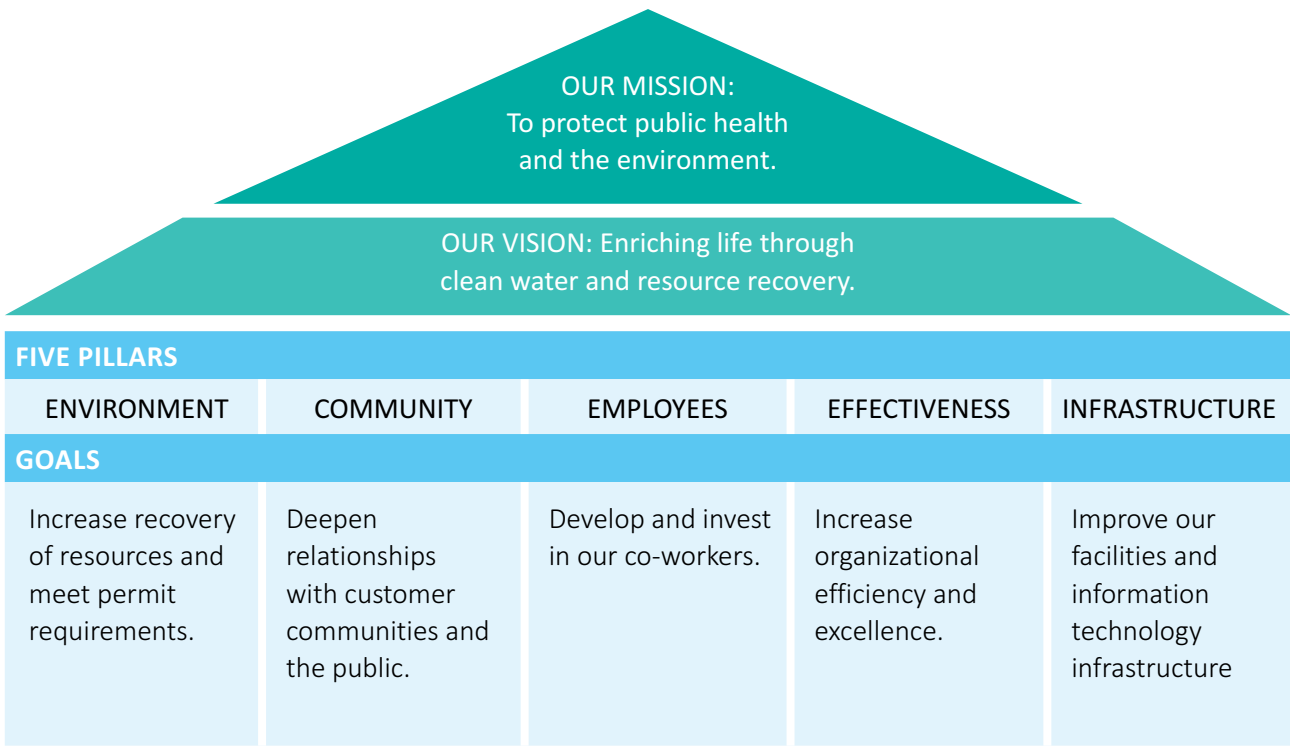
Purchasing Assistant Michelle Stransky receives a delivery.

Strategic planning depends on implementation. Choosing a portfolio of high value projects and initiatives that reflect commission priorities is the easy part. The hard part is getting the work done.

To succeed, the district needs to manage its projects, to identify the staff time and money required, to protect those resources against distraction and to see projects through to fruition.

The district and its facilities are a testament to past successes. But with increasingly complex projects, the district recognizes a greater need for project planning and management. The challenge is particularly great for projects that involve multiple departments and those that are groundbreaking and unfamiliar.

The district is developing additional planning tools and processes in all three areas: portfolio management, priority setting and implementation. In late 2016, the planning and strategy department worked with a consultant to update the district's and departments' objectives. The result is represented in **Figure 8** and the initiatives reported in this document. The consultant also developed a prototype portfolio management tool, which will be expanded for 2018. In addition, one of the district's goals for 2018 is to get commission guidance on priorities, as discussed above. Finally, the departments of planning and strategy and administration are working on better project planning tools for a subset of the strategic technology plan. All of these efforts will continue into 2018.



FIVE PILLARS OF DISTRICT WORK

The district’s mission is to protect public health and the environment. A variety of objectives, projects and activities support that mission. Strategic planning helps the district make smart choices on what to work on.

To help explain our work, the district organizes it into five pillars:

- 1. **Environment.** Increase recovery of resources and meet permit requirements.
- 2. **Community.** Deepen relationships with customer communities and the public.
- 3. **Employees.** Develop and invest in our co-workers.
- 4. **Effectiveness.** Increase organizational efficiency and excellence.
- 5. **Infrastructure.** Improve our facilities and information technology infrastructure.

Each area contains many objectives, projects or activities. For example, the environment area includes work on chloride reduction, the biosolids market and energy management. The employees area includes cultural competency and development of the employee leadership council.


All district work fits into the five pillars, but not all efforts are shown in this budget document. The efforts shown are noteworthy but not necessarily more important than other efforts. Many of the efforts shown are related to the chief engineer and director’s duties and are of special interest to the commission, for instance.

Most of the efforts shown in this budget document are transformative. They are aimed at changing the district to meet new circumstances, improve performance or achieve new possibilities. However most of the district’s day-to-day work is stabilizing. It keeps performance high, limits risk and meets permit requirements.

Some of the most important district work is stabilizing. We are in this for the long haul. We value continuity and stability. Our greatest pride is in keeping the system performing, each and every day.

SECTION SIX

DEPARTMENTAL INFORMATION

A man in a striped polo shirt and blue jeans is standing in a room with large orange pipes and a red fire suppression cylinder. He is holding a tag and looking at the cylinder. In the background, there are grey lockers and a white bucket. The room has a high ceiling with a large white duct.

Asset Information Specialist Hank Richardson tags district assets.

DEPARTMENT INFORMATION

The district is made up of six departments: district leadership and support, engineering, planning and strategy, operations and maintenance, administrative services and ecosystem services. Each department's section includes a purpose statement, budget summary, trends and highlights of budgetary changes. Each section also reviews goals that have been completed, are in progress or are anticipated for next year.

Several organizational and budgetary changes were made in 2016, notably shifting the Metrogro program from operations and maintenance to ecosystem services and creating the planning and strategy department by moving some staff from engineering and from operations and maintenance. These large changes make before-and-after budgetary comparisons difficult. A smaller change was made in 2017: shifting the resource team from administration services to district leadership and support, with the addition of a new communications manager position. Updates on other departmental changes are included in each department's section.

Goals and policies highlighted in blue are district-wide initiatives.



When Laurie Dunn applies her eagle eyes to help chart a course for the district's technology future, the vultures don't stand a chance.

TABLE 13 | Departmental Budget Summary

	2017 Adopted Budget	2018 Budget	2017 Change from 2018	% from 2016 Budget
District Leadership and Support	1,618,170 *	1,667,011	48,841	3.0%
Administration	2,544,382 *	2,836,118	291,736	11.5%
Engineering	633,349	723,575	90,226	14.2%
Ecosystem Services	4,204,025	4,139,085	(64,940)	-1.5%
Operations and Maintenance	11,549,851	12,340,233	790,382	6.8%
Planning and Strategy	922,423	819,206	(103,217)	-11.2%
Debt Service	13,684,000	14,505,000	821,000	6.0%
TOTAL	35,156,200	37,030,228	1,874,028	5.3%
TOTAL WITHOUT DEBT SERVICE	21,472,200	22,525,228	1,053,028	4.9%
MAJOR EXPENSE CATEGORIES				
Asset Addition, Repair and Replacement	15,502,545	16,731,180	1,228,635	7.9%
Personnel Services	10,474,520	11,210,927	736,407	7.0%
Contract Services	3,463,230	3,466,245	3,015	0.1%
Materials, Supplies and Misc.	5,543,905	5,621,876	77,971	1.4%
Transfer to Capital Projects Fund	172,000		(172,000)	100.0%
TOTAL	35,156,200	37,030,228	1,874,028	5.3%

**Department Changes - Numbers have been restated for 2017 to match budgeting for 2018.*



Purchasing Assistant Michelle Stransky and Procurement Agent Matt Leitzen inventory incoming parts to the district.



District Leadership and Support Department

7 FTES

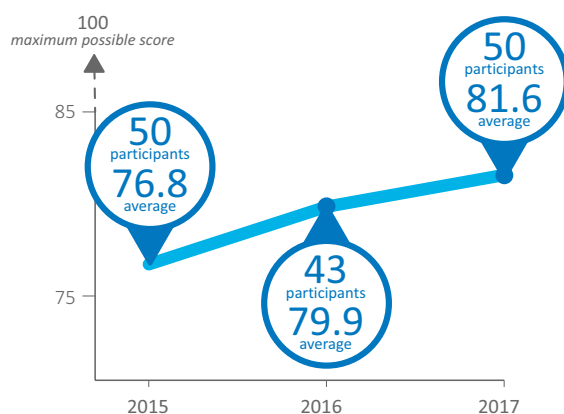

The purpose of the district leadership and support team is to provide human resources, commission and communication services to the organization so that the district develops and invests in coworkers, advances a policy driven strategic approach to governance and deepens relationships with customers and the public.

KEY RESULT INDICATORS

Key result indicators for the district leadership and support team highlight advances in employee health and engagement as well as efforts to deepen the district's external relationships.



HEALTH RISK ASSESSMENT RESULTS



INTERCULTURAL DEVELOPMENT INVENTORY

98%
Percentage of employees completing inventory

88
District group score

BUDGET SUMMARY

2017 ADOPTED BUDGET | TOTAL: \$1,618,170



2018 BUDGET | TOTAL: \$1,667,011

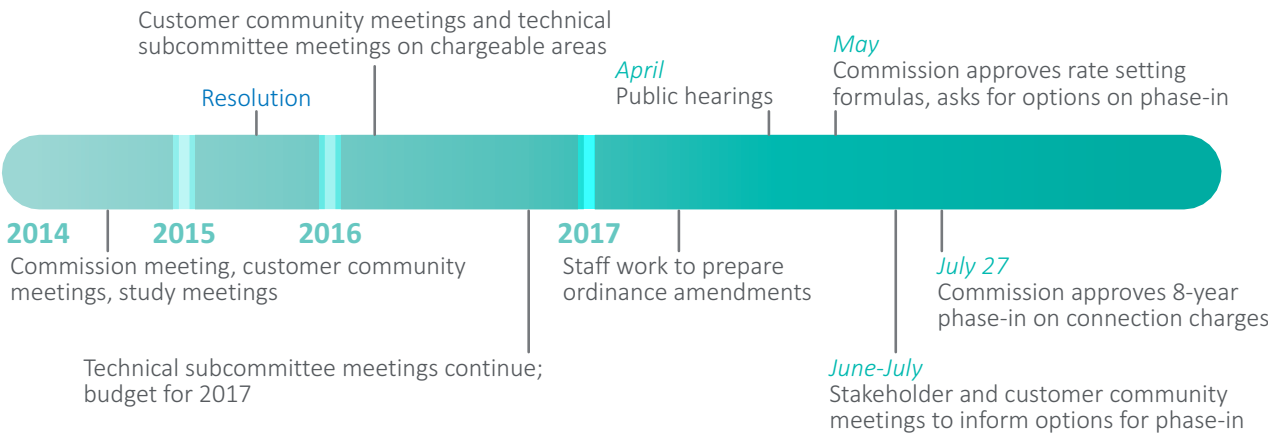


	2017 Adopted Budget	2018 Budget	Change from 2017
PERSONNEL SERVICES	932,070	1,053,111	121,041
ASSET ADDITION, REPAIR AND REPLACEMENT	30,000	32,800	2,800
CONTRACT SERVICES	485,700	414,700	(71,000)
MATERIAL, SUPPLIES AND MISC.	170,400	166,400	(4,000)

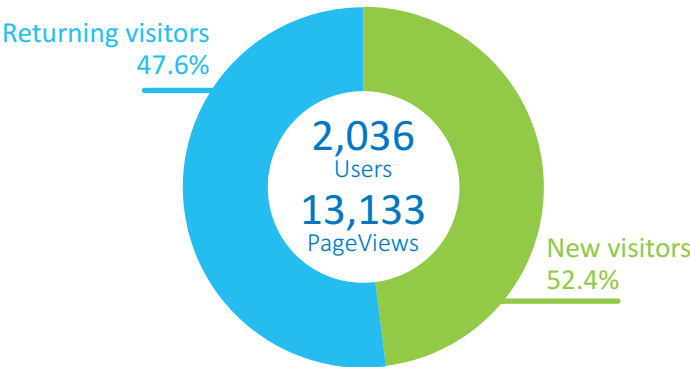
3.02%
change from
2017 budget
(+ \$48,481)

Personnel Services: 12.99%
Asset Addition, Repair
and Replacement: 9.33%
Contract Services: -14.62%
Material, Supplies
& Misc.: -2.35%

PUBLIC ENGAGEMENT: CONNECTION CHARGES



INITIAL WEBSITE ANALYTICS



CUSTOMER COMMUNITY MEETINGS IN 2016

16
Meetings covered topics ranging from infrastructure projects to rate structure

DEPARTMENT TRENDS

1. Rising public interest in water quality and affordability issues is increasing overall attention to the business of the district.
2. Recruitment and retention of top talent for science, technology, engineering and mathematics related jobs has become more competitive as baby boomers retire and the economy recovers.
3. Efforts to achieve permit compliance through traditional brick and mortar solutions are increasingly expensive, requiring the district to consider adaptive approaches with more extensive public engagement.
4. Public and employee needs for instantaneous, accessible and shareable digital information are increasing.
5. There is increasing utility industry awareness that leveraging water investments can create workforce opportunity and equity.
6. Opportunities exist for increasing collaboration with diverse community groups.
7. Commission members have expressed an increasing desire for the commission to evaluate and reshape district policy.

DEPARTMENT UPDATE

The department of leadership and support moves into 2018 with a new commission policy governance framework. Communication resources are in place to address the increasing demands for public engagement, Yahara WINS and to support pollution prevention programs. The department is also nurturing employee governance and inclusion programs to build employee capacity to be effective leaders at fulfilling the district's mission, vision and values. The department is made up of seven full-time employees: chief engineer and director, strategic communications manager, human resources manager, health and safety specialist, executive coordinator, program resource associate and program resource assistant.

CHANGES TO THE BUDGET

Personnel Services

Personnel services increased by \$121,000 or 12.99 percent. The change is due to:

1. Market and progression increases for employees, position changes and increased health insurance and fringe benefits costs.

2. A shift of funds from contracted services to perform work in house with part-time staff.

Asset Addition, Repair and Replacement

The 2018 budget increased by \$2,800 or 9.33 percent to purchase new hardware and/or software.

Contracted Services

In 2018, contract services will decrease by \$71,000 or 14.62 percent. Some \$30,000 of this reduction is a transfer to personnel services.

Materials and Supplies

General supplies decreased by \$4,000 or 2.35 percent.

KEY RESULT INITIATIVES

In addition to its many ongoing duties, the following initiatives highlight some of the transformative efforts of the department. They align with the five pillars described in the strategic planning section.

2017 UPDATE

1. Policy Governance

Goal: District staff will develop a draft policy governance guidebook for commission input and approval. Once approved, training will commence for commissioners and staff on the contents of the guidebook. Additional training will be considered from the League of Wisconsin Municipalities on the responsibilities of government officials.

Status: The commission endorsed the policy governance effort in January 2016 and established a commission workgroup to develop a request for proposal for selection of a consultant. The workgroup met and recommended a consultant to the full commission in June 2016. Work commenced in November with three of the five policy governance study sessions completed. The policy manual will be completed in the third quarter of 2017.

2. One Water

Goal: The commission will develop a one water policy statement. The one water movement is an approach to water stewardship that is innovative, inclusive and integrated. It seeks opportunities to find holistic solutions for water resources. Staff will seek opportunities to cultivate one water discussions with community partners as they consider water policy that may impact the district. A potential opportunity is to have early discussions with the City of Madison about drinking water source options that could reduce chloride loads and other shared resource opportunities. Another opportunity is to partner with the City of Fitchburg, which is embracing the one water idea and has invited the district to collaborate on identifying partnership opportunities. The goal for 2016 is to identify shared opportunities around water that have economic, social and environmental benefits to the district and the region.

Status: The commission hosted a joint meeting with the Madison Water Utility Board in July 2016. In April 2017, the commission approved a resolution supporting a joint approach to reduce chlorides in water resources in the greater Madison region. The next step is to establish a one water leadership team that includes stakeholders from the City of Madison and CARPC to develop shared goals and priorities, develop a decision making structure and conduct coordinated communication efforts to reduce the impacts of chloride on water resources.

3. Building Public Support (Shop One Water Center)

Goal: Approve a strategic plan for the development of a district education center in the vacated Shop One building space. The plan will include a mission, vision, principles, goals and a budget. The facility will build capacity for the district to have more public involvement and education resources for water communication.



Jim Post leads one of more than 60 tours hosted by the district each year. The 1,000-plus visitors from local youth organizations, schools and community groups learn about the plant's operations and the importance of water resources.

Status: The commission approved a Shop One strategic plan in May 2016 and staff developed a conceptual site plan in April 2017. The next step is to convene a small team with the two commission representatives to lay out a broad programming agenda, and then form the Shop One advisers Group.

4. Succession Planning

Goal: Hire the operations and maintenance director and the director of planning and strategy. Plan for the retirement of the ecosystem services director.

Status: The new planning director started in October 2016. A reorganization plan was implemented to support the retirements of key staff. The operations and maintenance director and ecosystem services director positions are being actively recruited with the assistance of an executive search firm.

5. Competitive Wages and Salaries

Goal: Review employee pay to assure it is competitive with the market.

Status: In March 2016, the commission received an overview of the district's pay system and the process for conducting an independent wage and salary study in accordance with commission guidance. The commission received the study findings in August 2016 with proposed next steps for implementation. The executive team and ELC worked collaboratively to formulate an implementation proposal that was presented to the commission in January 2017. The commission proceeded with a facilitated decision making process that resulted in approving wage and salary schedules in May 2017 that incorporate market data.

6. Strategic Communications

Goal: Develop business case for strategic communications.

Status: The commission included the communications manager position in the 2017 budget.

7. Yahara Watershed Academy

Goal: To serve on a Clean Lakes Alliance partnership committee that will implement a Yahara Watershed Academy to train and shape local leaders in the areas of watershed management.

Status: First academy class graduated 30 students.

8. Employee Leadership Council (ELC) Development

Goal: Continue to focus on employee engagement through the implementation of the ELC. In 2017, the focus is on collaborative problem solving training and hiring a group facilitator.

Status: Madison College was selected to be the facilitator. ELC members and the executive team had 24 hours of problem solving training. The ELC and executive team collaborated on the development of recommendations to implement the pay study and the ELC developed operating guidelines.

9. Diverse and Inclusive Workforce

Goal: Define vision and pathway for an inclusive workforce.

Status: Formed an inclusion and diversity committee, retained a cultural competency consultant and completed training on essential cultural competence skills for managers, supervisors and the ELC. Performed individual readiness assessments and received 1:1 coaching. Developed a three-year strategic plan and introductory organizational inclusion and diversity training was completed.

10. Competitive Hiring Process

Goal: Review and adjust (if needed) hiring process to respond to competitive hiring environment.

Status: Complete. Streamlined selection processes to fill positions in a timelier manner. For highly competitive leadership positions, process has been modified to include the use of an executive search firm for the direction of operations and maintenance and the director of ecosystem services. Successfully hired and onboarded 18 employees in 2016 and as of August, 2017, 21 employees have been onboarded.

2018 GOALS

1. Policy Development Prioritization

Background: The commission dedicated most of 2017 to developing a policy manual. These new policies are in addition to the 136 pages of existing district policies still on the books. The policy governance process also identified the need for the commission to formulate a variety of new policies.

Goal: Review existing policies, identify potential new policies and develop a prioritization schedule to write, revise or eliminate.

2. Employee Leadership Council

Background: The Employee Leadership Council has completed its first full year of existence, has tackled some very difficult issues and has formed operating guidelines to become even more effective. The council is now focused on establishing future priorities.

Goal: The council will establish a list of priorities and will start working them. The group will also conduct facilitator training and interest based problem solving training for new members and new executive team members.

3. Communications Plan

Background: Through the years, efforts to communicate have ranged from 1930s era ads for early fertilizer products to a 2013 website redesign highlighting the district's mission, vision and values. Over time, these communication efforts have succeeded on many levels, securing the district's credibility and providing targeted stakeholder groups with actionable information. However, to prepare for future challenges, to fully engage stakeholders



The commission's policy manual is scheduled to be completed in 2017.

and heighten visibility of the district's work, a more comprehensive and strategic approach to communications is needed.

Goal: Conduct a communications inventory, reflecting the current status of the district's communication efforts and identifying the channels, tools, staff capacity and processes needed to continue moving forward.

4. Cultural Competency

Background: The district's diversity efforts have evolved over the last couple of years thanks to the leadership of an employee inclusion and diversity committee. The focus is on how employees can be more effective in their jobs and how our differences make a difference in our ability to work effectively together. We spent 2017 developing a strategic plan based on an organization wide assessment. The strategic plan will move toward implementation in 2018.

Goal: Conduct in depth cultural competence training and communication.



Administrative Services Department

14 FTES

The department provides business and administrative services – procurement, financial, process improvement and information technology – to internal and external customers so that the district can achieve its mission of protecting public health and the environment.

KEY RESULT INDICATORS

2016 AUDIT RESULTS

2016



UNQUALIFIED OPINION

BEST PRACTICES IN BUDGETING

The Government Finance Officers Association Distinguished Budget Award recognizes best practices and transparency in reporting on use of public funds.

2013



YES



NO

2014



YES



NO

2015



YES



NO

2016



YES



NO

2017



YES



NO

BUDGET SUMMARY

2017 ADOPTED BUDGET | TOTAL: \$2,544,382



2018 BUDGET | TOTAL: \$2,836,118



	2017 Adopted Budget	2018 Budget	Change from 2017
■ PERSONNEL SERVICES	1,345,882	1,538,404	192,522
■ ASSET ADDITION, REPAIR AND REPLACEMENT	420,480	535,255	114,775
■ CONTRACT SERVICES	681,430	661,508	(19,922)
■ MATERIAL, SUPPLIES AND MISC.	96,590	100,951	4,361

11.4%
change from
2017 budget
(+ \$291,736)

Personnel Services: 14.3%
Asset Addition, Repair
and Replacement: 27.3%
Contract Services: (2.92%)
Material, Supplies
& Miscellaneous: 4.51%

DEPARTMENT TRENDS

1. A growing need to communicate with the commission, the general public and other interested stakeholders about district finances.
2. A growing need for oversight of adherence to procurement, financial and administrative policies and related best practices. This is driven by the increasing number of such policies, new staff positions and employee transitions such as retirements and new hires.
3. The district is using increasingly complex technology and systems and demands for information technology services are increasing.

DEPARTMENT UPDATE

The current department is made up of: assistant chief engineer and director of administration, comptroller/budget manager, staff accountant, business analyst, accounting assistant, procurement agent, purchasing and inventory assistant, information systems manager, programmer/analyst, programmer I and two network technicians.

CHANGES TO THE BUDGET

Personnel Services

As shown in the department summary table, budgeted amounts for personnel services in the administration department increase by \$192,522 or 14.3 percent. The change is due to the following:

1. The addition of two positions to the department, a database administrator and an accounting clerk. The new positions added \$182,500 to personnel costs.
2. Market and progression increases for employees, changes in individuals in positions and increased health insurance and fringe benefits costs.

Asset Addition, Repair, and Replacement

Budgeted amounts for asset addition, repair and replacement are projected to increase by \$114,775 to \$535,255. These changes are due primarily to the following:

1. Enhancements to information technology network hardware – \$68,000 for equipment to provide redundancy/backup capability for process control equipment and \$20,000 for installation of a fiber optic cable from the Maintenance Facility to the Operations Building.
2. Investment in software – consulting assistance to implement to implement Microsoft Office 365, \$30,000.

Contracted Services

Budgeted amounts for contract services decrease by \$19,992 to \$661,508. The change is primarily due to a reduction in contracted services of \$40,000 because of the addition of the database administrator position.

Materials, Supplies and Miscellaneous

Budgeted amounts for materials, supplies and miscellaneous increased by \$4,361 to \$100,951. The largest change is an increase of \$6,380 to increase the capacity of our internet service partially offset by reductions in other items.

KEY RESULT INITIATIVES

The administrative services department carries out a wide variety of core work that may not be apparent in this section. In this section, only new initiatives are discussed that have a strategic significance.

2017 UPDATE

1. Financial Plan

Goal: Develop a five-year financial plan for the district.

Status: A key element needed for developing a five-year financial plan is developing multi-year operating plans for the district as a whole. The multi-year operating plans and budget combined with our existing capital improvements plan outputs will provide the basis for creating the five-year financial plan. The work of developing these operating plans began in 2017 under the leadership of the planning and strategy department. A draft five-year financial plan is planned to be completed in 2018 in time to inform the development of the fiscal year 2019 budget.

2. Questica Budget Application

Goal: Implementation of the Questica budget application.

Status: Difficulties continue with this implementation. Staff has spent the last year re-assessing the path forward. The project is dealing with technical issues, a cost overrun and constraints on staff time to complete the work.

3. Strategic Technology and Geographic Information Systems Plan

Goal: Technology planning via information technology and geographic information systems strategic plan.

Status: Complete. Plan is complete and is being implemented. The commission will receive a high level presentation in August, 2017.



Network Technician Michael Bowman is among the information technology staff members working to lead the district forward.

2018 GOALS

1. Develop a five-year operating budget and financial plan in time to inform preparation of the fiscal year 2019 budget. This plan will be built on the foundation of the existing capital improvements planning and the operational planning effort now underway.
2. Improve database management. This is a major element of the information technologies strategic plan. The proposed budget includes a new database administrator position to strengthen our capabilities and capacity in this area. The position would help manage our data, improve access to information and provide tools to better use the data we have.
3. Complete the implementation of the Questica budget application.
4. Move to more centralized purchasing with fewer buyers and greater use of requisitions.
5. Develop a document management plan.
6. Implement Microsoft Office 365 software.



Ecosystem Services Department

17 FTES

The purpose of the ecosystem services department is to advance initiatives and provide support services so that treatment plant operating systems can be optimized, demand for traditional wastewater treatment infrastructure and collection services can be reduced, resources can be recovered and environmental quality can be enhanced.

KEY RESULT INDICATORS

WPDES PERMIT COMPLIANCE

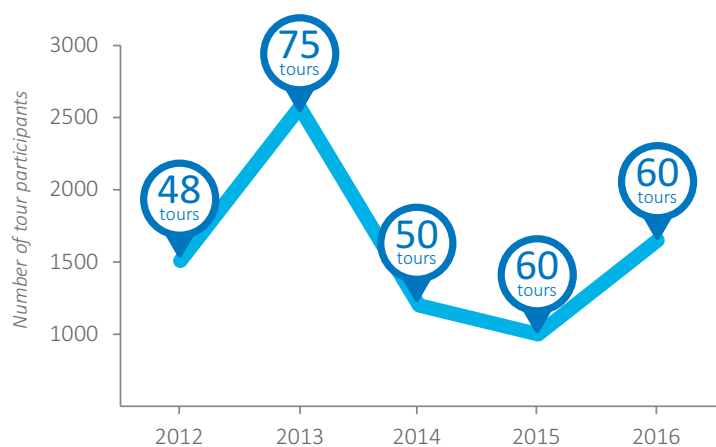
2016

100% COMPLIANCE

NATIONAL ASSOCIATION
OF CLEAN WATER
AGENCIES' PEAK
PERFORMANCE AWARD



DISTRICT TOURS



BUDGET SUMMARY

2017 ADOPTED BUDGET | TOTAL: \$4,204,025



2018 BUDGET | TOTAL: \$4,139,085

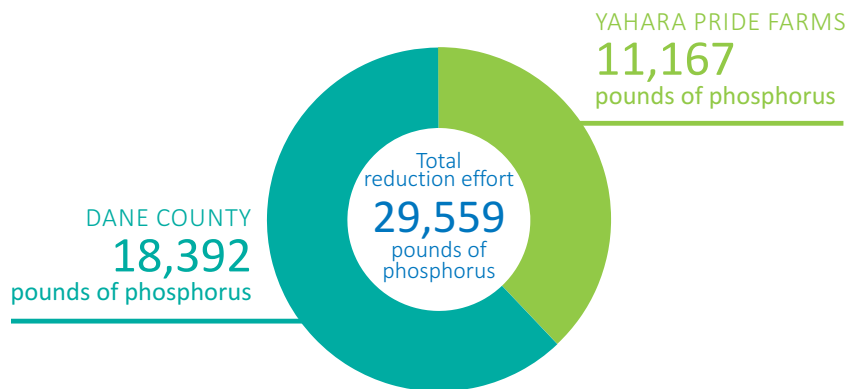


	2017 Adopted Budget	2018 Budget	Change from 2017
PERSONNEL SERVICES	2,034,575	1,935,763	-98,812
ASSET ADDITION, REPAIR AND REPLACEMENT	165,950	212,000	46,050
CONTRACT SERVICES	1,514,800	1,532,972	18,172
MATERIAL, SUPPLIES AND MISC.	488,700	458,350	-30,350

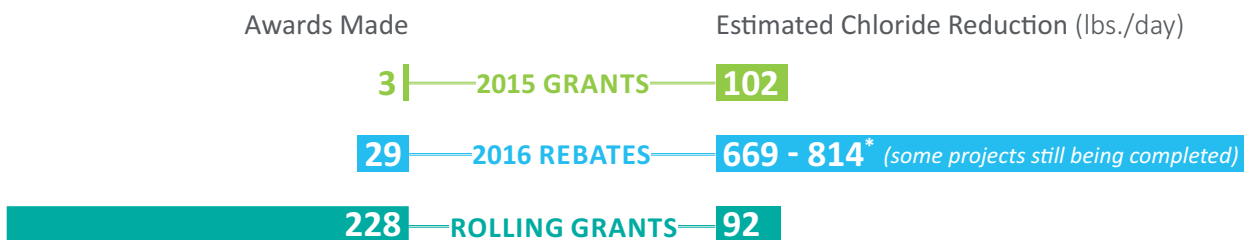
-1.54%
change from
2017 budget
(-\$64,940)

Personnel Services: -4.86%
Asset Addition, Repair
and Replacement: 27.75%
Contract Services: 1.20%
Material, Supplies
& Misc.: -6.21%

DANE COUNTY AND YAHARA PRIDE FARMS TOTAL PHOSPHORUS REMOVAL EFFORTS 2016



CHLORIDE REDUCTION



DEPARTMENT TRENDS

1. The district increasingly occupies a leadership role on nutrient management. With the successful implementation of watershed adaptive management, the district has become a recognized source for knowledge and solutions. This responsibility requires the district to continue to lead through its practices. The Metrogro program provides an opportunity to work more closely with our farm producer partners on managing phosphorous loading informed by good science and data.
2. Pollution prevention and source reduction provides an alternative to traditional brick and mortar solutions. Traditional brick and mortar solutions that address regulatory requirements and/or meet environmental objectives are disproportionately expensive relative to environmental gains.
3. Process and environmental monitoring needs will continue to grow. There is an increased emphasis on environmental monitoring (physical, chemical and biological parameters) and use of the resulting data to support decision-making or advance program initiatives.
4. The district will pursue and implement resource recovery initiatives where the business case can be made using a triple bottom line analysis that considers social, environmental and economic factors.

DEPARTMENT UPDATE

After a district-wide reorganization took place in 2017, the ecosystem services department is aligned based on four program areas: resource recovery, pollution prevention, laboratory services and pre-treatment services. Within these four areas there are 17 full-time employees: director of ecosystem services, pretreatment coordinator, environmental specialist, two pollution prevention specialists, lab manager, six chemists, Metrogro manager, two diesel truck drivers and two mechanics.

CHANGES TO THE BUDGET

Personnel Services

Market and progression increases for employees, changes in individuals in positions and increased health insurance and fringe benefit costs are the primary reasons for changes to personnel services. The following are specifics as they relate to this category:

1. Salaries and wages decrease \$59,876 or 4.15 percent. Four senior employees retired in 2017 and vacancies were filled using lower salaries.
2. Fringe benefits decrease \$5,035 or 1.03 percent. The four positions filled in 2017 at lower salaries also used fewer fringe benefits, such as social security and Wisconsin Retirement System benefits.

3. Sick leave and vacation pay out dollars decreased by \$33,716 or 49.48 percent. Three of the four senior employees that retired had sick and vacation payouts.

Asset Addition, Repair and Replacement

Assets Increase by \$46,050 or 27.75 percent. Metrogro budgeted for the purchase of a low disturbance manure injector and a new automatic transmission for a failing manual transmission in a terragator.

Contracted Services

Contract services increase by \$18,172 or 1.2 percent. The increase in contracted services reflects needs for Metromix development.

Materials, Supplies and Miscellaneous

Supplies decrease by \$30,350 or 6.21 percent. One Water (Shop One) went from \$80,000 in 2017 to \$50,000 in 2018.

KEY RESULT INITIATIVES

The following initiatives highlight some of the transformative efforts of the department. They align with the five pillars described in the strategic planning section.

2017 UPDATE

1. Watershed Adaptive Management

Goal: Activate crucial year-one engagement to build early successes, nurture fragile relationships and structure the program for the long term. Critical steps will include:

1. DNR approval of the adaptive management plan by spring of 2016.
2. Full execution of the adaptive management intergovernmental agreement.
3. Development of a robust communication strategy around adaptive management for the district.
4. Development of a long-term service agreement with Dane County.
5. Building on/expanding the water quality monitoring infrastructure to support the full-scale project.

Status: Full-scale adaptive management program launched in 2016 and was highlighted with a launch event in May 2016. The event received significant media attention.

The agreement was fully executed by mid-year 2016. The executive committee is in place, a service agreement with Dane County has been executed, five-year WINS budgets have been adopted and 2017 WINS invoices sent. The DNR issued a letter in March that indicated “no further impediments” for approving the adaptive management plan. The plan will be included as part of the district’s next permit renewal this year.

2. Wisconsin Pollutant Discharge Elimination System Permit

Goal: Permit reissuance.

Status: Expected fall of 2017.

3. Chloride Reduction Strategies

Goal: Intensify chloride reduction strategies and achieve DNR approval of chloride pollutant minimization program.



Mark Anderson obtains aquatic samples for quality testing.

Status: DNR is reviewing the pollutant minimization plan and new variance application with the district’s permit renewal package. Staff expect that the new permit will include winter and summer chloride limits (465 mg/l and 430 mg/l, respectively). The district awarded 29 large-scale salt reduction projects, reducing chloride by 396,000 lb./yr.

4. IGA for Adaptive Management

Goal: Full execution of the intergovernmental agreement for adaptive management.

Status: Complete. The agreement was fully executed by mid-year 2016.

5. Adaptive Management Launch Event

Goal: Celebration event for the move toward full-scale watershed adaptive management.

Status: Complete. Full-scale adaptive management program launched in 2016 and was highlighted with a launch event in May 2016.

6. Adaptive Management Service Agreement

Goal: Engage with Dane County and the adaptive management executive committee on a long-term service agreement for adaptive management.

Status: Complete. The executive committee is in place, a service agreement with Dane County has been executed, five-year WINS budgets have been adopted and 2017 WINS invoices sent.

7. Water Center

Goal: Scope out the district's new water center.

Status: Complete. The commission approved a Shop One strategic plan in May 2016 and staff developed a conceptual site plan in April of 2017. The next step is to convene a small team with the two commission representatives to lay out a broad programming agenda, and then form the Shop One advisers Group.

2018 GOALS

1. Phosphorous Management Strategy for Badger Mill Creek

Background: Yahara WINS is the district's preferred compliance option for the Yahara River Watershed. The same effluent enters Badger Mill Creek. A strategy must be developed for how the district will achieve compliance for this discharge point. Various options could be considered (adaptive management, water quality trading, site specific criterion, additional treatment, etc.)



Chemist Jenny Faust supports the district's efforts to monitor water quality.

Goal: These options need to be evaluated, vetted, partners engaged, timelines identified and the district commission engaged to guide the selection of a viable path forward.

2. Communications and Outreach: Shop One

Background: The commission has acknowledged that there is an increasing need to engage the broader community relating to the value of water. Shop One provides an opportunity to help the district lay the foundation to advance cost effective and sustainable approaches to meet regulatory, operational and/or environmental objectives. The commission approved a Shop One conceptual framework that allowed staff to proceed forward to assess options, including researching what other utilities are doing and performing preliminary site engineering.

Goal: Form Shop One Advisors Group to guide the implementation of programs.

3. Watershed Adaptive Management and Yahara WINS

Background: As the district moves from its first transition year into full-scale implementation of watershed adaptive management, the focus will be moving from policy development to implementation.

Goal: Fund and implement phosphorous reducing practices to achieve 2018 reduction goals outlined in the adaptive management plan. Develop a communications plan with Yahara WINS and elevate the community understanding of the Yahara WINS brand.

4. Pollution Prevention and Source Reduction Outreach for Chloride

Background: 2018 will be the second year where the district has offered chloride reduction grants and incentives. While 2017 was the first year, 2018 will see more projects and more results.

Goal: Expand market penetration and interest in chloride reduction grants. Also collaborate with the development community to target impacts of new development.



Chad Liddicoat and Ross Hollfelder begin transferring biosolids from a Metrogro truck into a nearby tank as part of field trials to evaluate new options for spreading.

5. Metrogro Phosphorous Challenge

Background: With the recent reorganization to strengthen the district's resource recovery efforts, the district will focus on a more analytical and strategic approach for management of phosphorous loads in the Metrogro program.

Goal: Conduct more comprehensive field assessments using SnapPlus and land applications to achieve phosphorus indices at or below 6 pounds per acre for every field location.

6. Laboratory DNR Audit, Certification and Expanded Testing

Background: The last DNR audit occurred in 2014. The lab will be expanding testing for Metromix research and full implementation of watershed adaptive management.

Goals: Achieve laboratory certification. Satisfy testing needs for Yahara WINS and Metromix research.



Engineering Department

7 FTES


The purpose of the engineering team is to provide design and construction administration services to the commission and advisory services to other district teams so that safe, reliable and cost-effective infrastructure is built.



KEY RESULT INDICATORS

CAPITAL PROJECTS MANAGEMENT

PROJECTS ON TARGET

- ✓ Capital City Trail Relocation
- ✓ Liquid Processing Facilities Plan
- ✓ Lower Badger Mill Creek
- ✓ Maintenance Facility Space Needs
- ✓ Northend Interceptor Hub
- ✓ Pumping Station 10 Force Main Rehab
- ✓ Pumping Station 12 Force Main Relocation
- ✓ Pumping Station 15 Rehab
- ✓ SEI Rehab
- ✓ West Interceptor – Regent Street Rehab

PROJECTS UNDER ADDITIONAL MONITORING

-  NSVI – Morse Pond Extension (*Bids under review*)
-  Pumping Station 11-12 Rehab (*Heavy equipment scheduling*)

PROJECTS REQUIRING COURSE CORRECTION

NONE

LEED RATINGS

PLATINUM

Maintenance Facility

The Maintenance Facility received a platinum-level certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design Program for its exceptional energy conservation and sustainable features.

BUDGET SUMMARY

2017 ADOPTED BUDGET | TOTAL: \$633,349



2018 BUDGET | TOTAL: \$723,575



	2017 Adopted Budget	2018 Budget	Change from 2017
■ PERSONNEL SERVICES	343,849	454,575	110,726
■ ASSET ADDITION, REPAIR AND REPLACEMENT	157,000	156,000	-1,000
■ CONTRACT SERVICES	127,800	108,300	-19,500
■ MATERIAL, SUPPLIES AND MISC.	4,700	4,700	0

14.25%
change from
2017 budget
(+ \$90,226)

Personnel Services: 32.20%
Asset Addition, Repair
and Replacement: -0.64%
Contract Services: -15.26%
Material, Supplies
& Misc.: 0%

DEPARTMENT TRENDS

Overall, the engineering department is seeing several trends that impact the engineering budget. These trends include:

1. The recovering economy reduces the competitive bidding climate for district capital improvement projects and increases project costs.
2. The average age of the district's infrastructure continues to increase (to approximately 35-40 years-old). This will require increased investments for future capital improvement projects.
3. The use of adaptive management and pollution prevention strategies to meet some district discharge permit requirements. This may reduce the need for future large infrastructure projects.
4. A need for design standards that recognize the changing conditions created by climate change. Extreme weather events will continue to tax the limits of the district's infrastructure and its mission to protect public health and the environment. More resiliency will need to be provided in future capital improvement projects.
5. A more informed, engaged and connected citizenry. This requires project engineers to dedicate more time to engage external stakeholders and the general public during capital improvement project design and construction.

DEPARTMENT UPDATE

In 2017, the engineering department consisted of seven full-time employees: the department director; four civil engineers; one electrical engineer; and one electrical construction manager. The team's main purpose is to plan, design, construct and commission new capital improvements. These range from projects valued at less than \$100,000 to projects that can exceed \$40 million. No new full-time employees are anticipated in the near future.

CHANGES TO THE BUDGET

Personnel Services

As seen in the department dashboard, this category is expected to increase by 32 percent from 2017 to 2018. This is due to the following:

1. An increase in salaries/wages to general operating accounts from capital accounts. This is due to increased general administrative work, training, continuing education and infrastructure asset management initiatives, such as inflow/infiltration reduction and manhole rehabilitation.
2. Market and progression increases for employees, changes in individuals in positions and increased health insurance and fringe benefits costs.
3. Movement of the project coordinator from contracted services to salaries.

Overall, department workload is not expected to increase significantly in the near future, and therefore, no new full-time positions are anticipated. However, the work split between capital and operating accounts will continue to fluctuate as major projects are initiated and completed.

Asset Addition, Repair, and Replacement

Budgeted amounts for asset addition, repair and replacement are projected to remain nearly constant, with a 0.6 percent decrease from \$157,000 in 2017 to \$156,000 in 2018.

Contracted Services

Budgeted amounts for contracted services decreased from \$127,800 in 2017 to \$108,300 in 2018 15.2 percent. This decrease is due to:

1. Movement of project coordination from contracted services to salaries.
2. No bi-annual hydraulic model maintenance agreement being due in 2018.
3. The addition of native grass monitoring/management contracted services at Pumping Stations 11 and 12 in 2018.

Material, Supplies and Miscellaneous

Budgeted amounts for this category remain the same, at \$4,700, from 2017 to 2018.

KEY RESULT INITIATIVES

The following initiatives highlight some of the transformative efforts of the department. They align with the five pillars described in the strategic planning section.

2017 UPDATE

1. Customer Meetings

Goal: Host annual planning meetings with each of the district's major customer communities.

Status: This work is ongoing and will continue to be ongoing moving forward. The engineering department conducted numerous meetings with customer communities in 2015 and 2016. Starting in 2017, the ecosystem services department has assumed this role.

2. Force Main Inspection Program

Goal: Continued development of a force main inspection program.

Status: This work is in progress. Since staff does not have expertise in this area, a scope of services was developed and an external consultant was retained to assist with this. Significant progress has been made on the condition assessment plan, and it is expected to be complete by the end of 2017.



Septage haulers bring waste to the district and generate revenues of approximately \$550,000 for the district.

3. Collection System Hydraulic Model

Goal: Updates to the collection system hydraulic model.

Status: This work is ongoing and will continue for several years. It consists of making changes to the hydraulic model to reflect actual changes made to the conveyance system. The work is being done by in-house staff and is lower priority than capital improvement projects.

4. Nine Springs Valley Interceptor-Morse Pond Extension

Goal: Bidding and construction of the Nine Springs Valley Interceptor-Morse Pond Extension.

Status: Design for this project, which is being completed in conjunction with Wisconsin Department of Transportation reconstruction of County Highway M, is complete and the project has been bid. Construction is anticipated to start in late 2017.

5. Liquid Processing Facilities Plan

Goal: Initial planning for recommendations from the liquid processing facilities plan.

Status: Work on planning/design for initial recommendations from the plan are not expected to start until after the plan is accepted, which is anticipated in late 2017 or early 2018.

6. North End Interceptor-Sherman Avenue Rehabilitation

Goal: Construction of the North End Interceptor-Sherman Avenue rehabilitation.

Status: Design of this project is complete and the project has been bid. Construction is expected in the fall of 2017.

7. Investigation of Leaking Pipe Joints

Goal: Investigation and potential implementation of grout-packing of leaking pipe joints upstream of Pumping Station 10.

Status: Initial investigative work, including methods to repair the leaking joints, is proceeding. These include grouting, internal joint seals and other repair options. Final design and construction is expected to occur in late 2017 or early 2018.

8. Rehabilitation of Pumping Station 15

Goal: Rehabilitation of Pumping Station 15 which includes successful start-up and verification from the Institute for Sustainable Infrastructure.



Assistant Operations Engineer Matt Allen heads to a planning meeting.

Status: This project was bid in the spring of 2016 and construction has been in progress since that time. Work includes a new pumping station superstructure, a new public restroom and numerous other sustainable features, including a green roof, a solar array, a bike repair station and a public boat wash. Construction is anticipated to be complete by the end of 2017.

9. Lower Badger Mill Creek Interceptor-Phase Four

Goal: Design, bidding and construction of the fourth phase of the Lower Badger Mill Creek Interceptor.

Status: Design and bidding of phase four of the Lower Badger Mill Creek Interceptor is complete and construction is anticipated in late 2017.

10. Rehabilitation of Southeast Interceptor

Goal: Rehabilitation of the Southeast Interceptor upstream of Pumping Station 9.

Status: Initial planning is complete. Design will be finalized in the fall of 2017, with construction expected in late 2017 or early 2018.

11. Rehabilitation of Pumping Station 10 Force Main

Goal: Rehabilitation of the Pumping Station 10 force main.

Status: Initial planning has started. Design and construction is not anticipated until 2018.

12. LEED Platinum Maintenance Facility Celebration

Goal: Host a ribbon cutting ceremony for the district's LEED Platinum Maintenance Facility and begin community tours of the facility.

Status: Tours, both self-guided and guided, have been established. A ribbon-cutting ceremony was not held. Rather, a news release was developed and distributed.

13. Technical Subcommittee-Connection Charges

Goal: Form the district's first technical subcommittee of customer communities to advise the district on how to implement the new connection charge policies.

Status: A technical subcommittee consisting of members from five district customer communities was convened and met in excess of 10 times in 2016-2017. The committee provided valuable insight and interests during the process and will continue to be engaged during future connection charge discussions.

14. Liquid Processing Facilities Plan

Goal: Completion of the liquid processing facilities plan.

Status: The liquid processing facilities plan, which evaluates several systems/processes associated with the treatment plant liquid train, is complete. The plan will form the basis for numerous recommended treatment plant improvements over the next decade. The final approval of the plan is expected by the end of 2017.

15. West Interceptor Rehabilitation

Goal: Construction of the West Interceptor Rehabilitation project in Regent Street (delayed from 2016).

Status: This project, located primarily in Randall and Regent Streets, needed to be completed during a tight timeframe established by the City of Madison and the University of Wisconsin. Design was finalized in early 2017 and the project was bid shortly thereafter. Construction was completed in the summer of 2017 and project closeout is expected in the fall of 2017.

16. Capital City Bike Trail Relocation

Goal: Completion of the Capital City Bike Trail relocation at the vehicle loading building.

Status: During planning and design, numerous stakeholder meetings were held with outside parties and internal staff. During this process, the most cost-effective alternative was determined to be minimal sight-distance and warning light improvements. As a result, the project scope was reduced and the trail will not be relocated.

17. Northeast Interceptor-Truax Extension Rehabilitation

Goal: Design and bidding for the Northeast Interceptor-Truax Extension rehabilitation.

Status: The project was delayed one year during the capital improvements planning process.

18. Pumping Station 17 Force Main Relief

Goal: Initial planning for the Pumping Station 17 force main relief project.

Status: This project is currently planned to be in conjunction with a City of Verona sewer project in the same corridor. Planning and design for the City of Verona work is not expected to occur until 2019, with construction anticipated in 2020. Therefore, the project has been delayed several years.

2018 GOALS

1. Continued development of a force main inspection program. This includes implementing initial recommendations from the force main condition assessment plan.
2. Resolution of previously unpaid connection charge areas.
3. Completion of the Nine Springs Valley Interceptor-Morse Pond Extension.
4. Planning and design for the first “phase” of liquid processing improvements. This includes peak capacity improvements, ultraviolet disinfection replacement, east blower controls and substation rehabilitation.
5. Initial planning and design for replacement of the Southwest Interceptor on Haywood Avenue. This includes coordination with the City of Madison, which will also be performing work in this area.
6. Initial planning and design for the rehabilitation of the Nine Springs Valley Interceptor from Dunn’s Marsh to McKee Road.
7. Design and construction for the rehabilitation of the West Interceptor from Pumping Station 5 to the Gammon Extension junction.
8. Completion of all work associated with the Southeast Interceptor Relocation (i.e., the Monona Waterfront relocation).
9. Standardization of methods and the software used during the management of construction projects.
10. Initial planning and design for improvements to Pumping Station 7.
11. Continued rehabilitation of leaking pipe joints upstream of Pumping Station 10.
12. Completion of the Southeast Interceptor rehabilitation upstream of Pumping Station 9.
13. Investigating, retaining consulting services and making recommended improvements for stabilization of the Grass Lake dike.
14. Completion of the Lower Badger Mill Creek Interceptor-phase four project.
15. Initial planning and design for the Northeast Interceptor-Truax Extension relief.
16. Design, bidding and construction for the rehabilitation of the Pumping Station 10 force main.



Planning and Strategy Department

6 FTES


The planning and strategy department helps the district get ready for the future by identifying trends, organizing decision-making processes, managing information and supporting project management so the district can continue to protect public health and the environment in a responsible, effective and efficient manner.

KEY RESULT INDICATORS

% OF INCREASE IN DEBT
SERVICE IN SERVICE CHARGE
RATES GENERALLY TRACKS
6-YEAR PROJECTIONS

2017



YES



NO

2018



YES



NO

APPLY MONETIZED
TRIPLE-BOTTOM-LINE ANALYSIS
DURING FACILITY AND/OR
PROJECT PLANNING ANNUALLY
TO IMPROVE THE DECISION-
MAKING PROCESS

2017



YES



NO

2018



YES



NO

PERFORM ANNUAL AUDIT ON
CAPACITY, MANAGEMENT,
OPERATION AND MAINTENANCE
(CMOM DOCUMENT)

2017



YES



NO

2018



YES



NO

BUDGET SUMMARY

2017 ADOPTED BUDGET | TOTAL: \$922,423



2018 BUDGET | TOTAL: \$819,206



-11.19%
change from
2017 budget
(- 103,217)

	2017 Adopted Budget	2018 Budget	Change from 2017
■ PERSONNEL SERVICES	610,413	667,206	56,793
■ ASSET ADDITION, REPAIR AND REPLACEMENT	1,300	1,800	500
■ CONTRACT SERVICES	136,660	147,400	10,740
■ MATERIAL, SUPPLIES AND MISC.	2,050	2,800	750
■ TRANSFER TO CAPITAL PROJECTS	172,000	0	-172,000

Personnel Services: 9.3%
Asset Addition, Repair
and Replacement: 38.46%
Contract Services: 7.86%
Material, Supplies
& Misc.: 36.59%
Transfer to
Capital Projects: -100%

DEPARTMENT TRENDS

1. Customer communities, advocacy groups and the general public continue to be concerned with affordability of utility and municipal services. The district's growing funding needs will require creative solutions to ensure sufficient revenue is available to protect public health and the environment while limiting rate impacts on disadvantaged communities.
2. Many district assets were originally added with federal grant funding. Some of those assets are nearing rehabilitation or replacement times, but will have to be funded without federal support. Managing priorities and costs will require full use of the sustainable infrastructure program and other planning tools.
3. Modern asset management has become an essential tool for managing costs for all aspects of assets, including purchase, maintenance, energy use and environmental costs. Comprehensive life cycle management ensures that assets are being managed to deliver the desired level of service at the lowest life cycle cost.
4. As the district grows and modernizes, it requires better and more comprehensive business processes for financial and workload planning. Such processes improve decision-making, reduce inefficiencies, increase transparency and make projects more successful.
5. Geographic information systems (GIS) are powerful and vital to district work. Important organizational, technical and training work remains to be done to fully use geographic information. This work is integral to planning and requires close coordination with information technology services.

DEPARTMENT TRENDS (cont.)

6. Information technology has become a core infrastructure critical to supporting the district's physical infrastructure. Information technology supports and touches everything the district does. Advancement and expansion of information technology also requires more sophisticated planning and project management and closer coordination with the planning department.
7. In addition to physical infrastructure, non-physical solutions have become important to the district's mission of protecting public health and the environment. These include education, outreach and partnerships. Planning will need to recognize both types of solutions.
8. Long-term trends have become more relevant to district planning. For instance, climate change makes future weather patterns less certain. Infrastructure planning and design will therefore need to provide more flexibility and resiliency than in the past. Other trends include demographics, the regional economy and industry trends, stakeholder interests and technological innovation. The planning department needs to monitor trends and integrate them into district planning.

DEPARTMENT UPDATE

The department was formed in 2016 by combining positions from the engineering and operations & maintenance departments. The department had a separate budget for the first time in 2017. The department is responsible for:

1. Strategic planning, including project portfolio management, resource coordination and strategic goals.
2. Capital planning, including capital project portfolio management, the capital projects fund and debt projections.
3. Sustainable infrastructure, including asset information, risk evaluation and replacement cycles.
4. Geographic information systems, including integration with district functions, staff skill development, data quality and analysis.
5. Master planning and facilities planning, including collection system, processes and energy planning.
6. Connections to the collection system, including application review, billing and related services to customer communities.
7. User charges, including quarterly billing and coordination of billing data.

8. Policy and program analysis, including regulation and guidance assistance, demographic and social trends, climatic trends and cost allocation issues.

The department has six full-time positions: asset information specialist, capital planning engineer, GIS specialist, engineering technician, sustainable infrastructure manager and director. The department employs interns full-time during the summers and part-time during the school year.

CHANGES TO THE BUDGET

Personnel Services

As shown on the department dashboard, personnel services for the department are expected to increase by 9.3 percent from the prior year. This is due to the following:

1. Market and progression increases for employees, changes in individuals in positions and increased health insurance and fringe benefits costs.
2. Increased training and professional development needed for the geographic information systems transition.



Construction of a district force main.

Asset Addition, Repair, and Replacement

Budgeted amounts in this category increased slightly, reflecting minor re-estimates of software maintenance agreement costs.

Contracted Services

Budgeted amounts in this category increased by \$10,700 from the prior year, reflecting needs for strategic planning assistance and minor adjustments for mapping and licensing. The total amount includes three items unchanged from 2017.

Materials, Supplies, and Miscellaneous

Budgeted amounts in this category increased slightly, reflecting minor re-estimates for office furniture, logo wear and miscellaneous items.

Transfers to Capital Project Fund

The 2017 budget included a one-time transfer of \$172,000 in cash reserves from the operating fund to the capital projects fund. The transfer was an overall district action but was accounted for in the department's budget because the department manages the capital projects fund. It was unrelated to department activities. No such transfer is planned for 2018.

KEY RESULT INITIATIVES

In addition to its many ongoing duties, the following initiatives highlight some of the transformative efforts of the department. They align with the five pillars described in the strategic planning section.

2017 UPDATE

1. Sustainable Infrastructure Management

Goal: Advance asset management program focusing on policy direction around levels of service and risk.

Status: A number of different projects were initiated in 2016 and are currently in progress: identify/solidify levels of service, create business risk exposure framework and risk register, develop a decision support system and select related tools such as software, develop a plant asset management plan, improve the business case evaluation process and improve the district's asset information and tracking systems.



Process and Research Engineer Matt Seib oversees a UW pilot project.

2. Strategic Planning Process and Approach

Goal: Develop a long-term strategic planning process and approach that examines the economics of potentially needed projects. Develop a three to five-year operational plan for the district. This information along with the district's existing capital improvement planning will form the foundation of a five-year financial plan.

Status: Retained a firm to assist the district with developing both short range and long range departmental needs and priorities. The planning work is in progress.

3. Improvements to Customer Billing System

Goal: Assess potential improvements to the district's customer billing system.

Status: Testing new laser monitoring technology and monitoring methods. Expect to complete and validate results by the end of 2018.

4. New Connection Charge Policies

Goal: Work with customer communities to develop implementation guidelines for new connection charge policies.

Status: New regulations and ordinances adopted by the commission in July of 2017.

2018 GOALS

1. Decision Making

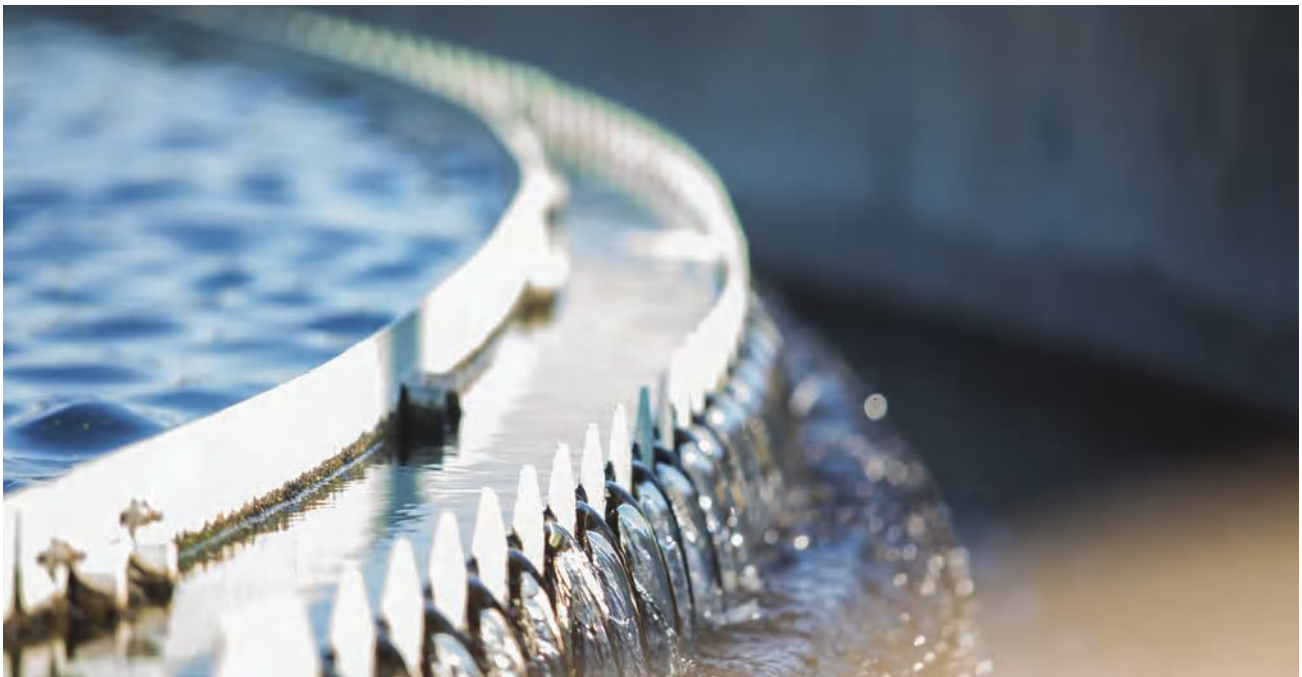
Background: The district makes regular tactical decisions on which projects to pursue at what times and in what manner. The district also makes strategic decisions that set direction for several years. These decisions should be based on the benefits that would be provided in areas of environmental quality, community well-being and the economy. However, we have not formally evaluated what areas are most important to district decision making. These are commission-level issues.

Goal: This goal will develop a formal decision structure with commission input and final approval. It will then be deployed to guide decision-making at the staff level on an ongoing basis.

2. Affordability

Background: The commission's resolution on developing a joint sustainability plan identifies that access to clean and affordable water is a basic human right. Water affordability is an issue at both the household and district level. The district requires adequate funding for proactive responses to address increasing regulatory requirements and aging infrastructure. At the same time, service charges may not be affordable to households that are already overburdened with economic, health and environmental challenges.

Goal: The outcome for 2018 is threefold: (a) research and understand the affordability issues in the service area (both demographic and regulatory); (b) develop options for addressing affordability while maintaining sufficient total revenue; (c) share with the commission staff's operational planning work to identify short and long term revenue needs. Completion of goals b and c will form the basis for the development of a long-term financial strategy.

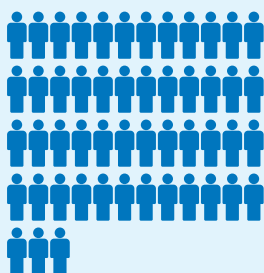


The district treats approximately 40 million gallons of wastewater a day.



Operations and Maintenance Department

51 FTES



The employees of the operations and maintenance department protect human health and the environment by ensuring that all wastewater generated in the district's service area is safely conveyed to the Nine Springs Wastewater Treatment Plant where they recover the resources of clean water, biosolids, biogas and phosphorus fertilizer.

KEY RESULT INDICATORS

RESOURCE RECOVERY



CLEAN WATER

2015	13,962 million gallons
2016	14,869 million gallons
through June, 2017	7,614 million gallons



METROGRO

2015	33.9 million gallons
2016	39.8 million gallons
through June, 2017	18.1 million gallons

BUDGET SUMMARY

2017 ADOPTED BUDGET | TOTAL: \$11,549,851



2018 BUDGET | TOTAL: \$12,340,233



	2017 Adopted Budget	2018 Budget	Change from 2017
PERSONNEL SERVICES	5,207,731	5,561,868	354,137
ASSET ADDITION, REPAIR AND REPLACEMENT	1,043,815	1,288,325	244,510
CONTRACT SERVICES	516,840	601,365	84,525
ENERGY	3,380,450	3,514,500	134,050
MATERIAL, SUPPLIES AND MISC.	1,401,015	1,374,175	-26,840

6.84%
change from
2017 budget
(+ \$790,382)

Personnel Services: 6.80%

Asset Addition, Repair
and Replacement: 23.42%

Contract Services: 16.35%

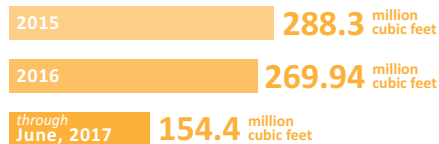
Energy: 3.97%

Material, Supplies
& Misc.: -1.92%

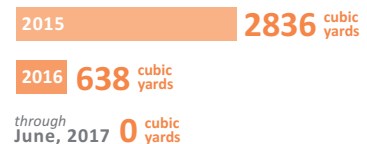
RESOURCE RECOVERY



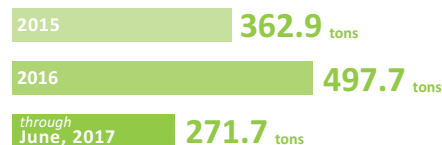
BIOGAS



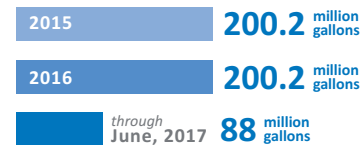
METROMIX



STRUVITE



REUSED EFFLUENT



DEPARTMENT TRENDS

1. During the last five years the number of work orders assigned to the maintenance sections has increased by over 60 percent. During this time the district added about 2,700 assets with the 10th and 11th additions to the treatment plant, the Maintenance Facility and Pumping Station 18.
2. Design of some of the projects described in the liquids processing facility plan will start near the end of 2017 and will continue through 2018. Personnel will be heavily involved in meetings with design engineers and with reviewing of the plans and specifications for the projects.
3. Resource recovery will continue to be essential to the operation of the district. Efforts will continue to increase the amount of struvite produced and to find additional ways to reuse the treated water.
4. The district will continue to look into ways to reduce purchased energy.

DEPARTMENT UPDATE

The operations and maintenance department includes 51 employees that serve the district by operating and maintaining district assets. An emphasis has been on resource recovery efforts. The operations section optimized the struvite harvesting process, experimented with class A biosolid mixtures and worked with the City of Madison on a potential household waste source separated organics diversion project. Maintenance activities focused on conducting preventive and reactive maintenance activities at the treatment plant, the pumping stations and the collection system. The department has been significantly involved in the decision making for new projects as part of the liquid processing facilities plan. Involvement will continue in 2018 as capital projects to address the recommendations of the facilities plan are designed.

CHANGES TO THE BUDGET

Personnel Services

Personnel services are budgeted to increase by 6.8 percent. The primary reasons associated with this change are due to market and progression increases for employees, changes in individuals in positions and increased health insurance and fringe benefits costs.

Asset Addition, Repair, and Replacement

The 2018 budget for this category is \$244,500 or 23.4 percent more than the 2017 budgeted amount. Included in this category are major projects and purchases. These are normally not recurring expenses. Additional funds are being requested for 2018 to address two major activities. Blower five provides air to the east aeration tanks. This 1960s era blower needs to be overhauled to extend its life. It is expected that the cost of that work will be \$125,000. Secondly, the district needs to fund a fleet management program. The goal is to provide a permanent fund for fleet management. The 2017 budget contains \$80,000 for vehicle replacements. In 2018, \$150,000 will be added to that amount to fund the fleet management program.

Contracted Services

The contracted services accounts for 2018 have an overall increase of \$84,525 or 16.4 percent compared to the 2017 budget. The main reason for the increase is the need to clean one of the acid phase digesters. This digester was part of the eleventh addition to the treatment plant. This is the first acid phase digester that the district has operated. Because the contents of the digester are at an acidic pH, it is necessary to check the lining of digester to ensure that it is protecting the concrete.

Materials, Supplies and Miscellaneous

The major expense items in this category are the chemicals that are used in the treatment processes, gasoline and diesel fuels, lubricants and water from the Madison Water Utility. The 2018 budget for these items is being decreased by \$26,840 or 1.9 percent. Although the cost of several of these commodities will be increasing in 2018, the overall expense will be less. This is the result of the competitive bidding process that was conducted by the district this summer for polymer products.

Energy

Due to the need to pump additional water because of this year's wet summer; the overall energy expenses for 2017 are expected to be about \$126,800 more than budgeted. This includes expenses at both the treatment plant and the district pumping stations. Electrical energy demands that were set this summer will continue to be billed in 2018. Therefore, the budget for energy for 2018 is 3.9 percent higher than the 2017 budget.

KEY RESULT INITIATIVES

In addition to its many ongoing duties, the following initiatives highlight some of the efforts of the department. They align with the five pillars described in the strategic planning section.

2017 UPDATE

1. Address the Air Permit Regulatory Issues

Goal: Comply with a new air emission permit.

Status: Near the end of 2016 the district received a new air emissions permit from the Department of Natural Resources.

2. Optimize the Ostara Process

Goal: By mid-2017 increase the rate of recovery of struvite to the levels expected at the time the process was designed.

Status: Making good progress after several failed attempts. Business case came before the commission in fall of 2016. Production is improving.



Students from the UW-Madison work on a variety of pilot projects.



Electrical Construction Manager Dave Lunday oversees a lights replacement project in underground district tunnels.

3. Energy Independence

Goal: District staff will explore ways to make the district more energy independent, including evaluating the potentially shared interests with the City of Madison around the development of a food waste digester for a potential supply of renewable, reliable and cost-effective energy.

Status: A district team has met several times with the City of Madison to share interests and information about digester technology. An initial key factor in the discussions has been the assumption that the Nine Springs Treatment Plant has excess digester capacity that could be utilized for municipal solid waste digestion, thus eliminating the cost for constructing new digesters. To determine if this is feasible, staff conducted a technology overview and assessed implications that included digester stress testing. District staff completed the report entitled “Digestion Options for Valorization of Organic Municipal Solid Waste at MMSD’s Nine Springs Treatment Plant” dated July 14, 2017, with recommendations for next steps.

2018 GOALS

1. Energy Management Plan

Background: Staff will provide information that will aid the commission in establishing energy management goals, outcomes and strategies for moving forward through the development of an energy management plan.

Goals:

1. During the first quarter of the year staff will present to the commission a general range of options to be included in development of an energy policy.
2. Based on commission input, staff will research and fully develop the options selected and submit a report to the commission by the end of the third quarter of the year.

2. Struvite Recovery

Background: By mid-2018 increase the rate of recovery of struvite to the maximum extent possible.

Goals:

1. Increase the production of struvite to 1.7 tons per day.
2. Partner with Ostara to test other methods of capturing fine particles.
3. Provide a report to the district’s commission in the fourth quarter of 2018.

3. Investigate Food Waste Sources

Background: Investigate other food waste sources as feedstock for digesters while continuing to work with the City of Madison on options.

Goals:

1. Select one or two sources of food waste to accept at the treatment plant on a trial basis.
2. Determine if a small scale project can occur with City of Madison source separated organics.

A full-page photograph of a man in a high-visibility yellow-green shirt and dark pants, smiling while working on a red piece of heavy machinery. He is holding a silver metal component. The background shows more of the machinery in a workshop setting.

APPENDICES



APPENDIX A

PROJECT SUMMARIES

Monitoring Services crew members enter a manhole to collect flow data.

In this section, you will find project summaries. These summaries are intended to give a broad overview of the project, including general location, scope of work, history, schedule and a summary of cost. Total project costs are adjusted for inflation on an annual basis, unless otherwise noted.

At www.madsewer.org underneath Planning- Budget & Finance, you will find more detailed information on the project business cases. Project business cases provide justification for each project by including more detail than the project summary sheet and also incorporates additional information such as an analysis of alternatives, a life cycle cost estimate and an allocation of annual costs.

Please note that project summaries and business cases are provided only for those projects that are anticipated to occur within the planning horizon of this document (2018- 2023).

CIP ID#
A01

Shop One Improvements

START DATE:
Present
COMPLETION DATE:
2020



PROJECT TYPE	Plant Improvements
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is to design and build site improvements at the Shop One Building that will provide for expanded and enhanced public use of the facility. Improvements will allow for additional educational opportunities and will accommodate the public without compromising security to the treatment plant. It is anticipated that the project will be funded through reserves from the capital fund.
BACKGROUND	The Shop One Building used to serve as the district's maintenance facility. Upon construction of a new maintenance facility, major renovations to the building were completed in 2016. The renovations created a space that is currently used in conducting public tours of the treatment plant and for large group meetings for district staff. Future uses of the space will include additional public education and outreach to further promote the one water concept.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$100,000

2018-2023 CIP (\$2017)
\$1,600,000

TOTAL COST: \$1,720,000

CIP ID#

A02.01

Plant Peak Capacity Improvements

START DATE:

2018

COMPLETION DATE:

2020



PROJECT TYPE	Plant Improvements – Peak Capacity
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project will increase the peak flow capacity at the treatment plant, prevent overflows during peak flow events and improve peak flow operational flexibility and performance. Specific improvements include construction of a diversion structure to route excess flows from the treatment plant to the lagoons and implementation of a biological contact high-rate treatment process in the aeration basins to improve treatment during high flows. This project is included in the 2016 liquid processing facilities plan. It is anticipated that the project will be funded through the Clean Water Fund Program.
BACKGROUND	With the recent completion of Pumping Station 18, the collection system can convey more flow to the treatment plant in a large storm event than the plant can pass through the various treatment processes. This project will relieve the existing bottlenecks and provide better treatment reliability and flexibility during high flow events.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$190,0002018-2023 CIP (\$2017)
\$5,100,000**TOTAL COST: \$5,584,000**

CIP ID#

A02.02

Ultraviolet Disinfection System Replacement

START DATE:

2018

COMPLETION DATE:

2020



PROJECT TYPE	Plant Improvements – Ultraviolet Disinfection
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project will provide a replacement for the current effluent ultraviolet disinfection system. This project is included in the 2016 liquid processing facilities plan. It is anticipated that project costs will be funded through the Clean Water Fund Program.
BACKGROUND	The existing ultraviolet disinfection system was installed in the mid-1990s as part of the ninth addition to the treatment plant. While the system has generally performed well, it requires substantial attention to address electrical system problems and to keep the system operational. Replacement parts are obtained through a third-party vendor and a local engineer who makes control boards for the system. A more reliable and efficient system for acquiring replacement parts is required. In addition, the existing system has disinfection and hydraulic limitations. With the ability to pump more flow to the plant from the collection system the ultraviolet system needs a corresponding upgrade in hydraulic capacity.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$170,000

2018-2023 CIP (\$2017)
\$3,750,000

TOTAL COST: \$4,080,000

CIP ID#

A02.03

Headworks Flow Metering

START DATE:

2021

COMPLETION DATE:

2023

**PROJECT TYPE**

Plant Improvements – Headworks Facility

LOCATION

Nine Springs Wastewater Treatment Plant

DESCRIPTION

Work under this project will include relocating and lowering the existing flow meters in the meter vault room at the headworks facility such that the flow meters will be completely submerged at all times. Piping changes and a minor addition to the meter vault room will also be needed. This project was included in the liquid processing facilities plan. It is anticipated that it will be funded through the Clean Water Fund Program.

BACKGROUND

The influent flow meters at the headworks facility record all flow entering the treatment plant from the collection system and the data collected is used extensively for service charge billing, permit compliance monitoring and for operational control throughout the plant. The existing flow meters were installed in the tenth addition project approximately ten feet above the floor of the meter vault room. In order to measure flows accurately these types of meters need to be completely submerged with wastewater. To keep the meters submerged the water elevation in the downstream screening channel needs to be raised higher than desired and one screen must run continuously to keep the water level within a narrow operating range. The proposed project would lower the meters closer to the floor of the meter vault room and allow the screening equipment to run intermittently (as designed) and within a wider range of water levels.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$02018-2023 CIP (\$2017)
\$2,100,000**TOTAL COST: \$2,465,000**

CIP ID#

A02.04

Septage Receiving Modifications

START DATE:

2021

COMPLETION DATE:

2023



PROJECT TYPE	Plant Improvements – Septage Receiving
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project will correct problems encountered with operation of the existing septage receiving facility. Work will include reconfiguration of the existing facility to allow improved traffic flow, better screening equipment upstream of the headworks facility, and implementation of more security and tracking measures to reduce the potential for unauthorized discharges. This project is included in the 2016 liquid processing facilities plan. It is anticipated that project costs will be funded through the Clean Water Fund Program.
BACKGROUND	The septage receiving facility was constructed as part of the tenth addition to the treatment plant and has experienced a number of operational difficulties since it was placed into operation. Trucks discharging at the facility have to back up to empty their contents, resulting in congestion during periods of heavy traffic and icy and unsafe conditions in winter. Further, sand and grit accumulate in the discharge trough, which requires manual cleaning by district staff on a frequent basis. Improvements will allow for one-way traffic for haulers and an improved screening system to keep unwanted material out of the screening channel in the headworks facility.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$0	2018-2023 CIP (\$2017) \$2,900,000	
		TOTAL COST: \$3,404,000

CIP ID#

A02.05

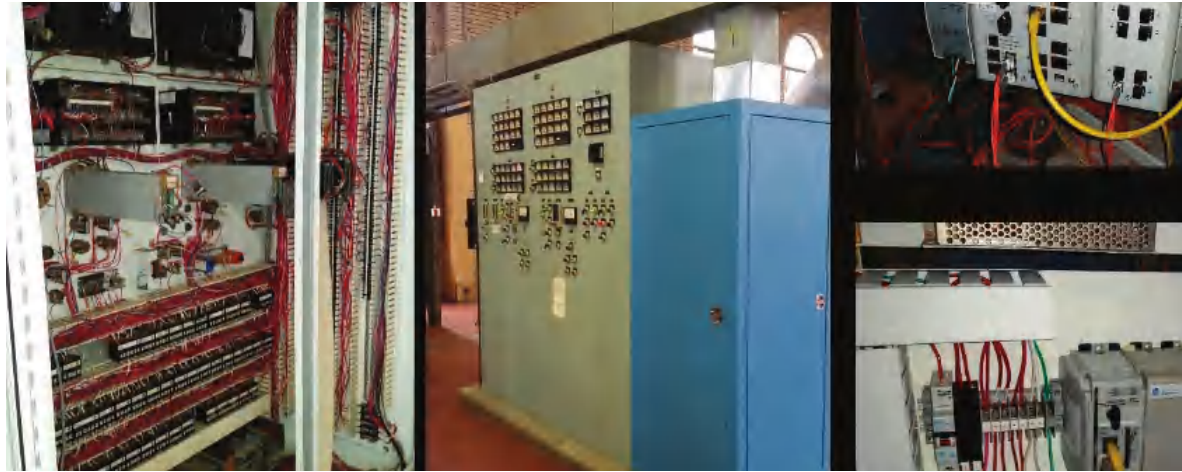
East Blower Controls

START DATE:

2018

COMPLETION DATE:

2020



PROJECT TYPE	Plant Improvements - East Blowers
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	Work under this project includes the replacement of the existing control panels for blowers two through five in the east blower building with new control panels for each of the blowers. This project was included in the liquid processing facilities plan. It is anticipated that it will be funded through the Clean Water Fund Program.
BACKGROUND	The existing east blower control panel has been in use since the original blowers were installed in the 1960s. Several undocumented modifications have been performed to the panels over the years to keep the blowers in operation, but very little documentation exists for these changes. As a result, the controls are unreliable and legacy parts are difficult to obtain due to the age of the system. It is recommended that the each blower receive a new dedicated control panel that with a programmable logic controller.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$20,0002018-2023 CIP (\$2017)
\$390,000**TOTAL COST: \$419,000**

CIP ID#

A02.06

Primary Tanks 1 and 2 Rehabilitation

START DATE:

2018

COMPLETION DATE:

2020



PROJECT TYPE	Plant Improvements – Primary Tanks
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is to rehabilitate the concrete surfaces of two primary settling tanks in order to maintain their structural integrity. This project is included in the 2016 liquid processing facilities plan. It is anticipated that the project will be funded through the Clean Water Fund Program.
BACKGROUND	Primary tanks one and two were constructed in the 1930s and represent some of the oldest infrastructure that is still in operation at the treatment plant. Over many years the concrete surfaces above the water line have deteriorated to the point that reinforcing steel is visible in several locations. Rehabilitation is needed to preserve the structural integrity of the tanks and to improve safety for district staff working around the tanks.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$30,0002018-2023 CIP (\$2017)
\$450,000**TOTAL COST: \$ 483,000**

CIP ID#

A02.07

54" Primary Influent Rehabilitation

START DATE:

2018

COMPLETION DATE:

2020

**PROJECT TYPE**

Plant Improvements – Primary Tank Influent

LOCATION

Nine Springs Wastewater Treatment Plant

DESCRIPTION

This project will correct condition defects in the influent pipeline to the primary settling tanks. The project is included in the 2016 liquid processing facilities plan. It is anticipated that the project will be funded through the Clean Water Fund Program.

BACKGROUND

The 54" primary influent line is located on the east side of the plant and transfers raw wastewater from the east primary junction chamber to the primary influent channel near primary tanks 12 and 13. The line was installed as part of the fifth addition in 1975 and is constructed of prestressed concrete cylinder pipe. Those portions of the pipe above the normal water line have started to corrode due to attack from hydrogen sulfide. The condition defects were first observed during the tenth addition construction in 2005 and a rehabilitation project was put out for bid in 2007. The bids which were received at that time were over the project budget and a decision was made to temporarily delay the project approximately ten years.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$50,000

2018-2023 CIP (\$2017)
\$800,000

TOTAL COST: \$860,000

CIP ID#

A02.08

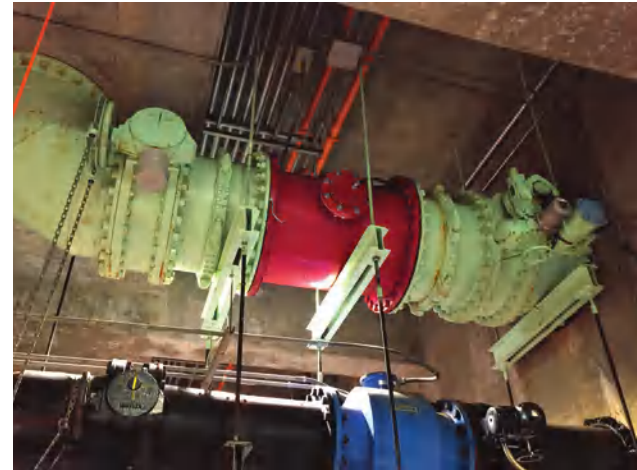
East-West Plant Flow Metering

START DATE:

2018

COMPLETION DATE:

2019



PROJECT TYPE	Plant Improvements – Plant Flow Metering
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is to make improvements to the instrumentation that is used to meter flows between the west and east sides of the treatment plant. This project is included in the 2016 liquid processing facilities plan. It is anticipated that the project will be funded through the Clean Water Fund Program.
BACKGROUND	Influent flow to the treatment plant is currently distributed to the west and east sides of the treatment plant via the flow splitter structure which is located just downstream of the headworks facility. It is important for operations staff to have accurate data on the flows to each side of the plant, especially in high flow situations. The flows to each side of the plant are currently measured using a variety of different methods and meters. The data obtained from these meters does not match well with the flow distribution predicted at the flow splitter structure and from other process data collected by operations staff. The proposed improvements will investigate the use of the latest in-pipe metering technology to improve operational performance.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$10,0002018-2023 CIP (\$2017)
\$150,000**TOTAL COST: \$160,000**

CIP ID#

A02.09

Nitrite Shunt Pilot

START DATE:

2021

COMPLETION DATE:

2022

**PROJECT TYPE**

Plant Improvements – Aeration System

LOCATION

Nine Springs Wastewater Treatment Plant

DESCRIPTION

The purpose of this project is to full-scale pilot test the nitrite shunt biological nutrient removal process to confirm process design criteria, impacts to sludge quality and operational requirements for potential future whole-plant implementation. It is anticipated that costs associated with the pilot project will be funded through capital fund reserves.

BACKGROUND

The existing activated sludge facilities operate an enhanced biological phosphorus removal process. The process relies on anaerobic and aerobic zones to remove phosphorus but do not provide significant total nitrogen removal. As part of the 2016 liquid processing facilities plan, changes to the existing processes were evaluated, including processes that could result in more effective nutrient removal while using less energy and potentially positioning the district for future total nitrogen regulations. Bench-scale testing of the process is currently underway. If bench-scale testing is successful, full-scale pilot testing would be conducted before implementing the changes plant-wide.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$02018-2023 CIP (\$2017)
\$2,260,000**TOTAL COST: \$2,614,000**

CIP ID#

A02.10

Headworks Screening

START DATE:

2021

COMPLETION DATE:

2023



PROJECT TYPE	Plant Improvements – Screening at Headworks Facility
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project includes the replacement of the fine screening equipment and related screenings handling system at the headworks facility. The existing band screens will be replaced with new step screens and wash presses to dewater the captured material. This project is included in the 2016 liquid processing facilities plan. It is anticipated that the project will be funded through the Clean Water Fund Program.
BACKGROUND	Three fine screening units were installed at the headworks facility as part of the tenth addition to the treatment plant. The screens have openings of ¼” and are designed to remove rags and other large material from the raw wastewater to keep it out of the biosolids and to protect downstream process equipment. Several problems have been experienced with the existing screening system, particularly with the processing of the material that is captured on the screens. The existing screenings handling system requires frequent operator attention to keep it running. Further, the equipment for the screenings handling system is prone to plugging and wear and tear and it is difficult to obtain replacement parts in a cost effective and timely manner.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$02018-2023 CIP (\$2017)
\$3,400,000**TOTAL COST: \$3,991,000**

CIP ID#

A02.11

Badfish Creek Effluent Force Main Standpipe

START DATE:

2018

COMPLETION DATE:

2019

**PROJECT TYPE**

System Rehabilitation – Effluent Force Main

LOCATIONBadfish Creek Effluent Force Main
White Oak Trail, Town of Dunn**DESCRIPTION**

The purpose of this project is to make improvements to the standpipe on the 54" Badfish Creek effluent force main near 2395 White Oak Trail in the Town of Dunn. This project is included in the 2016 liquid processing facilities plan. It is anticipated that the project will be funded through the Clean Water Fund Program.

BACKGROUND

The Badfish Creek pipeline is a complex system comprised of approximately five miles of 54" pipe. Due to its length and profile, significant pressures can develop in the force main if pumps are shut off too quickly or by some other type of water hammer event. There are multiple air release and vacuum relief devices located along the force main to help maintain the proper pressure in the pipeline. One of these devices is a standpipe located on top of the force main just upstream of the force main outfall. The standpipe allows air to be safely expelled from the pipeline without water leaving the system. In recent years effluent has been released from the standpipe on occasion, causing a nuisance and some damage to a neighboring residence. This project will enhance the standpipe function to allow for pressure control without spillage of effluent.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) **\$40,000**2018-2023 CIP (\$2017)
\$100,000**TOTAL COST: \$105,000**

CIP ID#

A02.13

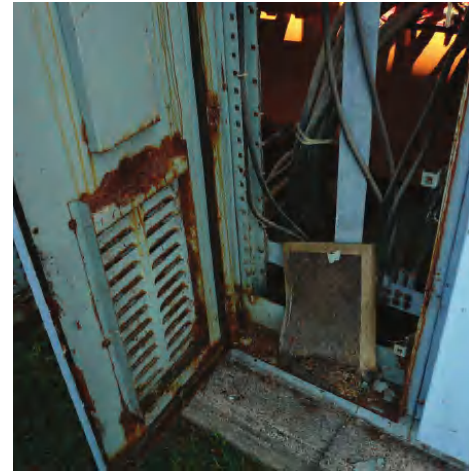
Plant Unit Substation Improvements

START DATE:

2018

COMPLETION DATE:

2020



PROJECT TYPE	Plant Improvements – Electrical Substations
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is to ensure that the portions of the treatment plant powered by unit substations U11, U12 and U13 retain a continuous and reliable source of power. It is expected that one substation will be removed and replaced and two other substations will be removed in their entirety and their loads directed to other existing substations. This project is included in the 2016 liquid processing facilities plan. It is anticipated that project costs will be funded through the Clean Water Fund Program.
BACKGROUND	The district owns and operates eight substations on the treatment plant grounds that transform the voltage provided by Madison Gas & Electric into the voltage necessary to power plant equipment. Substations U11, U12 and U13 were constructed in the early to mid-1980's and are showing increasing signs of corrosion. The district hires a consultant to test the substation equipment every three years. Based on the most recent inspection the consultant has rated all equipment as fair to marginal and is specifically recommending replacement of substations U11, U12 and U13 as soon as practicable.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$130,000	2018-2023 CIP (\$2017) \$3,050,000	TOTAL COST: \$3,328,000
--	---------------------------------------	-------------------------

CIP ID#

A02.16

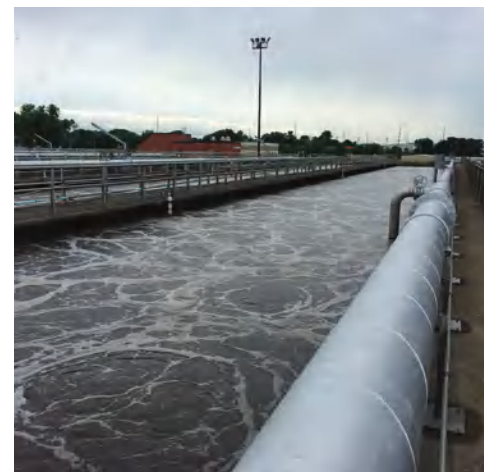
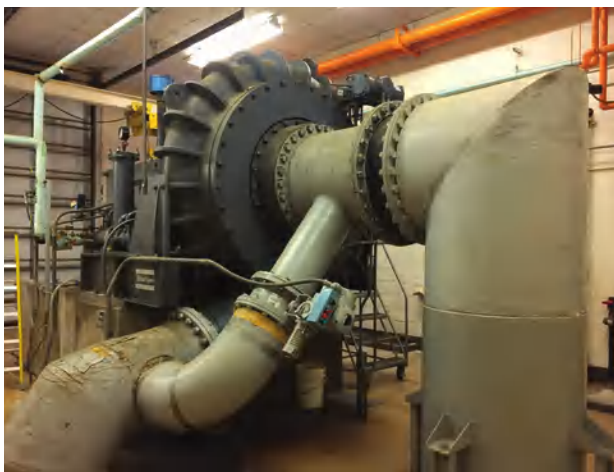
Activated Sludge Projects

START DATE:

2018

COMPLETION DATE:

2026

**PROJECT TYPE**

Plant Improvements – Activated Sludge Process

LOCATION

Nine Springs Wastewater Treatment Plant

DESCRIPTION

This project includes a series of improvements to the activated sludge process that will improve energy efficiency and system reliability and also relieve existing maintenance issues. This project is included in the 2016 liquid processing facilities plan. It is anticipated that the project will be funded through the Clean Water Fund Program.

BACKGROUND

The treatment plant's east and west blower complexes supply air to the east and west plants, respectively. Currently they are separate systems that are not optimized with regards to energy use. This project includes provisions to connect the east and west blower systems to allow for more efficient use of the existing blowers and to provide improved redundancy. The project also allows for the phased replacement of all three west blowers so that the system operates more efficiently.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$65,000

2018-2023 CIP (\$2017)
\$7,010,000

TOTAL COST: \$10,670,000

CIP ID#

A02.17

Process Control Upgrade - Phase Two

START DATE:

2018

COMPLETION DATE:

2020



PROJECT TYPE	Plant Improvements – Process Control System
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project will replace the controllers that provide automation for the secondary treatment system. This project is included in the 2016 liquid processing facilities plan. It is anticipated that project costs will be funded through the Clean Water Fund Program.
BACKGROUND	The district completed phase one of the process control system upgrade project in 2016 at a cost of \$4.3 million. Phase two of the project involves replacing ten controllers that provide for automation and regulation of the secondary treatment system. These controllers are obsolete and replacement parts are no longer available. In addition, the controllers run on the Windows NT operating system, which has been obsolete since 2004. It was originally intended that phase two of the project would be completed prior to 2020 and would be done in conjunction with upgrades to the blowers, blower controls and aeration system controls. Now that the blower improvements will not be constructed until 2021 at the earliest, it is recommended that phase two of the project proceed as soon as possible to reduce the risk of the district violating its discharge permit through failure of the control systems for the secondary treatment system.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$300,000	2018-2023 CIP (\$2017) \$1,500,000
TOTAL COST: \$1,602,000	

CIP ID#

A03

Metromix Facility Expansion

START DATE:

2019

COMPLETION DATE:

2021

**PROJECT TYPE**

Plant Improvements – Biosolids End Use

LOCATION

Nine Springs Wastewater Treatment Plant

DESCRIPTION

The purpose of this project is to provide an expanded facility for storage, mixing and distribution of a class A biosolids product. This project will only be done if a market for a class A biosolids product exists and it can be produced in a competitive manner.

BACKGROUND

The district has been pursuing development of a class A biosolids product to diversify its biosolids reuse program. The product, termed Metromix, will use dewatered biosolids (roughly 20 percent + solids) as its base with additives to produce a nutrient-rich soil amendment. Process modifications installed during the eleventh addition to the plant allowed production of class A biosolids through a batch anaerobic digestion process meeting EPA time/ temperature requirements. Staff anticipates that about 20 percent of these biosolids will eventually be dewatered using a centrifuge and made available for reuse. Dependent upon cost and demand for the product, the district may need to provide additional storage. Funding would be through use of the Clean Water Fund Loan Program.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$0

2018-2023 CIP (\$2017)
\$2.0 MILLION

TOTAL COST: \$2,202,000

CIP ID#

A04

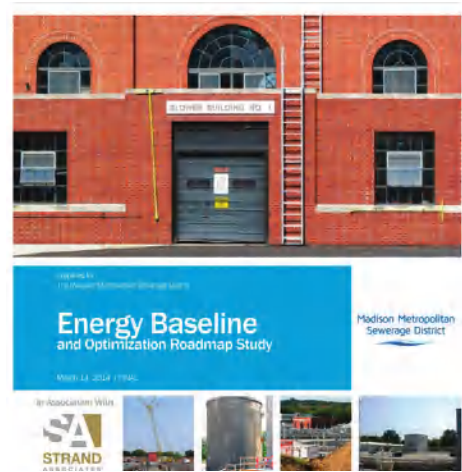
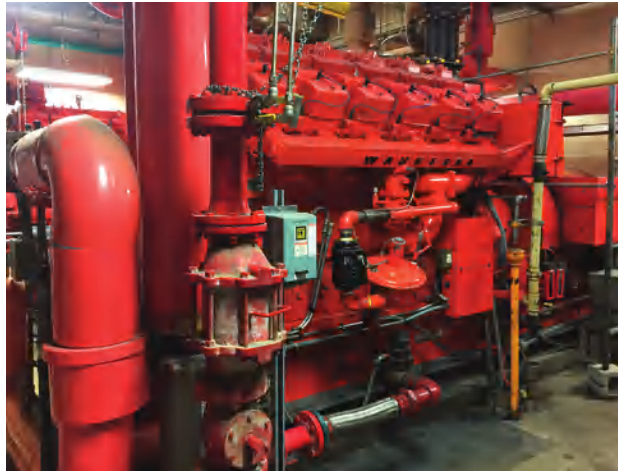
Plant Energy Generation Facilities Plan

START DATE:

2019

COMPLETION DATE:

2020



PROJECT TYPE	Energy related projects – use reduction/generation
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The facilities plan will evaluate the district's various energy-related systems and provide a framework for how to best optimize those systems. Specific items that will be evaluated and studied include the following: best uses for digester gas; potential for using food scraps as a feed source for the digesters; potential sources of high strength waste; capacity of the existing digesters; need for additional digesters or other types of digesters; additional amount of gas that could be produced; remaining life of the existing gas-driven engines and potential replacements; and heat recovery and hot water systems.
BACKGROUND	An energy study was conducted in 2014 by Strand and Brown and Caldwell in an effort to provide a roadmap for how the district might achieve energy independence. Strategies outlined in the study focused on reducing energy usage, improving the use of digester gas and the production of more energy. Some projects recommended by the energy study related to the aeration system have been incorporated into the liquid processing facilities plan. Many of the other recommendations from the energy study will be studied further as part of the plant energy generation facilities plan.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$0	2018-2023 CIP (\$2017) \$800,000
TOTAL COST: \$861,000	

CIP ID#

A05

Plant Energy Generation Projects

START DATE:

2021

COMPLETION DATE:

2024



PROJECT TYPE	Energy Related Projects – Use Reduction/Generation
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	These projects address items identified during the 2014 energy study relating to the plant's generation systems and process improvements or equipment replacements that reduce plant energy use/purchase. Cost estimates and project details will be developed from the plant energy generation facilities plan (See CIP ID# A04). At this time we anticipate further study of the best options for digester gas and the availability and use of high strength wastes and source separated organics as feed sources. Staff anticipates larger project funding through the Clean Water Fund Program while smaller project funding will be from capital fund reserves.
BACKGROUND	The 2014 energy study provided a long-term energy road map for the district to reduce its energy consumption and increase its energy production. The intent of this item is to address plant projects identified in the energy road map and the plant energy generation facilities plan. Please note that energy is an ongoing consideration in this and all district projects, and this project does not cover all items in the roadmap. Projects already funded include mixer and lighting replacements with more efficient units.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$0

2018-2023 CIP (\$2017)
\$6.5 MILLION

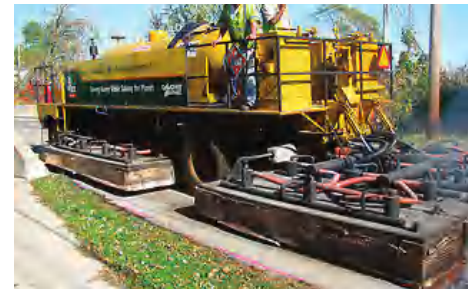
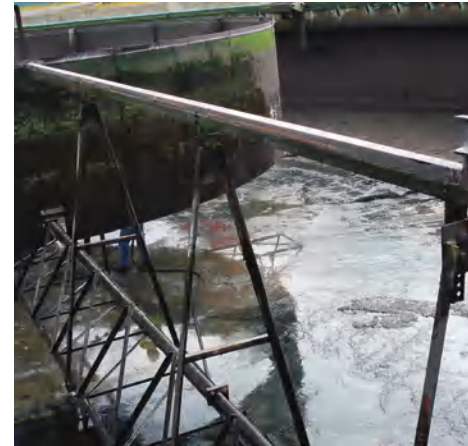
TOTAL COST: \$12,592,000

CIP ID#

A06-A08

Miscellaneous Capital Improvements

START DATE:
Ongoing
COMPLETION DATE:
Ongoing



PROJECT TYPE	Plant improvements – Miscellaneous Capital Improvements
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	<p>This summary covers three areas:</p> <ul style="list-style-type: none"> (A06) Annual Clarifier Coating (\$175,000) (A07) Annual Pavement Improvements (\$55,000) (A08) Minor Capital Improvements (100,000)
BACKGROUND	<p>The district annually includes funds in its capital budget for coating of its clarifier tanks and resurfacing of roads. These funds are used to protectively coat the clarifiers and restore paved areas of the plant where necessary. In addition, other minor capital improvements are routinely necessary and funds have been included to address these improvements on an as needed basis.</p>

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$330,000	2018-2023 CIP (\$2017) \$1.8 MILLION
---	---

TOTAL COST: ONGOING

CIP ID#

A09

Metrogro Applicators & Equipment

START DATE:

Variable

COMPLETION DATE:

Variable



PROJECT TYPE	Metrogro Applicators & Equipment
LOCATION	Metrogro Program
DESCRIPTION	Funds have been included in 2019 and 2021 to replace aging Metrogro applicators and/or equipment.
BACKGROUND	The district's Metrogro Program remains the backbone of the district's biosolids reuse program. Metrogro applicators and equipment convey and apply millions of gallons of Metrogro to regional farm fields annually. Capital funds were used to purchase a used applicator in 2015 and additional applicator or other equipment purchases are anticipated in 2019 and 2021. Staff anticipates funding via capital fund reserves.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$02018-2023 CIP (\$2017)
\$1.1 MILLION**TOTAL COST: \$1,386,000**

CIP ID#

B01

Northend Interceptor – Sherman Avenue (lining project)

START DATE:
Summer 2017
COMPLETION DATE:
Winter 2017



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Northend Interceptor N. Sherman Avenue, City of Madison/Village of Maple Bluff
DESCRIPTION	This project will correct condition defects in the Northend Interceptor on Sherman Avenue from Commercial Avenue to the south approximately 1,500 feet through the installation of a new cured-in-place liner within the existing pipe. This project will be funded through capital fund reserves.
BACKGROUND	The Northend Interceptor was constructed between 1924 and 1927. Approximately 1,480 feet of 10" clay pipe is in need of rehabilitation due to defects such as cracked pipe and ground water infiltration at pipe joints. Lining of the pipe will extend the service life of this interceptor without the need for costly and disruptive excavation on Sherman Avenue.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$0	2018-2023 CIP (\$2017) \$0	TOTAL COST: \$171,000
----------------------------------	-------------------------------	------------------------------

Lower Badger Mill Creek Interceptor – Phase Four

START DATE:
Fall 2017
COMPLETION DATE
Winter 2017



PROJECT TYPE	New Capacity – Conveyance System
LOCATION	Lower Badger Mill Creek Interceptor Hubble Road to CTH PD, City of Verona
DESCRIPTION	This project will extend the district's Lower Badger Mill Creek Interceptor in the City of Verona to provide service for new development in the vicinity of County Trunk Highway PD (CTH PD) and Shady Oak Lane. Approximately 3,800 feet of 30" sewer will be installed from the Epic Campus to the north to CTH PD. This project will be funded through capital fund reserves. Project costs will be recovered from connection charges from new users upon connection to the interceptor improvements.
BACKGROUND	<p>District policy allows for the construction of district interceptors only when that interceptor shall serve at least two municipalities. Sanitary sewer service options for the Lower Badger Mill Creek drainage basin were studied by district staff in 2005. At that time it was decided that a regional interceptor sewer would be constructed in several phases as development needs dictated in order to serve the cities of Verona and Madison and the towns of Verona and Middleton.</p> <p>Phase one of the interceptor was built in 2006 from Pumping Station 17 to Edwards Street; phase two was constructed in 2008 from Edwards Street to Cross County Road on the Epic Campus; and phase three extended the interceptor 900 feet north of Cross Country Road. Phase four of the interceptor extension is needed to serve new development in the vicinity of CTH PD and Shady Oak Lane.</p>

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$0

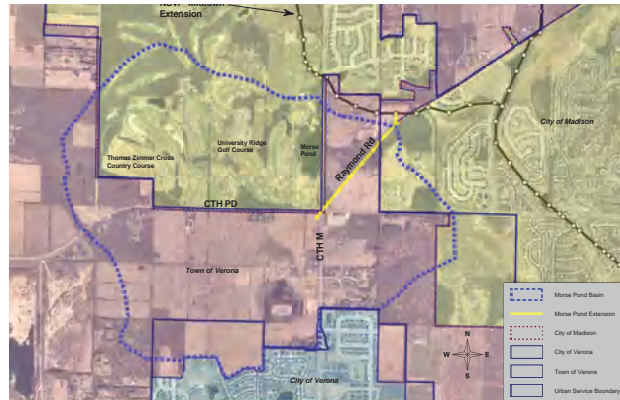
2018-2023 CIP (\$2017)
\$0

TOTAL COST: \$1,235,000

CIP ID#
B03

NSVI – Morse Pond Extension

START DATE:
Fall 2017
COMPLETION DATE:
Spring 2018



PROJECT TYPE	New Capacity – Conveyance System
LOCATION	Nine Springs Valley Interceptor – Midtown Extension Raymond Road/CTH PD, City of Madison
DESCRIPTION	This project will extend the public sanitary sewerage system to provide service for new development in the cities of Madison and Verona near the intersection of County Trunk Highway PD (CTH PD) and County Trunk Highway M (CTH M). Approximately 3,200 feet of 20" sewer will be installed along Raymond Road from the district's existing Nine Springs Valley Interceptor (Midtown Extension) to the southwest corner of CTH PD and CTH M. Funding for this project will come from capital fund reserves. Project costs will be recovered through connection charges as new users connect to the system.
BACKGROUND	District policy allows for the construction of district interceptors only when that interceptor shall serve at least two municipalities. The Verona Urban Service Area was amended in February of 2016 to include approximately 274 acres of land in the City of Verona's North Neighborhood lying south of CTH PD. The new sewer is proposed to serve these lands as well as lands lying east of Raymond Road in the City of Madison. The new sewer will be installed in conjunction with the reconstruction of CTH M by the Wisconsin Department of Transportation in 2017-2018.

FINANCIAL ANALYSIS

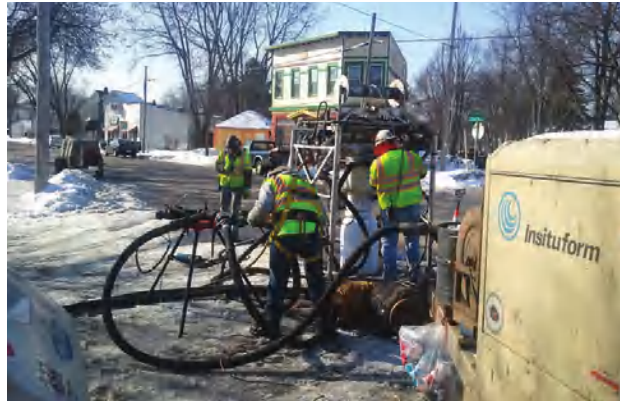
2018 EXPENDITURE (\$2017) \$1,960,000	2018-2023 CIP (\$2017) \$1,960,000	TOTAL COST: \$2,300,000
--	---------------------------------------	--------------------------------

CIP ID#

B04

Southeast Interceptor – Rehab Upstream of Pumping Station 9 (lining project)

START DATE:
Summer 2017
COMPLETION DATE
Winter 2017



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Southeast Interceptor USH 51, Yahara River to Larson Beach Road, Village of McFarland
DESCRIPTION	This project will correct condition defects in the Southeast Interceptor between the Yahara River and Pumping Station 9 in the Village of McFarland. Approximately 3,400 feet of existing 24" and 27" concrete pipe will be rehabilitated through the installation of a new cured-in-place liner within the existing pipe. It is anticipated that funding for the project will come from the Clean Water Fund Program.
BACKGROUND	The Southeast Interceptor was installed in 1961. The upstream end of the interceptor at the Yahara River receives flow from three municipal customers: Village of McFarland, Town of Dunn #3 Sanitary District and Town of Dunn-Kegonsa Sanitary District. Due to the discharge of three large flows at this location there is a large amount of hydrogen sulfide in the wastewater which is released into the sewer's atmosphere. Elevated levels of hydrogen sulfide have led to corrosion in the district's interceptor. Corrosion of the pipe reduces the capacity by increasing surface roughness and may eventually cause the pipe to fail. Since the worst case of pipe corrosion is located underneath the pavement of U.S. Highway 51 it is recommended that the interceptor be rehabilitated in the near term.

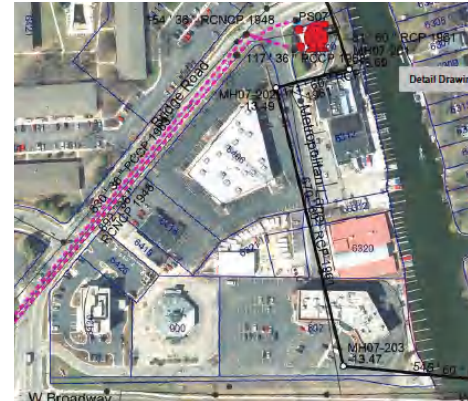
FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$0	2018-2023 CIP (\$2017) \$0	
		TOTAL COST: \$1,040,000

CIP ID#
B05

Southeast Interceptor Relocation - Monona Waterfront Redevelopment

START DATE:
Fall 2017
COMPLETION DATE:
Spring 2018



PROJECT TYPE	Interceptor Relocation – Conveyance System
LOCATION	Southeast Interceptor Metropolitan Lane, West Broadway to Bridge Road, City of Monona
DESCRIPTION	This project will relocate approximately 400 feet of the 60" Southeast Interceptor along the Yahara River in the City of Monona, just north of West Broadway. The sewer will be relocated as part of a contract to be let by the City of Monona, with technical assistance provided by district staff. The district's share of the project cost will be paid for from capital fund reserves.
BACKGROUND	This portion of the Southeast Interceptor was constructed in 1961. The pipe is constructed of reinforced concrete pipe and is in reasonably good condition for its age. A building was constructed over the interceptor near the intersection of West Broadway and the Yahara River shortly after the pipe was installed. The City of Monona is proposing a major redevelopment project in this area that calls for the demolition of the existing building and a new building in approximately the same location. The district and City of Monona have agreed to relocate the sewer to prevent damage to the pipe during building demolition and construction and to maintain future access.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$250,000	2018-2023 CIP (\$2017) \$250,000	TOTAL COST: \$300,000
--	-------------------------------------	------------------------------

CIP ID#

B06

West Interceptor – Pumping Station 5 to Gammon Extension (lining project)

START DATE:
Summer 2018
COMPLETION DATE:
Winter 2018



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	West Interceptor Lake Mendota Drive, Spring Harbor Drive to Baker Avenue, City of Madison
DESCRIPTION	This project will correct condition defects in the West Interceptor from Pumping Station 5 to its junction with the Gammon Extension to the West Interceptor. Approximately 3,500 feet of 18" cast iron sewer will be rehabilitated through the installation of a new cured-in-place liner within the existing pipe. It is anticipated that the project will be financed through the Clean Water Fund Program.
BACKGROUND	This section of the West Interceptor was constructed in 1931 and is comprised of cast iron sewer. Due to the age of this facility and the type of pipe material, the pipeline is suffering from corrosion, or tuberculation, of the interior pipe surface above the normal waterline. Tuberculation results from the buildup of iron precipitates on the pipe surface that are caused by chemical interactions between the pipe and the wastewater. These precipitates decrease the effective diameter of the pipe and reduce its capacity as they grow. If left unchecked they may cause the pipe to fail. The precipitates can generally be removed with mechanical equipment such that the pipeline can be successfully rehabilitated with a liner.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$690,000

2018-2023 CIP (\$2017)
\$690,000

TOTAL COST: \$711,000

CIP ID#
B07

Southwest Interceptor – Haywood Extension Replacement

START DATE:
Spring 2019
COMPLETION DATE:
Fall 2020



PROJECT TYPE	Capacity Improvement – Conveyance System
LOCATION	Southwest Interceptor – Haywood Extension Haywood Drive, N. Wingra Drive to West Shore Drive, City of Madison
DESCRIPTION	<p>This project will allow for the replacement of the deteriorating Southwest Interceptor on Haywood Drive. It will also provide additional capacity so that flow can be better diverted between Pumping Station 2 and Pumping Station 8 during high flow and/or emergency situations. Approximately 1,500 feet of 24” cast iron sewer on Haywood Drive will be replaced with a 36” sewer as part of the improvements. Staff intends to fund this project through the Clean Water Fund Program.</p> <p>This project will be constructed in two phases. The first phase will be coordinated with the City of Madison’s reconstruction of Haywood Drive between Wingra Drive and S. Park Street in 2019. The second phase will complete the project from S. Park Street to West Shore Drive.</p>
BACKGROUND	<p>This section of the Southwest Interceptor was constructed in 1936 and consists of 24” cast iron sewer. As with other district interceptors made of cast iron sewer with service lives in excess of 50 years, this pipeline is suffering from the effects of tuberculation. Tuberculation is a process in which iron precipitates form on the inside surface of the pipe due to chemical reactions between the cast iron sewer material and the wastewater. The precipitates in this pipeline have reduced the effective diameter of the pipeline and its carrying capacity.</p> <p>This section of the Southwest Interceptor also serves as an important intertie between Pumping Station 2 and Pumping Station 8 and has been used on several occasions in the last fifteen years to avoid sewer backups during high flows and other emergency events. The district’s collection system facilities plan update (2011) identified a need to increase the carrying capacity of this pipeline so that more flow could be transferred between these two pump stations.</p>

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$85,000	2018-2023 CIP (\$2017) \$1,335,000	
		TOTAL COST: \$1,426,000

CIP ID#
B08

Nine Springs Valley Interceptor - McKee Road to Dunn's Marsh

START DATE:
Summer 2018
COMPLETION DATE:
Winter 2019



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Nine Springs Valley Interceptor Cannonball Bike Path Corridor, McKee Road to Dunn's Marsh, City of Fitchburg
DESCRIPTION	This project will correct condition defects caused by corrosion in the Nine Springs Valley Interceptor (NSVI) along the Cannonball bike path. Approximately 4,200 feet of reinforced concrete pipe, ranging in size from 30" to 42", will be rehabilitated with a cured-in-place liner. Staff intends to fund this project through the Clean Water Fund Program.
BACKGROUND	The portion of the NSVI between McKee Road and Dunn's Marsh was constructed in 1965 and provides service to lands in the southwest portion of the district's collection system, including the cities of Fitchburg, Madison, Middleton and Verona. The existing sewer is suffering from severe corrosion due to its proximity to the end of the Pumping Station 12 force main and steeper than normal pipe slopes. Both of these conditions result in turbulent wastewater which releases hydrogen sulfide gas from the wastewater. The hydrogen sulfide gas forms sulfuric acid along the pipe wall and leads to deterioration of the pipe material over time.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$65,000

2018-2023 CIP (\$2017)
\$2,000,000

TOTAL COST: \$2,120,000

CIP ID#

B09

Northeast Interceptor – Truax Extension Relief

START DATE:

Spring 2018

COMPLETION DATE:

Spring 2020



PROJECT TYPE	Capacity Improvement – Conveyance System
LOCATION	Northeast Interceptor USH 51 corridor, Rieder Road to Lien Road, City of Madison
DESCRIPTION	System capacity in the Northeast Interceptor system will be increased through the addition of a relief interceptor near the southeast corner of the Dane County Regional Airport. Approximately 9,800 feet of relief sewer will be installed roughly parallel to the existing 48" sewer to provide the required system capacity. Funding for this project is expected to be provided through the Clean Water Fund Program.
BACKGROUND	The Northeast Interceptor system provides service to the northerly and easterly areas of the collection system, including the City of Madison and the villages of Cottage Grove, DeForest, Waunakee and Windsor. High rates of growth have been observed in the villages of Waunakee and DeForest in the past several years and it is anticipated that additional capacity will be needed in this portion of the Northeast Interceptor prior to the year 2025. Approximately 22,000 feet of relief or replacement sewer in the Northeast Interceptor system has been installed downstream of this project in the last ten years to provide additional capacity.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$700,000	2018-2023 CIP (\$2017) \$8,950,000	
		TOTAL COST: \$9,604,000

CIP ID#

B10

West Interceptor Relief Sewer – Walnut Street to Whitney Way

START DATE:

2019

COMPLETION DATE:

2022



PROJECT TYPE	Capacity Improvement – Conveyance System
LOCATION	West Interceptor Relief Sewer University Avenue, Walnut Street to Whitney Way, City of Madison and Village of Shorewood
DESCRIPTION	This project will provide additional capacity to the West Interceptor system in order to convey projected flows from the west side of the district's service area. The improvements consist of the installation of 11,500 feet of relief sewer that will be installed roughly parallel to the district's existing sewer that runs along the University Avenue corridor between Walnut Street and Whitney Way. Due to the size and complexity of this project it is proposed that construction will occur in three phases, with construction beginning in 2020 and ending in 2022. It is anticipated that this project will be financed through the Clean Water Fund Program.
BACKGROUND	Expected growth in the Pumping Station 15 service area, including the Bishops Bay development in the City of Middleton and the Town of Westport, has created a need for the district to add additional capacity to its West Intercepting system. In the 2009 "MMSD Collection System Evaluation" report, the Capital Area Regional Planning Commission identified several sections of the West Interceptor within the proposed project limits that required capacity relief prior to the year 2010 based on population forecasts. The district's collection system facilities plan update (2011) included a detailed analysis of the system between Walnut Street and Whitney Way and determined that additional capacity should be provided in or around the year 2020.

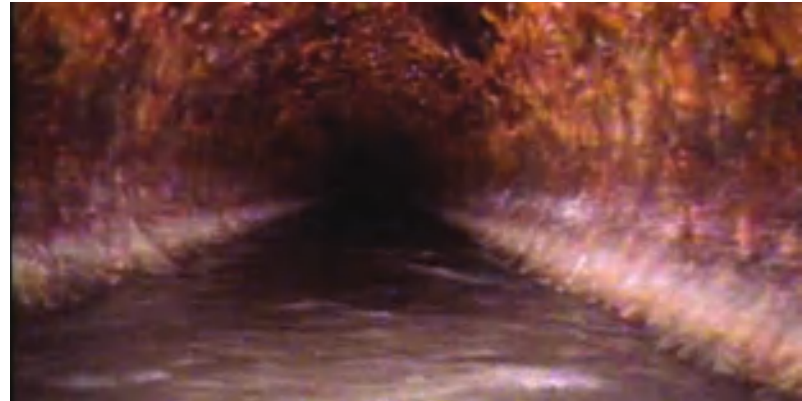
FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$02018-2023 CIP (\$2017)
\$12,700,000**TOTAL COST: \$14,246,000**

CIP ID#
B11

West Interceptor – Spring Street Relief (lining project)

START DATE:
Winter 2019
COMPLETION DATE:
Summer 2020



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	West Interceptor – Spring Street Relief N. Randall Avenue/Spring Street to West Washington Avenue, City of Madison
DESCRIPTION	This project will correct condition defects in the West Interceptor – Spring Street Relief along its entire length from the intersection of Randall Avenue and Spring Street to its junction with the West Interceptor at Pumping Station 2. Approximately 4,600 feet of 24” cast iron sewer will be rehabilitated through the installation of a new cured-in-place liner within the existing pipe. This project also includes the rehabilitation of approximately 600 feet of 24” cast iron sewer along the West Interceptor, north of West Washington Avenue. It is anticipated that the project will be funded through the Clean Water Fund Program.
BACKGROUND	The West Interceptor – Spring Street Relief sewer was constructed in 1940 and is comprised of cast iron sewer. Due to the age of this facility and the type of pipe material, the pipeline is suffering from corrosion, or tuberculation, of the interior pipe surface above the normal waterline. Tuberculation results from the buildup of iron precipitates on the pipe surface that are caused by chemical interactions between the pipe and the wastewater. These precipitates decrease the effective diameter of the pipe and reduce its capacity as they grow. If left unchecked they may cause the pipe to fail. The precipitates can generally be removed with mechanical equipment such that the pipeline can be successfully rehabilitated with a liner.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$0	2018-2023 CIP (\$2017) \$1,595,000
TOTAL COST: \$1,741,000	

CIP ID#

B12**NEI – Truax Extension Rehab (lining project)****START DATE:**

2020

COMPLETION DATE:

2022



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Northeast Interceptor – Truax Extension USH 51, Rieder Road to Lien Road, City of Madison
DESCRIPTION	This project will correct condition defects in the Northeast Interceptor between Lien Road and the end of the Pumping Station 13 force main at Rieder Road. Approximately 11,000 feet of existing 48" concrete pipe will be rehabilitated through the installation of a new cured-in-place liner within the existing pipe. It is anticipated that the project will be financed through the Clean Water Fund Program.
BACKGROUND	This section of the Northeast Interceptor was installed in 1969 and suffers from internal corrosion due to the presence of elevated levels of hydrogen sulfide in the wastewater. Approximately one-half of the Northeast Interceptor System between Pumping Station 18 and Pumping Station 14 has either been rehabilitated or replaced due to corrosion. Corrosion of the pipe reduces the capacity by increasing surface roughness and may eventually cause the pipe to fail. Installation of a cured-in-place liner can extend the service life of the interceptor if installed before the corrosion progresses too far.

FINANCIAL ANALYSIS2018 EXPENDITURE
(\$2017) \$02018-2023 CIP (\$2017)
\$5,050,000**TOTAL COST: \$5,761,000**

CIP ID#

B13

Northeast Interceptor – Waunakee Extension Relief (Phase One)

START DATE:

Spring 2021

COMPLETION DATE:

Spring 2023



PROJECT TYPE	Capacity Relief – Conveyance System
LOCATION	Northeast Interceptor – Waunakee Extension Yahara River to Town of Westport and Village of Waunakee
DESCRIPTION	This project will provide additional capacity to the Northeast Interceptor system in order to convey projected flows from the villages of Dane and Waunakee and the Town of Westport. The improvements consist of the installation of approximately 24,200 feet of relief sewer that will be installed parallel to the district's existing sewer that extends from the Yahara River to the Village of Waunakee. At this time it is proposed that construction will occur in two phases, with construction of the first phase tentatively scheduled for 2022. It is anticipated that this project will be financed through the Clean Water Fund Program.
BACKGROUND	Continued high rates of growth in the Village of Waunakee and Town of Westport is expected to create a need for the District to add additional capacity to the Waunakee Extension of the Northeast Interceptor. The Capital Area Regional Planning Commission is projecting that capacity will be reached in the majority of the Waunakee Extension by the year 2022 based on existing population forecasts. Periodic flow monitoring performed by district staff as part of its billing program validates the existing flows used by the planning commission in their analysis. This project could be postponed if development patterns in the service area change. It is included in the capital improvements plan at this time based on the best information available.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$0	2018-2023 CIP (\$2017) \$9,070,000
TOTAL COST: \$10,644,000	

CIP ID#

B14

Northeast Interceptor – Far East Interceptor - to Southeast Interceptor (lining project)

START DATE:
Summer 2022
COMPLETION DATE:
Winter 2023



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Northeast Interceptor Femrite Drive, Copps Avenue to Progress Road, City of Monona and City of Madison
DESCRIPTION	This project will correct condition defects in the Northeast Interceptor between its junction with the Far East Interceptor and its junction with the Southeast Interceptor. Approximately 3,300 feet of existing 48" concrete pipe will be rehabilitated through the installation of a new cured-in-place liner within the existing pipe. It is anticipated that financing of the project will be through the Clean Water Fund Program.
BACKGROUND	This section of the Northeast Interceptor was installed in 1964 and suffers from internal corrosion due to the presence of elevated levels of hydrogen sulfide in the wastewater. Approximately 2,250 feet of the Northeast Interceptor between the Far East and Southeast interceptors was abandoned in 2013 and replaced with a new sewer due to the condition of the pipe. This project will rehabilitate and extend the service lives of the remaining sewer segments that were not replaced in the 2013 project.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$0	2018-2023 CIP (\$2017) \$1,610,000
TOTAL COST: \$1,921,000	

CIP ID#
B15

Lower Badger Mill Creek Interceptor (Phase Five)

START DATE:
2023
COMPLETION DATE:
2024



PROJECT TYPE	New Capacity – Conveyance System
LOCATION	Lower Badger Mill Creek Interceptor - CTH PD to Midtown Road, Town of Verona
DESCRIPTION	This project will extend the district's Lower Badger Mill Creek Interceptor from County Trunk Highway (CTH PD) to Midtown Road in order to provide service for new development and to relieve the City of Madison's existing pump station at Midtown Road. Approximately 8,500 feet of new interceptor sewer will be installed as part of the proposed improvements. This project will be funded through capital fund reserves. Project costs will be recovered from connection charges from new users upon connection to the interceptor improvements.
BACKGROUND	<p>District policy allows for the construction of district interceptors only when that interceptor shall serve at least two municipalities. Sanitary sewer service options for the Lower Badger Mill Creek drainage basin were studied by district staff in 2005. At that time, it was decided that a regional interceptor sewer would be constructed in several phases as development needs dictated in order to serve the cities of Verona and Madison and the towns of Verona and Middleton.</p> <p>Phase one of the interceptor was built in 2006 from Pumping Station 17 to Edwards Street; phase two was constructed in 2008 from Edwards Street to Cross County Road on the Epic Campus; phase three extended the interceptor 900 feet north of Cross County Road; and phase four of the interceptor is expected to be constructed up to CTH PD in 2017. Phase five of the interceptor will be constructed when the City of Madison's Midtown Road Lift Station reaches capacity and flows require diversion to Pumping Station 17 and/or when new development between CTH PD and Midtown Road dictates the need to provide service.</p>

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$0	2018-2023 CIP (\$2017) \$290,000
TOTAL COST: \$4,626,000	

CIP ID#

C01

Grass Lake Dike Stabilization

START DATE:

Summer 2018

COMPLETION DATE:

Summer 2018



PROJECT TYPE	System Rehabilitation – Effluent Conveyance System
LOCATION	Badfish Creek & Grass Lake Badfish Creek, Schneider Road to Rutland Dunn Town Line Road, Town of Dunn
DESCRIPTION	The purpose of this project is to evaluate and implement corrective measures to stabilize the Grass Lake dike to prevent sloughing of the shoreline soil. It is anticipated that a geotechnical consultant will be retained to provide technical services, including soil investigations and analysis, preparation of plans and specifications and construction engineering services. Funding of the consulting services and subsequent construction will be funded through capital fund reserves.
BACKGROUND	The Grass Lake dike roads were built to provide a barrier between the district's effluent in Badfish Creek and Grass Lake. Repairs have been made in the past to prevent subsurface flow from the effluent channel from passing into Grass Lake and also to prevent animals from tunneling through the dike. Despite the repairs made by the district's buildings and ground department over the years, these problems are recurring and a more permanent solution is needed.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) **\$150,000**2018-2023 CIP (\$2017)
\$150,000**TOTAL COST: \$155,000**

CIP ID#
C02

Pumping Station 10 Force Main Rehabilitation

START DATE:
Spring 2017
COMPLETION DATE:
Fall 2018



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Pumping Station 10 Force Main Wisconsin Southern Railroad Corridor, Buckeye Road to North 1,500 feet, City of Madison
DESCRIPTION	This project will correct condition defects in a portion of the Pumping Station 10 force main. Approximately 1,500 feet of cured-in-place liner will be installed in the existing 36" concrete force main just north of Buckeye Road in the City of Madison. It is anticipated that funding for the project will come from a Clean Water Fund loan.
BACKGROUND	<p>The Pumping Station 10 force main was installed in 1964 as part of the Northeast intercepting system. Like other parts of the Northeast system the discharge end of the force main is suffering from corrosion due to high levels of hydrogen sulfide. Inspection of the force main by television inspection in 2015 revealed that approximately 1,500 feet of the pipe is in need of rehabilitation where the pipe does not normally flow full.</p> <p>This project carries some unique challenges. The Pumping Station 10 force main conveys an average flow of approximately eight million gallons per day and is a critical facility for the district. This flow will need to be bypassed continuously throughout construction with an engineered bypass system. Another challenge involves inserting a cured-in-place liner within a force main that has no access points. The section to be lined will need to be cut apart in smaller segments to allow for access and then repaired upon insertion of the liner.</p>

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$1,085,000

2018-2023 CIP (\$2017)
\$1,085,000

TOTAL COST: \$1,166,000

CIP ID#

C03

Pumping Stations 13 and 14 Wet Well Repairs

START DATE:
Summer 2018
COMPLETION DATE:
Winter 2018



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Pumping Station 13- 3634 Amelia Earhart Drive, City of Madison Pumping Station 14- 5000 School Road, City of Madison
DESCRIPTION	This project includes major concrete repairs and new floor grating in the wet well areas at each station. Concrete will be removed and replaced in kind, or coated with a structural coating as necessary. New grating and grating supports will be installed for safe entry into the wet wells. It is anticipated that funding of this project will be done through capital fund reserves.
BACKGROUND	Similar to the interceptors in the Northeast Intercepting System, the concrete wet wells at Pumping Stations 13 and 14 are experiencing significant corrosion due to high concentrations of hydrogen sulfide gas (and subsequent sulfuric acid) in the system. The concrete degradation in the wet wells and in the channels leading to the wells compromises the structural integrity of these structures and creates a major safety concern for district personnel when accessing these areas. Corrective action is needed so that proper maintenance can be conducted.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) **\$310,000**

2018-2023 CIP (\$2017)
\$310,000

TOTAL COST: \$319,000

CIP ID#
C04

Pumping Station 7 Improvements

START DATE:
Fall 2017
COMPLETION DATE:
Fall 2020



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Pumping Station 7 - 6300 Metropolitan Lane, City of Monona
DESCRIPTION	This project provides for various improvements to Pumping Station 7 that are needed following the start-up of Pumping Station 18 to ensure that the station continues to operate effectively and reliably. The following is a list of potential improvements that are anticipated: replacement of existing controllers and control system; replacement of electrical switchgear (including outdoor transformers and utility equipment); installation of an odor control system; replacement or modifications to the HVAC system; separation of control room space from garage and screen room; installation of variable speed drive(s) to optimize pumping operations; increase in station pumping capacity; and replacement of manual valves with electrically actuated valves. It is anticipated that this project will be funded through the Clean Water Fund Program.
BACKGROUND	Prior to Pumping Station 18 being placed into service in 2015, Pumping Station 7 pumped roughly 40 percent of the district's wastewater to the treatment plant each day. The facility is in excess of 60 years old and was last rehabilitated in 1992. Given the age of the station, the time that has elapsed since the last rehabilitation, and the complexities of operating Pumping Station 7 in tandem with Pumping Station 18, district staff have recommended a number of potential improvements at Pumping Station 7 that are needed to keep this critical facility operating in an efficient and effective manner. The most pressing needs at this time are to replace the controllers and control system and the HVAC system to mitigate the corrosion of electrical gear and control systems.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$430,000	2018-2023 CIP (\$2017) \$3,550,000	TOTAL COST: \$3,833,000
--	---------------------------------------	--------------------------------

CIP ID#

C05

Pumping Station 17 Force Main Relief – Phase One

START DATE:

Winter 2019

COMPLETION DATE:

Winter 2020



PROJECT TYPE	Capacity Improvement – Conveyance System
LOCATION	Pumping Station 17 Force Main Badger Mill Creek, CTH M to North 4,600 feet, City of Verona
DESCRIPTION	This project will add a relief force main to the existing 16" force main that will provide additional capacity for wastewater which is pumped from Pumping Station 17 in the City of Verona. Approximately 4,600 feet of 16" force main will be installed in the first phase of construction and 9,400 feet in the second phase, doubling the capacity of the force main system from 7.2 mgd to 14.4 mgd. It is anticipated that this project will be funded through reserves from the capital fund.
BACKGROUND	<p>At this time the Pumping Station 17 force main serves only areas within the City of Verona. It is projected that the Pumping Station 17 force main has enough capacity to serve lands within the City of Verona until approximately the year 2027. It is expected, however, that additional flow from the City of Madison, and possibly the Town of Verona, will drain to Pumping Station 17 in or about 2024 when the final phase of the Lower Badger Mill Creek Interceptor is constructed up to Midtown Road and the City of Madison abandons their pump station in this location. Capacity relief will be needed for both Pumping Station 17 and its force main system when this occurs.</p> <p>Relief for the force main system has been separated into two construction phases to coordinate with a City of Verona public works project. The City of Verona is contemplating construction of a new gravity sewer along the proposed route of the district's relief force main in 2019. The district is proposing to construct phase one of the relief force main as a joint project with the City of Verona in 2019 to reduce costs and inconvenience to the general public.</p>

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$02018-2023 CIP (\$2017)
\$1,070,000**TOTAL COST: \$1,166,000**

CIP ID#

C06

Pumping Station 13 Rehabilitation

START DATE:

Winter 2019

COMPLETION DATE:

Winter 2021



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Pumping Station 13 3634 Amelia Earhart Drive, City of Madison
DESCRIPTION	This project provides for a major rehabilitation at Pumping Station 13. Improvements to the station will include the following features: replacement of one or more pumps to increase capacity; improvements to the power systems to achieve the desired level of redundancy; replacement of aging electrical and control equipment; new HVAC system; installation of flow meter; and possible enlargement of the existing building footprint to house new equipment. It is anticipated that this project will be funded through the Clean Water Fund Program.
BACKGROUND	Table 5.1 of the district's collection system facilities plan update (2011) included a capacity and condition assessment for each of its 17 pumping stations across six categories. This table was updated in April of 2016 to reflect current conditions, including the construction of Pumping Station 18. Firm capacity improvements and replacement of aging equipment have been identified as the primary needs at Pumping Station 13. Pumping Station 13 received the highest priority ranking among the 18 pumping stations with regard to the need for future rehabilitation.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$02018-2023 CIP (\$2017)
\$4,640,000**TOTAL COST: \$5,117,000**

CIP ID#

C07

Pumping Station 14 Rehabilitation

START DATE:

Winter 2019

COMPLETION DATE:

Winter 2021

**PROJECT TYPE**

System Rehabilitation – Conveyance System

LOCATIONPumping Station 14
5000 School Road, City of Madison**DESCRIPTION**

This project provides for a major rehabilitation at Pumping Station 14. Improvements to the station will include the following features: replacement of one or more pumps to increase capacity; improvements to the power systems to achieve the desired level of redundancy; replacement of aging electrical and control equipment; new HVAC system; installation of flow meter; and possible enlargement of the existing building footprint to house new equipment. It is anticipated that this project will be funded through the Clean Water Fund Program.

BACKGROUND

Table 5.1 of the district's collection system facilities plan update (2011) included a capacity and condition assessment for each of its 17 pumping stations across six categories. This table was updated in April of 2016 to reflect current conditions, including the construction of Pumping Station 18. Firm capacity improvements and replacement of aging equipment have been identified as the primary needs at Pumping Station 14. Overall, Pumping Station 14 received the second highest priority ranking among the 18 pumping stations with regard to the need for future rehabilitation.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$02018-2023 CIP (\$2017)
\$4,565,000**TOTAL COST: \$5,036,000**

CIP ID#

C08

Pumping Station 4 Rehabilitation

START DATE:

Winter 2020

COMPLETION DATE:

Summer 2022



PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Pumping Station 4 620 John Nolen Drive, City of Madison
DESCRIPTION	This project provides for a major rehabilitation of Pumping Station 4. Improvements to the station are expected to include the following: replacement of all three pumps due to age and lack of adequate capacity; provision of variable frequency drives to improve operational performance; improvements to the power system to achieve greater redundancy, including provision of an on-site generator; replacement of aging electrical and control equipment; and a new HVAC system. It is anticipated that this program will be funded through the Clean Water Fund Program.
BACKGROUND	Pumping Station 4 was placed into service in 1967 and pumps flow directly to the Nine Springs Wastewater Treatment Plant through a parallel force main system with Pumping Stations 2 and 3. Most of the equipment in the station has not been replaced or upgraded since the station was started up in 1967. As a result it is recommended that the major electrical equipment and associated controls be replaced to ensure that the station operates reliably. In addition it is recommended that the pumping units be replaced and optimized so that the station is able to work in concert with the pumps from Pumping Stations 2 and 3.

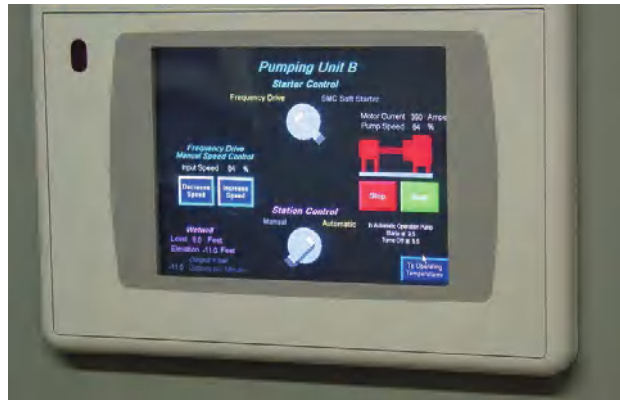
FINANCIAL ANALYSIS

2018 EXPENDITURE (2017) \$0	2018-2023 CIP (\$2017) \$4,345,000	
		TOTAL COST: \$4,918,000

CIP ID#
C09

Pumping Station 17 Capacity Upgrade

START DATE:
Winter 2022
COMPLETION DATE:
Winter 2023



PROJECT TYPE	Capacity Improvement – Conveyance System
LOCATION	Pumping Station 17 – 407 Bruce Street, City of Verona
DESCRIPTION	This project will add capacity at Pumping Station 17 through modifications to the existing pumping units. Firm pumping capacity will increase from 4.6 million gallons per day to approximately 6.6 million gallons per day. The capacity increase will be achieved by installing larger motors and variable frequency drives to each pump and operating them at higher speeds. It is anticipated that this project will be funded through the Clean Water Fund Program.
BACKGROUND	At this time Pumping Station 17 serves only areas within the City of Verona. It is projected that Pumping Station 17 has enough capacity to serve lands within the City of Verona until approximately the year 2027. It is expected, however, that additional flow from the City of Madison, and possibly the Town of Verona, will drain to Pumping Station 17 in or about 2024 when the final phase of the Lower Badger Mill Creek Interceptor is constructed up to Midtown Road and the City of Madison abandons their pump station in this location. A capacity upgrade will be needed for Pumping Station 17 when this occurs.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) \$0

2018-2023 CIP (\$2017)
\$1,135,000

TOTAL COST: \$1,352,000

CIP ID#

C10

Pumping Station 17 Force Main Relief – Phase Two

START DATE:

Winter 2022

COMPLETION DATE:

Winter 2023



PROJECT TYPE	Capacity Improvement – Conveyance System
LOCATION	Pumping Station 17 Force Main Badger Mill Creek, Bruce Street to Maple Grove Drive, City of Verona and Town of Verona
DESCRIPTION	This project will add a relief force main to the existing 16" force main and will provide additional capacity for wastewater which is pumped from Pumping Station 17 in the City of Verona. Approximately 4,600 feet of 16" force main will be installed in the first phase of construction and 9,400 feet in the second phase. It is anticipated that this project will be funded through the Clean Water Fund Program.
BACKGROUND	<p>It is projected that the Pumping Station 17 force main has enough capacity to serve lands within the City of Verona until approximately the year 2027. It is expected, however, that additional flow will drain to Pumping Station 17 in or about 2024 when the final phase of the Lower Badger Mill Creek Interceptor is constructed up to Midtown Road and the City of Madison abandons their pump station in this location. Capacity relief will be needed for both Pumping Station 17 and its force main system when this occurs.</p> <p>Relief for the force main system has been separated into two construction phases to coordinate with a City of Verona public works project. The district is proposing to construct phase one of the relief force main as a joint project with the City of Verona in 2019 to reduce costs and inconvenience to the general public. Phase two of the project will occur in or about 2023, just prior to completion of the final phase of the Lower Badger Mill Creek Interceptor project.</p>

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$0	2018-2023 CIP (\$2017) \$2,130,000	
		TOTAL COST: \$2,537,000

CIP ID#
D01

Capital Budget Expenses

START DATE:
Ongoing
COMPLETION DATE:
Ongoing



PROJECT TYPE	Capital Budget Expenses
LOCATION	District-wide
DESCRIPTION	These are general capital budget expenses. More specifically they are annual funds used for smaller planning, study and related expenses that are required to update and implement the capital improvements plan.
BACKGROUND	Development of the district's capital improvements plan and capital budget requires almost continual study and planning. Often, internal resources are not available to conduct studies or planning in desirable timeframes and external resources are necessary. This budget item provides funds to cover expenditures for smaller studies or planning efforts.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$50,000	2018-2023 CIP (\$2017) \$565,000
---------------------------------------	-------------------------------------

TOTAL COST: ONGOING

CIP ID#

D02

Sustainable Infrastructure Program

START DATE:
Ongoing
COMPLETION DATE:
Ongoing



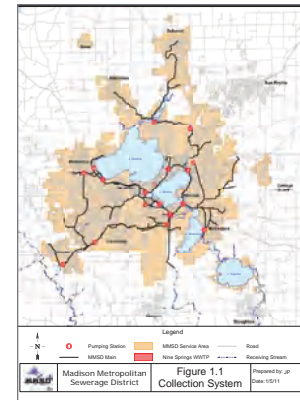
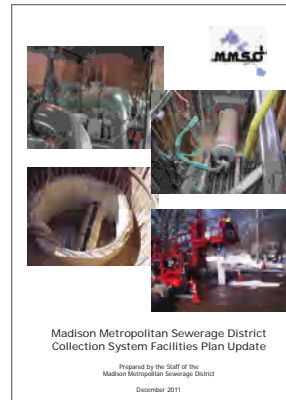
PROJECT TYPE	Capital Budget Expenses
LOCATION	District-wide
DESCRIPTION	Annual funds to support the district's ongoing sustainable infrastructure program (a.k.a. asset management program).
BACKGROUND	Sustainable infrastructure (asset) management is a systematic, best appropriate practice approach to managing infrastructure more cost effectively while maintaining levels of service and managing risk (the likelihood of failure and the consequence of such failure). The purpose of this program is to develop an integrated program that will achieve those objectives.

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$412,000	2018-2023 CIP (\$2017) \$2,472,000	TOTAL COST: ONGOING
--	---------------------------------------	----------------------------

Collection System Facilities Plan Update

START DATE:
2018
COMPLETION DATE:
2019



PROJECT TYPE	Capital Budget Expenses
LOCATION	Collection System
DESCRIPTION	Development of the district collection system facilities plan (2018). This document is one of the district's key planning documents that is periodically updated based upon updated CARPC projections.
BACKGROUND	The purpose of the collection system facilitated plan is to update and revise the former plan conducted in 2012. As with the original plan (2002), the 2012 update reviewed and assessed the adequacy and condition of the district's collection system to identify and recommend future collection system projects. Since plan adoption, the district has completed many of the recommended projects. However, following the Capital Area Regional Planning Commission's update of the district collection system evaluation in 2017, it will be time to review those projects remaining on the list and identify additional future projects that may be required to sustain and/or enhance the integrity of the district's collection system. In the past the facility plans have been completed solely with district staff at considerable levels of time and effort. It is anticipated that an engineering consultant will be required to complete a portion of the 2018 update.

FINANCIAL ANALYSIS

2018 EXPENDITURE
(\$2017) **\$80,000**

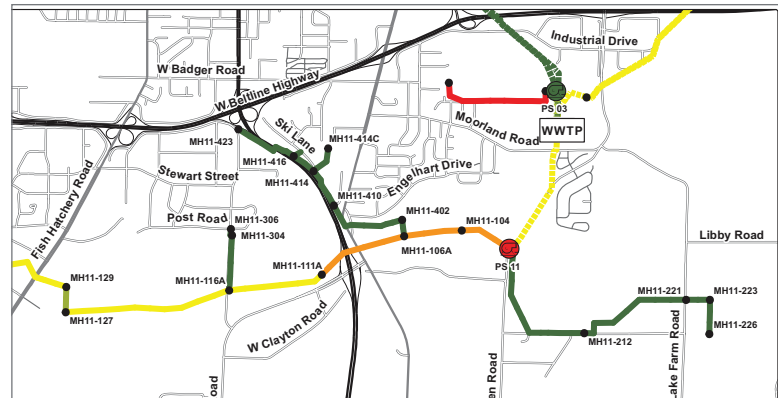
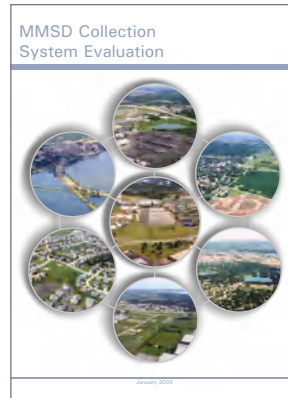
2018-2023 CIP (\$2017)
\$130,000

TOTAL COST: \$133,000

CIP ID#
D04

Collection System Evaluation

START DATE:
2017
COMPLETION DATE:
2018



PROJECT TYPE	Capital Budget Expenses
LOCATION	Collection System
DESCRIPTION	The district collection system evaluation – periodic system evaluation conducted by the Capital Area Regional Planning Commission in conjunction with the district.
BACKGROUND	<p>The basic purpose of this collection system evaluation is to update the 2008 collection system evaluation in order to anticipate future capacity problems and identify needs for expansion or improvement of sections within the district collection system. The final report will allow the district to continue planning its collection system improvements in an adequate manner consistent with plans of the regional planning agency. The district's collection system facilities planning update will follow completion of this evaluation effort.</p> <p>The majority of the work is expected to be completed in 2017, although it is anticipated that final completion of the project will not occur until the first of second quarter of 2018.</p>

FINANCIAL ANALYSIS

2018 EXPENDITURE (\$2017) \$60,000	2018-2023 CIP (\$2017) \$60,000
TOTAL COST: \$133,000	



APPENDIX B

COMPLETED PROJECTS & RETAINERS

The new Pumping Station 15 is located at Marshall Park.

2016 PROJECT COMPLETIONS

PROCESS CONTROL SYSTEM UPGRADE

The district's new process control system replaced a system that was installed in 1996 as part of the ninth addition to the plant. Although fully functional, parts of the old system were obsolete and in need of new computers, software upgrades and controller replacements. Facility planning took place during 2010 and 2011 with design beginning in late 2011 and implementation commencing in the fall of 2012. Implementation included replacement of the operations reporting system, purchase of a new development system and construction to replace the process control system hardware and software. The installation contract was completed in December 2015 with final project completion in February 2016. Total project costs of \$4.3 million were financed through use of a Clean Water Fund loan.

RIMROCK INTERCEPTOR REPLACEMENT/RELIEF

The district televised the Rimrock Interceptor in 2009, finding a variety of deficiencies that included areas with root intrusion, sags and infiltration. The interceptor was also in need of capacity relief. The project was substantially completed in May of 2016, with final completion achieved by July of 2016. Total project costs of \$960,000 are being funded with a Clean Water Fund loan.

ANNUAL CLARIFIER COATING

The district coated final clarifier 13 in the fall of 2016 as part of its ongoing efforts to upgrade and extend the life of the district's tanks and mechanisms. Total project costs to coat final clarifier 13 were approximately \$76,000 and were funded through the use of capital fund reserves. Final clarifier 15 was also scheduled for coating in 2016 but that work was delayed due to the time spent on final clarifier 13. The work on final clarifier 15 will be completed in 2017 at a cost of approximately \$80,000, with the costs financed through capital fund reserves which were authorized in the 2017 capital improvements plan.

ANNUAL PAVEMENT IMPROVEMENTS

As part of its annual efforts to upgrade worn pavement areas, the district repaved approximately 10,000 square feet of pavement in the vicinity of aeration control building four in the fall of 2016. The repaving costs of approximately \$26,500 were funded through the use of capital fund reserves.



The newly rehabilitated Pumping Station 11 features an information kiosk and rest stop for bike path enthusiasts.

2017 PROJECT COMPLETIONS/ ANTICIPATED COMPLETIONS

SUBSTANTIALLY COMPLETED IN 2017:

PUMPING STATIONS 11 AND 12 REHABILITATION

The district identified many of its pumping facilities as needing rehabilitation and improvements to bring them up to the proper standards. The rehabilitations were prioritized in the district's collection system facilities plan update (approved by the Wisconsin Department of Natural Resources July 2012). The plan determined that Pumping Stations 11 and 12 both needed rehabilitation and required scrutiny of their long-term capacity needs. Construction began in February 2015 and the project was substantially completed early in 2017. Final project closeout is expected to occur in the fall of 2017. The total project cost, estimated at \$10.7 million, is being financed with a Clean Water Fund loan.

WEST INTERCEPTOR – WEST RANDALL AVENUE TO NEAR PUMPING STATION 2 (LINING PROJECT)

The original West Interceptor is one of the district's oldest facilities in the collection system. It was constructed in 1916 from Pumping Station 2 to the intersection of University Avenue and Farley Avenue. The section extending from West Washington Avenue to Randall Avenue consists

of approximately 4,575 feet of 24" cast iron pipe. Television inspection of this section of sewer in 2011 found increased levels of corrosion in the sewer, which can compromise the structural integrity of the pipe and limits its carrying capacity. Rehabilitation of the sewer included the removal of excess deposits from the pipe walls and insertion of a new liner within the host pipe. The project was substantially completed in May of 2017. The total estimated project cost of \$1.6 million will be financed with a Clean Water Fund loan.

PUMPING STATION 12 FORCE MAIN RELOCATION

The Wisconsin Department of Transportation will be constructing major roadway improvements to Verona Road at its intersection with County Highway PD (CTH PD). The improvements include the widening of Verona Road and an elevated crossing at CTH PD. The district's Pumping Station 12 force main and Nine Springs Valley Interceptor/Mineral Point Extension were located in the highway right-of-way and would be adversely affected by the improvements. Given this conflict, the condition of the interceptor and force main and capacity limitations for the existing interceptor, the facilities in the right-of-way were abandoned and a new force main was installed along the Military Ridge bike path corridor. Construction on the project began in August of 2016 and was substantially completed in the spring of 2017. The

total project cost, estimated at \$2.0 million, is being financed with a Clean Water Fund loan.

MAINTENANCE FACILITY

In August 2012, the district hired Bray Architects to conduct a space needs analysis for its existing maintenance facilities and operations space in order to help determine the best long-term facilities solution for its maintenance and operational needs. The study led to the design and construction of a new maintenance facility and minor space needs improvements to the existing Maintenance Shop 1 and Operations Building. The new maintenance facility provides district staff with a safe working environment and the necessary tools and equipment to address maintenance needs well into the future. The project has been substantially completed and final closeout will occur in the fall of 2017. The anticipated total project cost of roughly \$11.8 million will be financed with a Clean Water Fund loan.

ANTICIPATED COMPLETIONS IN 2017

NORTHEND INTERCEPTOR (LINING PROJECT)

The Northend Interceptor system was constructed between 1924 and 1927. The portion of sewer on N. Sherman Avenue between Commercial Avenue and Northfield Place consists of approximately 1,500 feet of 10" vitrified clay sewer. Television inspection in 2011 revealed several defects that require rehabilitation, including cracked pipe and leaky joints. The rehabilitation project will involve the placement of a new liner within the host pipe to correct these defects. It is expected that the project will be completed in the fall of 2017. The estimated total project cost of \$170,000 will be financed with reserves from the capital fund.

PS 15 REHAB

Rehabilitation of Pumping Station 15 was determined as a priority in the district's collection system facilities plan update (approved by the Wisconsin Department of Natural Resources July 2012). The primary improvements include an increase to firm pumping capacity, replacement of aging electrical equipment and a new superstructure to allow better access to and protection for the equipment. Construction began in June 2016 and should be completed by the

end of 2017. The total project cost, estimated at \$4.5 million, is being financed with a Clean Water Fund loan.

CAPITAL CITY RECREATIONAL TRAIL RELOCATION AT VEHICLE LOADING BUILDING

The Capital City Recreational Trail provides valuable recreation to the community and presently routes directly in front of the district's vehicle loading building along South Towne Drive and along Moorland Road. The Moorland Road gate provides the entrance for Metrogro vehicles to the vehicle loading building while the South Towne gate provides the exit from the facility. During the hauling season a significant amount of vehicle traffic crosses the bike path on a routine basis, raising safety concerns. The district plans to modify the bike path in the vicinity of the South Towne gate in order to reduce conflicts between path users and the Metrogro vehicles. The project should be completed in 2017 at an estimated cost of \$80,000, funded with capital fund reserves.

LOWER BADGER MILL CREEK INTERCEPTOR – PHASE FOUR

The Lower Badger Mill Creek watershed is located along the district's westerly boundary and includes lands in the Town of Middleton, Town of Verona, City of Madison and City of Verona. Since 1995 the district has been working with the City of Verona and City of Madison on the design of an interceptor that would serve the entire watershed. Construction of the interceptor began in 2006 and has included construction from Pumping Station 17 to the Epic campus in three separate phases over a seven-year period. The phase four extension, which includes approximately 4,000 feet of 30-inch diameter pipe from the Epic campus to County Highway PD, is required for expansion of the Epic campus and future development north of County Highway PD. The project was bid in the spring of 2017 and will be completed before the end of the year. Total project costs of \$1.2 million will be funded via reserves from the capital fund.

SOUTHEAST INTERCEPTOR – REHABILITATION UPSTREAM OF PUMPING STATION 9 (LINING PROJECT)

The Southeast Interceptor was constructed in 1961 as part of the Southeast Interceptor project, which began at Pumping Station 7 in the City of Monona and ended at the Yahara River in the Village of McFarland. The section upstream of Pumping Station 9 consists of approximately 3,360 feet of 24" and 27" reinforced concrete pipe which runs parallel to the west side of U.S. Highway 51 and crosses to the east side of the highway just north of the Yahara River. Due to the number of customer connections at the manhole at the Yahara River and the geometry of the manhole there is a significant amount of turbulence and subsequent corrosion taking place at this location due to the release of hydrogen sulfide gas. The district rehabilitated this manhole in 2014 with a protective liner due to the degree of corrosion present. This project will continue rehabilitation efforts by lining the downstream pipe to Pumping Station 9. Total project costs, estimated at \$1.04 million, will be funded through the Clean Water Fund Program.

LIQUID PROCESSING FACILITIES PLAN

The district's asset management program identified a number of plant related liquid processing needs that were included in business cases within the district's 2016- 2021 capital improvements plan. Liquid processing includes the processes and equipment necessary for the plant's liquid stream, specifically screenings and grit removal, primary treatment, secondary treatment including aeration and final clarification, ultraviolet disinfection and effluent storage and discharge. Prior to construction of new or rehabilitation of existing wastewater facilities, the Wisconsin Department of Natural Resources requires owners to prepare and have approved a facilities plan. Staff determined that with several potential liquid stream projects on the horizon, a single planning effort would best address several different needs and would provide coordination between them. Work on the facilities plan began in February of 2016 and it is expected that final completion will occur in the summer of 2017. Total project costs, estimated at \$977,000, have been funded from the capital reserve fund.



Construction is underway on a district interceptor.

These planning costs will be recovered through a loan from the Clean Water Fund Program upon construction of the projects outlined in the facilities plan.

RETAINERS

The district often includes maintenance or performance retainers within its contracts. The retainers are typically released to the contractor at the end of one year (in some cases contracts include longer performance periods) following completion of the contract and assuming satisfactory performance. The following are retainers that the district has released or are presently withholding:

NORTHEAST INTERCEPTOR- FAR EAST INTERCEPTOR TO SOUTHEAST INTERCEPTOR JUNCTION

The district withheld a \$20,000 one-year maintenance retainer upon final project closeout. The retainer, scheduled for release to Merryman Excavation in July 2015, will not be released by the district due to unsatisfactory performance.

NORTHEAST INTERCEPTOR – REHABILITATION WEST OF AIRPORT (LINING PROJECT) - PHASE ONE

The district withheld a \$10,000 one-year maintenance retainer upon final project closeout. The retainer was released to Ric-Man Construction, Inc. in January of 2017.

PUMPING STATION 18 CONSTRUCTION

The district withheld a \$20,000 one-year maintenance retainer upon final project closeout. The retainer was released to CD Smith Construction, Inc. in October of 2016.

PUMPING STATION 18 FORCE MAIN CONSTRUCTION

The district withheld a \$30,000 one-year maintenance retainer upon final project closeout. The retainer was released to S.J. Louis Construction, Inc. in April of 2017.

RIMROCK INTERCEPTOR REHABILITATION/ REPLACEMENT

The district withheld a \$10,000 one-year maintenance retainer upon final project closeout. The retainer was released to E&N Hughes Co. Inc. in June of 2017.



The district's manholes are in a wide variety of locations.

PUMPING STATIONS 11 AND 12 REHABILITATION

The district will withhold a \$20,000 three-year special maintenance retainer upon final project closeout. The retainer will be released three years after project closeout to J.F. Ahern Co. pending satisfactory performance. \$10,000 is for satisfactory performance of the pumps and motors and \$10,000 is for satisfactory performance of the adjustable frequency drives.

NEW MAINTENANCE FACILITY/SPACE NEEDS IMPROVEMENTS

The district will withhold a \$20,000 one-year maintenance retainer upon final project closeout. The retainer will be released one year after project closeout to CD Smith Construction, Inc. pending satisfactory performance.

PUMPING STATION 15 REHABILITATION

The district will withhold a \$27,500 three-year special maintenance retainer upon final project closeout. Three separate retainers will be released three years after closeout of the work as follows: (1). \$10,000 to be paid to contractor and pump/motor supplier after three years of satisfactory performance; (2). \$10,000 to be paid to contractor and supplier of variable frequency drives after three years of satisfactory performance; and (3). \$7,500 to be paid to contractor after three years for landscape maintenance warranty. Payments to the contractor of \$2,500 per year will be made for each year's successful warranty work for the landscaping.

PUMPING STATION 12 FORCE MAIN RELOCATION

The district will withhold a \$10,000 one-year maintenance retainer upon final project closeout. The retainer will be released to Speedway Sand & Gravel, Inc. one year after project closeout, pending satisfactory performance.

WEST INTERCEPTOR – WEST RANDALL AVENUE TO NEAR PUMPING STATION 2 (LINING PROJECT)

The district will withhold a \$10,000 one-year maintenance retainer upon final project closeout. The retainer will be released to Michels Pipe Services one year after project closeout, pending satisfactory performance.

APPENDIX C

BUDGET SUMMARIES

A public hearing on the budgets of the Madison Metropolitan Sewerage District for the year 2018 will be held at 9:00 a.m. on September 28, 2017 at the district Maintenance Facility located at 1610 Moorland Road, Madison, Wisconsin.

BUDGET SUMMARIES 2018 OPERATING BUDGET SUMMARY

REVENUES

Revenue Category	2017 Thru June	Estimated 2017 Total	2017 Budget	Proposed 2018 Budget	Percent Change
Sewer Service Charges	\$16,438,601	\$33,500,000	\$33,132,000	\$35,432,000	6.94%
Servicing Pumping Stations	166,058	360,000	320,000	344,000	7.50%
Rent	37,869	71,000	71,000	49,000	-30.99%
Interest	11,102	19,000	15,000	19,000	26.67%
Annexation and Plan Review Fees	36,450	67,000	61,000	99,000	62.30%
Miscellaneous Income	55,471	87,000	46,000	66,000	43.48%
Septage Disposal Revenue	196,349	510,000	555,000	540,000	-2.70%
Pretreatment Monitoring	-	22,000	20,000	22,000	10.00%
Struvite Fertilizer Sales	75,203	160,000	140,000	160,000	14.29%
Cash Reserves	-	-	796,000	300,000	-62.31%
TOTAL REVENUES	\$17,017,103	\$34,796,000	\$35,156,000	\$37,031,000	5.33%

EXPENDITURES

Expenditure Category	2017 Thru June	Estimated 2017 Total	2017 Budget	Proposed 2018 Budget	Percent Change
Administration, Engineering, and Planning	\$2,174,610	\$4,872,000	\$5,236,000	\$5,407,000	3.27%
User Charge & PreTreatment Program	266,932	622,000	758,000	710,000	-6.33%
Wastewater Collection	951,246	2,532,000	2,360,000	2,534,000	7.37%
Wastewater Treatment	5,183,468	10,761,000	10,671,000	11,464,000	7.43%
Effluent Diversion	29,789	83,000	102,000	117,000	14.71%
Metrogro Biosolids Reuse Program	572,351	1,495,000	1,533,000	1,606,000	4.76%
Capital Outlay	124,829	181,000	220,000	219,000	-0.45%
Servicing Pumping Stations Owned by Others	147,182	360,000	320,000	344,000	7.50%
Contribution to Capital Projects Fund	-	172,000	172,000	-	-100.00%
Contribution to Equipment Replacement Fund	-	100,000	100,000	125,000	25.00%
Transfer to Debt Service Fund	-	13,684,000	13,684,000	14,505,000	6.00%
TOTAL EXPENDITURES	\$9,450,407	\$34,862,000	\$35,156,000	\$37,031,000	5.33%

OPERATING RESERVE BALANCE

Operating Reserves	2017 Thru June	Estimated 2017 Total	2017 Budget	Proposed 2018 Budget	Percent Change
Beginning Balance	\$16,209,659	\$16,209,659	\$15,488,000	\$16,244,000	4.88%
Ending Balance	\$23,776,355	\$16,244,000	\$14,792,000	\$16,069,000	8.63%

NMF - No Meaningful Figure

CAPITAL PROJECTS BUDGET SUMMARY

REVENUES

Revenue Source	2017 Thru June	Estimated 2017 Total	2017 Budgeted Amount	2018 Budgeted Amount	Percent Change
CWF Loan - Maintenance Facility/Space Needs Improvements	\$158,537	\$384,756	-	-	NMF
CWF Loan - PS 11 & 12 Rehab	-	1,072,129	-	-	NMF
CWF Loan - Rimrock Int. Replacement/Relief	-	38,773	-	-	NMF
CWF Loan - Pumping Station 15 Rehabilitation	1,577,332	2,656,212	1,678,000	-	-100.00%
CWF Loan - PS 12 Force Main Relocation at Verona Road	257,276	565,889	100,000	-	-100.00%
CWF Loan - West Int. - West Randall to Near PS 2 (lining project)	-	1,590,000	1,590,000	-	-100.00%
CWF Loan - Southeast Interceptor Rehab Upstream of PS 9	-	1,030,000	1,030,000	-	-100.00%
CWF Loan - PS 10 Force Main Rehabilitation	-	-	-	1,156,000	NMF
CWF Loan - West Interceptor - PS 5 to Gammon Ext (lining project)	-	-	-	701,000	NMF
CONNECTION CHARGE REVENUES	987,467	1,300,000	1,800,000	1,575,000	-12.50%
INTEREST ON INVESTMENTS & MISC. INCOME	25,922	30,000	43,000	32,000	-25.58%
CONTRIBUTION FROM OPERATING FUND	-	172,000	172,000	-	-100.00%
#VALUE!	\$3,006,534	\$8,839,759	\$6,413,000	\$3,464,000	-45.98%

EXPENDITURES

Project	2017 Thru June	Estimated 2017 Total	2017 Budgeted Amount	2018 Budgeted Amount	Percent Change
NINE SPRINGS WASTEWATER TREATMENT PLANT PROJECTS					
New Maintenance Facility/Space Needs Improvements	157,578	168,000	-	-	NMF
Liquid Processing Facilities Plan	164,492	214,903	100,000	-	-100.00%
Struvite Harvesting Facility & W4 System Improvements	-	-	212,000	-	-100.00%
Capital City Recreational Trail Relocation at Vehicle Loading Bldg.	4,888	40,000	-	-	NMF
Shop One Site Improvements	7,871	10,000	-	103,000	NMF
Liquid Processing Improvements	-	200,000	519,000	1,036,000	99.61%
Plant Energy Generation Projects	-	-	109,000	-	-100.00%
Annual Clarifier Coating	1,832	175,000	175,000	180,000	2.86%
Annual Pavement Improvements	-	55,000	55,000	57,000	3.64%
Minor Capital Improvements	-	106,000	206,000	103,000	-50.00%
INTERCEPTORS					
West Int. - Randall Avenue to Near PS 2 (lining project)	1,195,256	1,510,000	1,522,000	-	-100.00%
Rimrock Int. Replacement/Relief	10,193	11,000	-	-	NMF
Northend Int. - Sherman Avenue (lining project)	4,983	95,000	40,000	-	-100.00%
Lower Badger Mill Creek Int. - Phase 4	68,592	1,201,000	942,000	-	-100.00%
NSVI-Morse Pond Extension	10,868	325,000	1,030,000	1,960,000	90.29%
SEI - Rehab upstream of PS 9 (lining project)	2,625	1,040,000	1,040,000	-	-100.00%
Southeast Int. Relocation - Monona Waterfront Redevelopment	2,001	50,000	-	250,000	NMF
West Int. - PS 5 to Gammon Extension (lining project)	-	-	-	711,000	NMF
Southwest Interceptor - Haywood Ext. Replacement	-	-	-	88,000	NMF
NSVI-McKee Road to Dunn's Marsh (lining project)	-	-	-	67,000	NMF
NEI - Truax Extension Relief	-	-	-	721,000	NMF
NEI - Truax Extension Rehab (lining project)	-	-	211,000	-	-100.00%
PUMPING STATIONS AND FORCE MAINS					
PS 11 & 12 Rehab	114,565	753,527	-	-	NMF
PS 15 Rehab	1,467,638	2,566,660	1,698,000	-	-100.00%
PS 12 FM Relocation at Verona Road	262,395	401,347	100,000	-	-100.00%
Grass Lake Dike Stabilization	-	-	-	155,000	NMF
PS 10 Force Main Rehab	-	52,000	52,000	1,118,000	2050.00%
Pump Stations 13 & 14 Wet Well Repairs	-	-	-	319,000	NMF
PS 7 Improvements	-	30,000	-	443,000	NMF
PS 17 Force Main Relief - Phase 1	-	-	82,000	-	-100.00%
CAPITAL BUDGET EXPENSES					
Capital Budget Expenses	97	10,000	103,000	52,000	-49.51%
Sustainable Infrastructure Management Program	73,209	412,000	412,000	424,000	2.91%
Collection System Evaluation	10,009	120,000	180,000	62,000	-65.56%
Collection System Facilities Plan Update	-	-	-	80,000	NMF
TOTAL EXPENDITURES	3,559,092	\$9,546,438	\$8,788,000	\$7,929,000	-9.77%

CAPITAL PROJECTS RESERVE BALANCE

CAPITAL PROJECTS RESERVES	2017 Thru June	Estimated 2017 Total	2017 Budgeted Amount	2018 Budgeted Amount	Percent Change
Beginning Reserve Balance	\$9,412,002	\$9,412,002	\$9,768,000	\$8,706,000	-10.87%
Ending Reserve Balance	\$8,859,000	\$8,706,000	\$7,393,000	\$4,241,000	-42.63%

DEBT SERVICE BUDGET SUMMARY

REVENUES

Revenue Category	2017 Thru June	Estimated 2017 Total	2017 Budget	Proposed 2018 Budget	Percent Change
Transfer From Operating Fund	\$0	\$13,884,000	\$13,884,000	\$14,505,000	6.00%
Interest	35,000	50,000	28,000	34,000	21.43%
TOTAL REVENUES	\$35,000	\$13,734,000	\$13,712,000	\$14,539,000	6.03%

EXPENDITURES

Expenditure Category	2017 Thru June	Estimated 2017 Total	2017 Budget	Proposed 2018 Budget	Percent Change
First half Interest	\$1,788,136	\$1,788,136	\$1,858,000	\$1,755,000	-5.54%
Principal	9,226,901	9,226,901	9,449,000	9,619,000	1.80%
Second Half Interest	-	1,701,000	1,767,000	1,645,000	-6.90%
TOTAL EXPENDITURES	\$11,015,037	\$12,716,000	\$13,074,000	\$13,019,000	-0.42%

DEBT SERVICE RESERVE BALANCE

DEBT SERVICE RESERVES	2017 Thru June	Estimated 2017 Total	2017 Budget	Proposed 2018 Budget	Percent Change
Beginning Balance	\$18,466,077	\$18,466,077	\$18,388,000	\$19,484,000	5.96%
Ending Balance	\$7,486,040	\$19,484,000	\$19,026,000	\$21,004,000	10.40%

Sewerage System Improvement Bonds	January 2017	January 2018	January 2019
Series 1997 Badger Mill Creek Effluent Return	320,424	-	-
Series 2000 P.S. No. 2 Force Main Replacement - Phase 1	470,251	358,186	242,534
Series 2001 P.S. No. 2 Force Main Replacement - Phase 2	841,693	521,315	397,081
Series 2003A PS's 1, 2 and 10 Rehabilitation	3,316,885	2,881,699	2,434,222
Series 2003B Tenth Addition	16,058,682	13,849,925	11,782,228
Series 2005 PS's 1, 2 and 10 Rehabilitation	144,861	130,286	116,317
Series 2006 Effluent Equalization Projects and AT's 1-6	967,367	880,484	791,547
Series 2007 West In Ext and PS 13-14 Projects	1,671,613	1,538,083	1,401,142
Series 2008 PS's 6-8 Rehabilitation and NEI Truax Ext Liner	5,986,741	5,549,531	5,101,989
Series 2010A NEI-PS 10 to Lien Rd	6,645,537	6,239,679	5,824,206
Series 2012A Nine Springs Eleventh Addition	42,936,290	40,545,020	38,093,539
Series 2012B Operations Building HVAC Rehab	2,505,790	2,381,476	2,253,432
Series 2013A NEI-SEI to FEI - Replacement Project	7,082,113	6,750,993	6,410,619
Series 2013B Pumping Station No. 18	13,241,554	12,614,486	11,870,845
Series 2013C Process Control System Upgrade	4,087,601	3,893,735	3,694,781
Series 2014A Pumping Station No. 18 Force Main	10,623,616	10,123,602	9,610,007
Series 2015A PS 11 & 12 Rehabilitation	9,152,149	8,807,000	8,327,000
Series 2015B Maintenance Facility Expansion	10,915,951	10,834,000	10,339,000
Series 2016A Rimrock Interceptor Lining	921,227	980,000	918,000
Series 2016A PS 12 FM Relocation at Verona Rd.	1,473,137	2,039,000	1,949,000
Series 2016A PS 15 Rehabilitation	1,445,680	4,102,000	3,922,000
Series 2017A West Interceptor-Randall St. to Near PS2	-	1,590,000	1,531,000
Series 2017B SEI Rehab. Upstream of PS 9	-	1,030,000	892,000
Series 2018A PS 10 Force Main Rehabilitation	-	-	1,156,000
Series 2018B West Int.-PS 5 to Gammon Ext. (Lining)	-	-	701,000
Total Indebtedness	\$ 140,608,142	\$ 136,720,000	\$ 130,858,000

Summarized Budget Items	2017 Thru June	Estimated 2017 Total	2017 Budget	Proposed 2018 Budget	Percent Change
Total Revenues	\$20,058,637	\$43,513,759	\$40,629,000	\$40,229,000	-1.0%
Total Expenditures (net of transfers and use of reserves)	\$24,024,536	\$43,168,438	\$43,062,000	\$43,348,000	0.7%
Beginning Reserve Balance	\$44,087,738	\$44,087,738	\$43,644,000	\$44,433,000	1.8%
Ending Reserve Balance	\$40,121,395	\$44,433,000	\$41,211,000	\$41,313,000	0.2%

All projected values rounded to the nearest \$1,000

Details of the budgets will be available on the District's web site, <http://madsewer.org> on or about September 15, 2017 and may be inspected at the Madison Metropolitan Sewerage District office in the Operations Building, 1610 Moorland Road, Madison, Wisconsin, between the hours of 7:00 a.m. and 4:00 p.m.

/s/ Angela James, Secretary

APPENDIX D

2017 WAGE SCHEDULE FOR HOURLY EMPLOYEES

CLASSIFICATION	RANGE		1	2	3	4	5
Custodian & Grounds Worker	5	Bi-Weekly	1,449.15	1,492.59	1,536.08	1,582.78	1,631.09
		Hourly	18.1144	18.6574	19.2010	19.7848	20.3886
No current positions	6	Bi-Weekly	1,540.23	1,586.46	1,634.05	1,683.07	1,733.56
		Hourly	19.2529	19.8307	20.4257	21.0384	21.6695
Utility Maintenance Worker	7	Bi-Weekly	1,888.18	1,935.98	1,999.62	2,063.28	2,120.50
		Hourly	23.6022	24.1997	24.9953	25.7909	26.5063
Sr. Custodian & Grounds Worker	8	Bi-Weekly	1,935.98	1,999.62	2,063.28	2,120.50	2,180.99
		Hourly	24.1997	24.9953	25.7909	26.5063	27.2624
No current positions	9	Bi-Weekly	1,999.62	2,063.28	2,120.50	2,180.99	2,228.78
		Hourly	24.9953	25.7909	26.5063	27.2624	27.8597
Sr. Utility Maintenance Worker	10	Bi-Weekly	2,063.28	2,120.50	2,180.99	2,228.78	2,285.97
		Hourly	25.7909	26.5063	27.2624	27.8597	28.5746
Relief Oper I; Oper I; Apprentice Mech; Apprentice Electrician; MS/SM Worker I	11	Bi-Weekly	2,120.50	2,180.99	2,228.78	2,285.97	2,352.83
		Hourly	26.5063	27.2624	27.8597	28.5746	29.4104
Apprentice Mech II; Apprentice Elec II; Oper II; Relief Oper II, MS/SM Worker II	12	Bi-Weekly	2,180.99	2,228.78	2,285.97	2,352.83	2,413.28
		Hourly	27.2624	27.8597	28.5746	29.4104	30.1660
MetroGro Mechanic; Journeyman Mech; Journeyman Electrician; HVAC Tech; Oper III; Relief Oper III	13	Bi-Weekly	2,228.78	2,285.97	2,352.83	2,413.28	2,476.93
		Hourly	27.8597	28.5746	29.4104	30.1660	30.9617
Sr. Mechanic; Sr. Mech (MetroGro); Sr. Journeyman Mech; Sr. Journeyman Elect; MS/SM Crew Leader; Oper IV; Relief Oper IV	14	Bi-Weekly	2,285.97	2,352.83	2,413.28	2,476.93	2,572.38
		Hourly	28.5746	29.4104	30.1660	30.9617	32.1548
Sr. Journeyman Mech II; Sr. Journeyman Elect II; Sr. Mech (Diesel & HE)	15	Bi-Weekly	2,352.83	2,413.28	2,476.93	2,572.38	2,639.32
		Hourly	29.4104	30.1660	30.9617	32.1548	32.9915



APPENDIX E

2017 SALARIED WAGE SCHEDULE

GRADE	MIN \$	MID \$	MAX \$
22	\$68.96	\$81.13	\$93.30
18	\$56.48	\$66.45	\$76.41
17	\$51.34	\$60.40	\$69.46
16	\$46.84	\$55.11	\$63.37
15	\$42.75	\$50.29	\$57.84
14	\$39.02	\$45.91	\$52.79
13	\$35.67	\$41.96	\$48.26
12	\$32.59	\$38.34	\$44.09
11	\$29.76	\$35.01	\$40.26
10	\$27.21	\$32.01	\$36.81
9	\$24.82	\$29.20	\$33.58
8	\$22.66	\$26.66	\$30.65
7	\$20.78	\$24.44	\$28.11
6	\$19.05	\$22.41	\$25.77
5	\$17.47	\$20.55	\$23.63

APPENDIX F

STATISTICAL & SUPPLEMENTAL DATA



Governance

Madison Metropolitan Sewerage District is a body corporate with the powers of a municipal corporation for the purpose of carrying out the provisions of Sections 200.01 to 200.15 of the State of Wisconsin statutes. It was created by judgment of the County Court for Dane County, entered on the 8th day of February, 1930. Its existence was validated and confirmed by Chapter 132 of the Laws of 1969, effective August 2, 1969. The constitutionality of that law was sustained by the Wisconsin Supreme Court in *Madison Metropolitan Sewerage District vs. Stein*, 47 Wis. 2d 349, 177 N.W. 2d 131 (1969).

The district is governed by nine commissioners serving staggered terms: five commissioners are appointed by the mayor of the City of Madison, three are appointed by an executive council made up of elected officials from district cities and villages, and one is appointed by an executive council made up of by town-elected officials. The commissioners meet once or twice each month at the district. Special meetings are held as required upon call of any member of the commission.

Service Area

The district services 14.8 percent of the entire county by area and 71 percent of the county population (**Figure 11**). Areas served include the Cities of Madison, Fitchburg, Middleton, Monona and Verona as well as the Villages of Cottage Grove, Dane, De Forest, Maple Bluff, McFarland, Shorewood Hills, Waunakee and the Towns of Blooming Grove, Dunn, Madison, Middleton, Pleasant Springs, Verona, Vienna, Westport and Windsor (**Figure 13**).

A complete list of district customer communities and their estimated wastewater contributions is shown in **Table 14**. The largest taxpayers and employers in the county are shown in **Tables 15 and 16**, respectively. The equalized property tax valuation for the district is shown in **Figure 12**.

Additional information regarding Dane County and the City of Madison can be found at: www.countyofdane.com and www.cityofmadison.com.

FIGURE 10 | Dane County and District Data

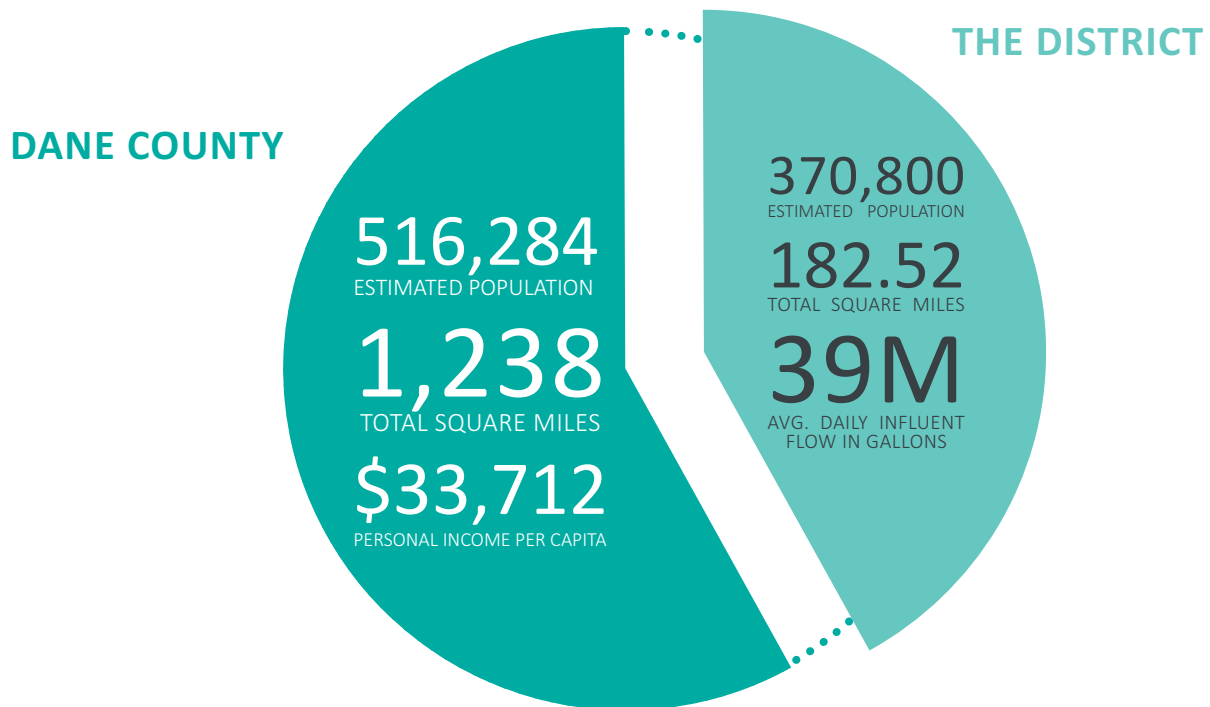


FIGURE 11 | Equalized Property Valuation for the District

TID Out Values in Billions

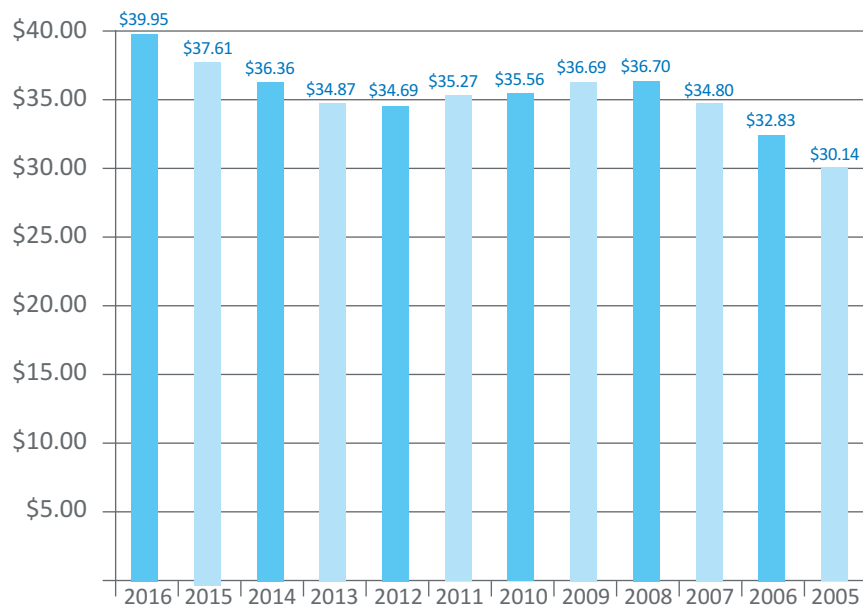


TABLE 14 | Estimated Wastewater Contributions for 2017

Community		Volume (gpd)	CBOD (lbs/day)	Solids (lbs/day)	Nitrogen (lbs/day)	Phosphorus (lbs/day)	Equivalent Meters	Actual Customers
CITIES	Fitchburg	1,950,000	5,800	4,300	770	113	8,440	6,080
	Madison	27,319,000	51,590	53,830	10,160	1,320	84,994	65,884
	Middleton	2,000,000	4,500	3,600	775	97	8,390	5,700
	Monona	840,000	1,350	1,200	255	32	4,055	2,980
	Verona	1,000,000	2,610	2,000	470	60	5,705	4,320
VILLAGES	Cottage Grove	665,000	990	1,050	200	27	2,480	2,220
	Dane	50,000	120	95	28	4	435	392
	De Forest (including ABS)	780,000	4,910	1,850	500	80	4,155	3,475
	Maple Bluff	180,000	162	150	41	5	755	595
	McFarland	670,000	1,100	1,000	225	29	3,460	3,030
	Shorewood Hills	130,000	298	270	52	7	1,330	710
	Waunakee	1,520,000	4,355	2,550	680	74	5,500	4,605
TOWN SANITARY AND UTILITY DISTRICTS	Blooming Grove S.D. No. 2	200,000	210	300	40	6	504	424
	Dunn S.D. No. 1	175,000	63	140	19	3	191	191
	Dunn S.D. No. 3	65,000	94	100	22	3	489	489
	Dunn S.D. No. 4	14,000	15	11	4	1	68	68
	Dunn- Lake Kegonsa	125,000	260	325	54	8	675	565
	Madison	650,000	1,355	1,100	240	46	1,915	1,002
	Middleton S.D. No. 5	21,000	17	20	4	1	77	34
	Pleasant Springs No. 1	65,000	102	117	24	3	514	506
	Verona, Town of	492	0.77	0.91	0.21	0.03	3	3
	Verona U.D. No. 1	24,000	40	50	10	1	128	115
	Town of Vienna	100	0.16	0.19	0.04	0.01	1	1
	Vienna U.D. No. 1	70,000	99	100	15	2	78	39
	Vienna U.D. No. 2	31,500	48	58	14	2	202	202
	Westport- Cherokee Golf	8,000	12	6	1	0	8	1
	Westport Utility District	560,000	575	610	133	16	1,875	1,615
	Windsor	413,000	770	740	137	19	1,913	1,688
Interceptor Infiltration		1,944,000						
Daily Nine Springs Loadings		41,470,000	81,450	75,570	14,870	1,960	138,340	106,934
ESTIMATED 2017 TOTAL Loadings(Units)		15,137 (MG)	29,729,250 (Pounds)	27,583,050 (Pounds)	5,427,550 (Pounds)	715,400 (Pounds)	138,340 (EqMtrs)	106,934 (Cstmrs)

FIGURE 12| Collection System Overview Map

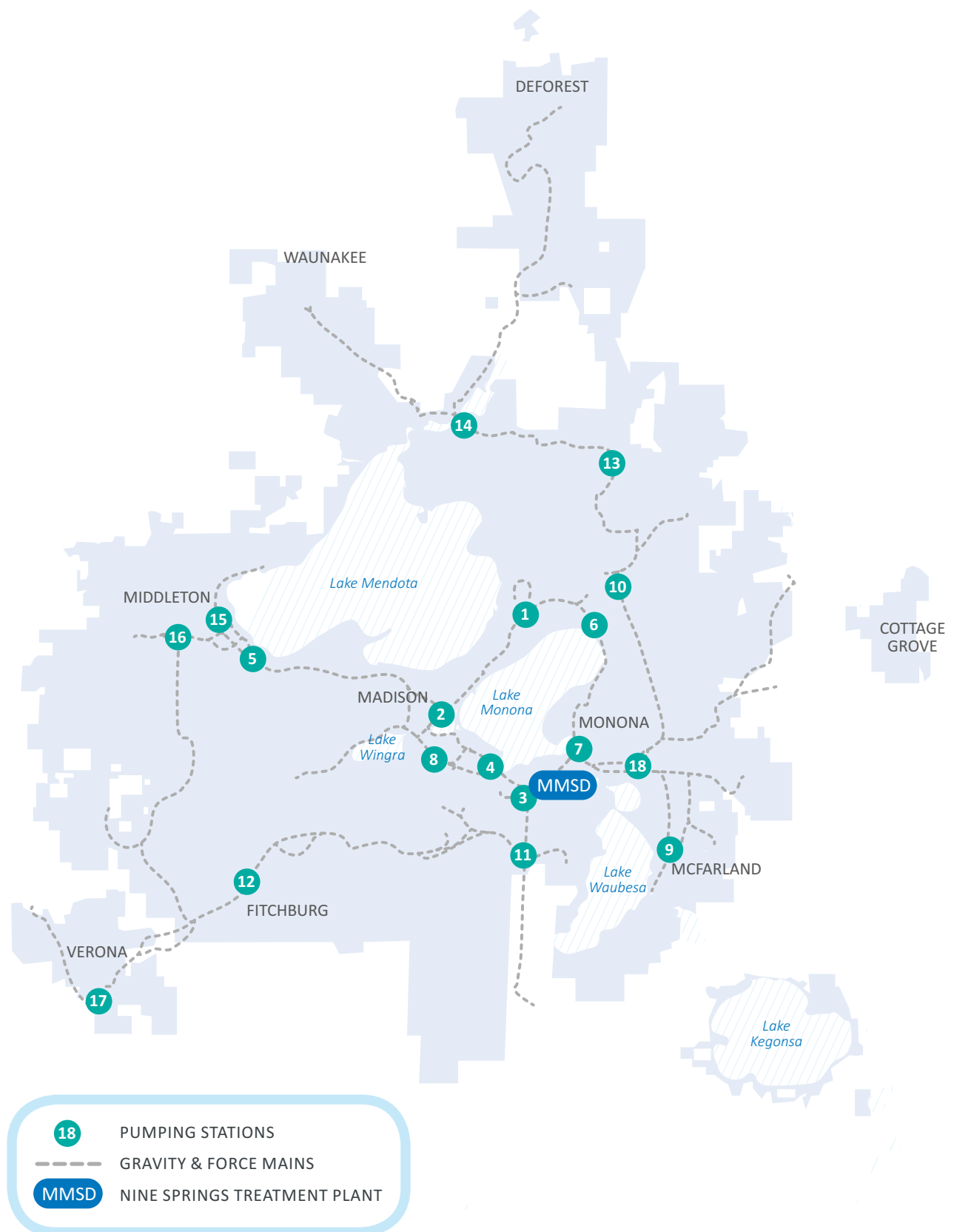


TABLE 15 | Dane County Principal Taxpayers (Budget Year 2016)

TAXPAYER	TYPE OF BUSINESS	2015 EQUALIZED ASSESSED VALUE	PERCENTAGE OF TOTAL EQUALIZED ASSESSED VALUATION
Epic Systems Corp.	Medical Software	\$789,292,014	1.54%
Madison Joint Venture	Shopping Centers	\$184,919,566	0.36%
American Family Insurance	Insurance	\$147,591,637	0.29%
Greenway Office Center	Property Management	\$121,706,872	0.24%
Promega Corporation	Manufacturing/Biotechnology	\$104,429,740	0.20%
Covance Laboratories	Research	\$82,174,497	0.16%
University Research Park Inc.	Research & Technology Park	\$75,959,009	0.15%
777 University Ave	Property Management	\$56,250,903	0.11%
CMG Life Insurance Co	Insurance	\$54,307,176	0.11%
University Research Park	Property Management	\$51,846,877	0.10%
TOTALS		\$1,668,478,291	3.25%

TABLE 16 | Dane County Largest Employers

¹ Source: Comprehensive Annual Financial Reports - MATC

EMPLOYER	TYPE OF ORGANIZATION	EMPLOYEES
State of Wisconsin	State Government	36,043
University of Wisconsin-Madison	University/College	14,464
EPIC Systems	Software Services	7,400
UW Hospital & Clinics Authority	Healthcare	5,000
Oscar Meyer Foods (Kraft Food)	Food Packaging Company	5,000
Madison Metropolitan School District	Education	3,903
Wisconsin Physicians Service Insurance	Health Benefits/Insurance	3,500
Meriter Health Services	Hospital/healthcare	3,000
St. Mary's Hospital	Hospital	2,800
American Family Insurance	Insurance	2,000



APPENDIX G

SUMMARY OF ORGANIZATIONAL CHANGES

Summary of Organizational Changes as of August 30, 2017

Below is a summary of strategic level organizational changes that have occurred over the past year.

ADMINISTRATION

Two positions are requested in the 2018 proposed budget, a database administrator and an accounting clerk. Hiring a second accounting clerk will add capacity for accounting work, thereby freeing the comptroller/budget manager for higher level duties. Hiring a database administrator adds capacity to manage, integrate and better utilize the growing number of district databases. This position will become part of the information systems workgroup.

DISTRICT LEADERSHIP AND SUPPORT

The communications manager role was hired in May of 2017 to improve external communications and to support district and department priorities. Various staff positions that support communication efforts were consolidated under the leadership of this position.

ECOSYSTEM SERVICES

Pollution prevention staff were consolidated under unified program leadership.

ENGINEERING

No strategic level changes.

PLANNING AND STRATEGY

No strategic level changes.

OPERATIONS AND MAINTENANCE

To support critical needs and employee growth, an HVAC apprentice position was created from an existing vacancy.



APPENDIX H

GLOSSARY

COMMON ACRONYMS

CARPC - Capital Area Regional Planning Commission

CIP - Capital Improvements Plan

CMMS - Computerized Maintenance Management System

CWF - Clean Water Fund (loan program for wastewater facilities)

DNR - Department of Natural Resources

ELC - Employee Leadership Council

FEI - Far East Interceptor

FOG - Fats, Oils, and Grease

IDI - Intercultural Development Inventory

MH - Manhole

MMSD - Madison Metropolitan Sewerage District

NACWA - National Association of Clean Water Agencies

NEI - Northeast Interceptor

NSVI - Nine Springs Valley Interceptor

O&M - Operations and Maintenance

PCS - Process Control System

PS - Pumping Station

SEI - Southeast Interceptor

WAM - Work and Asset Management (MMSD's CMMS software)

WPDES - Wisconsin Pollutant Discharge Elimination System (district permit)

WRS - Wisconsin Retirement System

MMSD DEFINITIONS

ADAPTIVE MANAGEMENT - Watershed approach developed to comply with stringent phosphorus limits.

ADDITIONS (9TH, 10TH, 11TH, ETC.) - Major Construction related additions, alterations, conversions, reconstruction, renovations, rehabilitations and replacements at the Nine Springs Wastewater Treatment Plant.

ANAEROBIC DIGESTION - Under this process the organic sludge is treated in the absence of oxygen to reduce both the quantity and odor of sludges by breaking down the organic matter and producing methane and carbon dioxide.

ACID DIGESTION - One of the primary steps of the anaerobic digestion process in which soluble products are fermented to acids and alcohols of lower molecular weight.

ANNEXATION - The process whereby a city, village, town, or other unit of government (e.g., MMSD) expands its boundaries to include a specific geographic area.

ASSET MANAGEMENT - The strategic management of physical assets during their life in the organization.

BILLING PARAMETERS - MMSD billing parameters include: carbonaceous biochemical oxygen demand (CBOD), Total suspended solids (TSS), Total phosphorus (TP), Total Kjeldahl nitrogen (TKN), volume, equivalent meters and actual customers.

BIOSOLIDS - The soil-like residue of materials removed from sewage during the treatment process.

CAPITAL PROJECTS FUND - Fund that accounts for financial resources used for the acquisition, construction or rehabilitation of major capital facilities. The budget for this fund is often referred to as the Capital Projects Budget or Capital Budget.

CLASS “A” PRODUCTS (BIOSOLIDS) - Refers to sludge that contains minute levels of pathogens (disease causing organisms). To achieve Class A certification, biosolids must undergo heating, composting, digestion or increased pH that reduces pathogens to below detectable levels. Once these goals are achieved, Class A biosolids can be land-applied without any pathogen-related restrictions at the site.

CLASS “B” PRODUCTS (BIOSOLIDS) - Refers to sludge that has undergone treatment that has reduced but not eliminated pathogens. Class B biosolids have less stringent standards for treatment and contain small but compliant amounts of pathogens. Class B requirements ensure that pathogens in biosolids have been reduced to levels that protect public health and the environment and include certain restrictions for crop harvesting, grazing animals and public contact. As is true of their Class A counterpart, Class B biosolids are treated in a wastewater treatment facility and undergo heating, composting, digestion or increased pH processes before leaving the plant.

CMOM/SSO REGULATIONS - Refers to a Capacity, Management, Operation, and Maintenance Program (CMOM) that focuses on sewer collection systems with a goal of eliminating sanitary sewer overflows (SSO).

COLLECTION SYSTEM - A system of pipes and pumping facilities carrying sewage for disposal.

COLLECTION SYSTEM FACILITIES PLAN (CSFP) -

An overall assessment of the condition and capacity of the key components that comprise the district’s wastewater collection system. The Plan identifies the scope and timing of required projects over the next 20 years so that the infrastructure continues to provide a high level of service to the district’s customers while also addressing environmental concerns and regulatory requirements.

COMMISSION - A group appointed pursuant to law to conduct certain government business; MMSD has five appointed Commissioners.

CONNECTION CHARGES - Charges related to connecting with MMSD sewers.

CONVEYANCE SYSTEM - Synonymous with collection system.

DEBT SERVICE FUND - A fund established by a government agency or business for the purpose of reducing debt by repaying or purchasing outstanding loans and securities held against the entity. MMSD transfers a portion of its collected service charges to this fund to pay for its debt service.

EFFLUENT - Wastewater, treated or untreated, that flows out of a treatment plant or sewer outfall. The Nine Springs Wastewater Treatment Plant returns treated effluent to the environment.

EXECUTIVE TEAM - Refers to the Executive team at MMSD made up of the Chief Engineer and Director, Assistant Chief Engineer and Director of Planning, Director of Engineering, Director of Operations and Maintenance, Director of Ecosystem Services, Director of Administration, HR Manager and the Executive Coordinator.

FORCE MAIN - The discharge pipeline of a pumping station.

INTERCEPTOR CONNECTION CHARGE (ICC) - ICC represents the users “fair share” of collection system investments MMSD has made to install interceptor sewers and pump stations.

INFLUENT - Water or wastewater entering a physical structure or process such as a treatment plant, pumping station or tank.

INTERCEPTOR - Large sewer lines that convey the flow of sewage to a pumping station or treatment plant by gravity.

LINING - A rehabilitation process in which a coating material is introduced to extend the life of the existing sewer.

MASTER PLAN - MMSD's 50-year blueprint for the future.

METROGRO - A program that recycles liquid biosolids to agricultural land as fertilizer and soil conditioner.

METROMIX - a "soil like" material created by MMSD that combines biosolids with amendments such as sand, sawdust and/or bulking agents. Metromix is intended for use in landscaping, turf production, general gardening, and other similar applications.

NINE SPRINGS WASTEWATER TREATMENT PLANT (NSWTP) - Wastewater treatment plant originally constructed in the late 1920s in Madison, WI. Since then, the plant has experienced numerous changes and additions. The plant presently serves 40 communities in the Madison area.

NUTRIENT REMOVAL - The removal of phosphorus and nitrogen from wastewater. MMSD uses a process called Biological Nutrient Removal (BNR) that removes nitrogen and phosphorus from wastewater by using specific groups of micro-organisms and providing suitable conditions for their growth.

ONBASE - OnBase is a software application that electronically captures, stores and manages documents generated or received by a company.

OPERATING FUND - In government accounting, fund used to account for all assets and liabilities of a nonprofit entity except those particularly assigned for other purposes in another more specialized fund. The cost of normal operations is expended from this fund.

OSTARA - A process to recover phosphorus-containing fertilizer (struvite) as a natural byproduct of wastewater treatment.

PLAN REVIEW FEE - Customer communities pay sewer plan review fees for MMSD's plan review of modifications or additions to their sewer systems.

PRETREATMENT - Processes used by industrial or commercial customers to reduce or eliminate the contaminants in non-domestic wastewater to alter its nature, before discharging it into the collection system.

PUMPING STATIONS - Also called lift stations, are normally designed to handle raw sewage that is fed from underground gravity pipelines (pipes that are laid at an angle so that a liquid can flow in one direction by gravity). Sewage is fed into and stored in an underground pit, commonly known as a wet well. The well is equipped with instruments to detect the level of sewage present. When the sewage level rises to a predetermined point, a pump will start and lift the sewage upward through a pressurized pipe system called a sewer force main. The sewage discharges into another gravity sewer or its final destination—a treatment plant.

RELIEF SEWER - A sewer built to carry the flows in excess of the capacity of an existing sewer; generally in parallel with the existing sewer.

SEPTAGE - The waste content found in a septic tank.

SERVICE CHARGES - Annual amounts collected through customer rates that are used to fund MMSD's ongoing operations and debt service.

SEWER EXTENSION PERMIT - Refers to a required permit for an extension, addition, or modification to the sanitary sewer collection system.

STRUVITE - A phosphate mineral (magnesium ammonium phosphate).

TELEVISIONING - A method using video camera(s) to assess the condition of a sewer line in real time. It can reveal blockages from debris, roots, or grease; show cracks, breaks or deterioration of a pipe. It allows detailed diagnosis without the need for excavation, saving time and money.

THERMAL REQUIREMENTS - Potential regulatory requirements to meet particular thermal temperatures in effluent receiving streams.

TREATMENT PLANT CONNECTION CHARGE (TPCC) - Represents a new users fair-share of the debt service for excess capacity at the wastewater treatment plant.

USER CHARGE - Service charge based on wastewater flow and loadings data for a specific customer. The wastewater flow and loadings are used to develop customer bills (see also Billing Parameters).



Matt Prell assisting in monitoring services.

www.madsewer.org

Printed on Rolland Opaque, which contains 30% post-consumer fiber and is manufactured using renewable biogas energy. It is certified FSC®.