Return to TOC

2020

OPERATING BUDGET & CAPITAL IMPROVEMENTS PLAN

ADOPTED
October 31, 2019

Madison Metropolitan Sewerage District

Return to TOC

GFOA AWARD

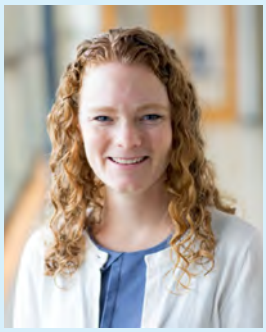
The Government Finance Officers Association of the United States and Canada (GFOA) presented a Distinguished Budget Presentation Award to Madison Metropolitan Sewerage District for its annual budget for the fiscal year that began Jan. 1, 2019. To receive this award, a governmental unit must publish a 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.

MADISON METROPOLITAN SEWERAGE DISTRICT COMMISSION

Madison Metropolitan Sewerage District is governed by nine commissioners serving staggered terms.

President
Thomas Hovel

Secretary
Mary Swanson



Commissioner
Sara Eskrich

Commissioner
Thomas Wilson

Vice President
Ezra Meyer

Commissioner
Kenneth Clark

Commissioner
Grant Foster

Commissioner
Vacant

Commissioner
Brad Murphy

Table of Contents

Table of Contents *continued*

Return to TOC

SECTION ONE

INTRODUCTION TO THE DISTRICT BUDGET

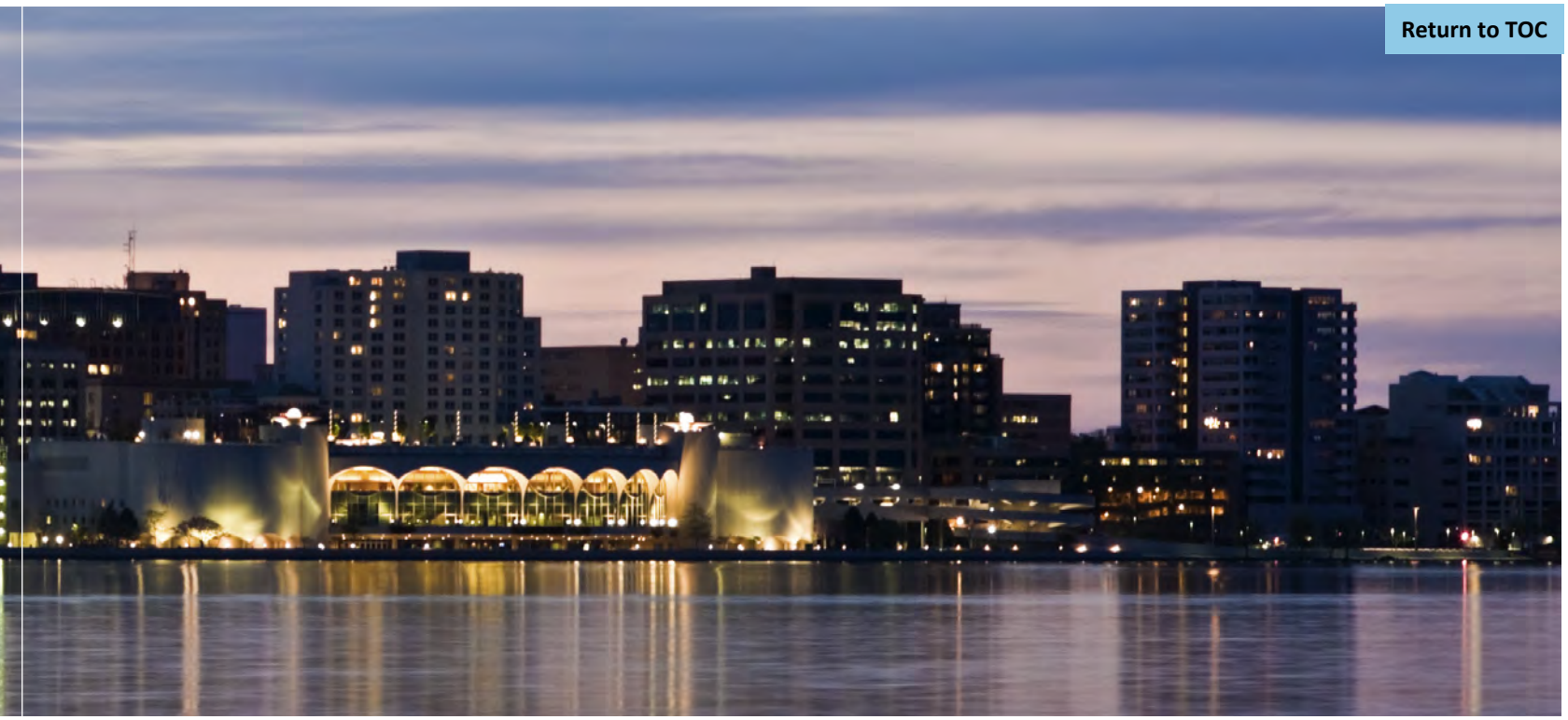
City of Madison skyline looking over Lake Monona.

INTRODUCTION TO THE DISTRICT BUDGET

BUDGET MESSAGE

As we approach the 90th anniversary of the district's founding, we are excited to share our plans for 2020. We come into the new decade with focus and purpose, having spent the last several years engaging in major planning efforts involving the community, commission and staff. These collaborative efforts, which helped to guide our 2020 budget, addressed a number of key areas, including:

- The establishment of a Policy Governance model, which is a complete organizational system for the district to fulfill its mandate;
- Customer engagement activities that allowed concerned citizens to share their thoughts on dealing with a changing climate, the desire for upstream, cost-effective solutions, and ensuring rates are appropriate to satisfy our mandate;
- A long-range strategic planning exercise that identified activities to pursue in the short-term, ideas to evaluate in the midterm, and issues to monitor in the long-term;
- An evaluation of our assets and developing a path forward for the necessary rehabilitation and replacement of aging infrastructure;
- A shift to reliability-centered maintenance to efficiently and effectively maximize maintenance efforts and assess their results; and
- Addressing critical infrastructure improvements, including liquid processing improvement plan to address peak capacity at the plant and aging infrastructure, and the installation of new relief sewers to add redundancy and resiliency to our system.



All these major planning efforts have converged to show us a strategic path forward, and for 2020, that comes in the form of a budget focused on building capacity and increasing resiliency not only in our organization, but the system, with our stakeholders, and in our environment. This focus will continue into the new decade and inform future budget decisions as we engage in additional planning efforts over the next year, including a chloride compliance strategy; energy management master plan; strategic financial planning; campus and cyber-security; and collection system facilities planning. I invite you to read more about our planning efforts and the 2020 budget in the following pages.

Delivering regional wastewater services that advance public health, the environment and the economy requires forward thinking, strong leadership, vigilant fiscal management and a joint effort among our customers, commission and staff; I am encouraged by the commitment to these tenets and our close collaboration. It is through our strong relationships and commitment to working together that we are able to fulfill our mission to protect public health and the environment.

Michael Mucha, P.E., ENV-SP
Chief Engineer and Director
Madison Metropolitan Sewerage District

BUDGET HIGHLIGHTS

To improve the lives of community members through clean water and resource recovery, Madison Metropolitan Sewerage District develops an annual budget that reflects strategic goals, short-term organizational factors and issue-driven challenges likely to shape district priorities in the months and years ahead.

Delivering regional wastewater services that advance public health, the environment and the economy requires forward thinking leadership and vigilant fiscal management. While the district's method of collecting, transporting and treating wastewater has proven reliable for more than 80 years, changing public expectations and increasingly stringent permit requirements point to the need for new management approaches and budget initiatives that extend beyond the traditional focus on infrastructure.

At the same time, challenges related to the district's aging physical assets and complex information system needs will require increased investment.

The 2020 budget identifies:

- Strategic goals and related spending including a comprehensive program to evaluate district assets and plans for replacing aging information technology systems to support strategic decision making;
- Short-term organizational factors such as rising preventive maintenance needs and repair costs; and
- Issue-driven priorities including an energy management policy to establish infrastructure investment priorities, improve resiliency and expand use of renewable energy sources.
- Network security/ransomware is becoming an increasing threat. Budget increases of $150,000 in IT hardware are to improve the district's response to be more proactive by increasing reliability, data backup, use of cloud computing, cyber insurance and disaster recovery planning.
- To advance the district's financial sustainability, the 2020 budget contains a provision to transfer $915,000 from the district's operating fund to the capital fund. Over time, similar continued transfers will reduce reliance on debt funding.
- To further advance financial sustainability and prioritize major infrastructure replacement and rehabilitation projects, the district is implementing a comprehensive asset management program. This includes a plant asset management plan and reliability-centered maintenance practices.
- Existing and new funds also will be directed to updating and enhancing the district's information systems and technology. Specific projects include the launch of a multi-year effort to identify and implement a suitable replacement for the district's computerized maintenance management system and financial systems; and improve the security and usability of a variety of district database tools and implement Office 365.
- To advance the district's economic sustainability including its competitive ability to hire and retain a skilled workforce, the 2020 budget contains a scheduled market adjustment of 3 percent.
- To enhance collaboration and team success while welcoming a broader talent pool and building internal leadership skills, the district is implementing inclusion and diversity programs.
- In recognition of the rise in supplies, equipment repair and preventive maintenance costs, the budget contains a $600,000 increase that reflects recent expenditures in this area. We are phasing in increased investment in day to day maintenance, as this is the second year of an increase in this area.
- An initiative to develop an energy policy and management plan that will improve resiliency and identify a preferred energy mix that accounts for the necessary replacement of the district's current energy production system.

- Funds to develop and implement a phosphorus management strategy for Badger Mill Creek that addresses social and regulatory concerns about water quality in the Sugar River Watershed beyond the district's ability to control phosphorus in its own outfall. A strategy to encourage chloride reduction also is being put in place.
- An increase of $25,900 is included for the Metrogro operation to implement a pilot project for the delivery and distribution of Class A products.

In summary, the 2020 budget includes a number of capacity building needs. As the district focuses on 2020, it is important to be mindful of what is coming in 2021 and beyond. **Figure 1** shows short-term capacity needs that will be phased in.

FIGURE 1 | Future Budget Capacity Needs

Budget Need	2021	2022	2023
Maintenance	$300,000	$100,000	0
HR/Safety/Security	$180,000	$100,000	0
Small Plant Projects (cash finance)	$200,000	$200,000	$200,000
Collection System Engineering	$250,000	$250,000	$0
Metrogro	$100,000	$100,000	0
Resource Recovery	$125,000	$100,000	0
Pretreatment	$100,000	$50,000	0
Lagoon Maintenance	$50,000	$100,000	0
Pollution Prevention/Source Reduction	$50,000	$50,000	$50,000
Capital Planning	$50,000	$50,000	$50,000
Procurement	$80,000	0	0
Communications	$50,000	$50,000	$50,000
Totals	$1,535,000	$1,150,000	$350,000

STRATEGIC PLANNING

MISSION, VISION AND WORK

The district's mission is to protect public health and the environment. This is an enduring mission. It started with the founding of the district in 1930 and will extend as long as the region generates wastewater. The district's vision brings focus on the twin elements of wastewater: cleaning water and recovering resources.

The district's mission, vision, ideals and goals make up the strategic plan diagram, **Figure 2**. These concepts are supported by five key result areas.

Each area contains priorities, strategies and influencing factors that are supported by this budget. The full list makes up the district's strategic plan (see Appendix L). The following is a description of these categories.

PRIORITIES: Committed work functions that utilize the majority of budget funds.

STRATEGIES: Important areas of growth and development that are in the process of plan development and policy making. These are areas where the district is taking a cautious, thoughtful approach.

INFLUENCING FACTORS: Emerging issues of opportunity or concerns that require more research and learning. If the district fails to proactively address these issues, future impacts to the mission of protecting public health and the environment could result.

FIGURE 2 | Strategic Plan

FIVE PILLARS				
ENVIRONMENT	COMMUNITY	EMPLOYEES	EFFECTIVENESS	INFRASTRUCTURE
Goal: Increase recovery of resources while meeting permit requirements.	**Goal:** Improve partnerships to build and increase public support.	**Goal:** Achieve a culture of positive engagement.	**Goal:** Adopt best business practices to increase district efficiency and effectiveness.	**Goal:** Achieve expected community level of services at the lowest total cost of ownership.

Commissioners Meyer (left) and Wilson (right) participating in commission strategic planning.

COMMISSION STRATEGIC PLANNING

In 2019, the commission conducted strategic planning. The purpose of strategic planning was to answer the following question:

Looking out 20 years or more, what should the district pursue to assure we continue to meet the needs of our customer communities and rate payers?

The commission identified the following themes and insights to be considered in long range planning. They include:

- Resource availability and environmental operating conditions are changing substantially in ways that are not readily predictable.
- Increasing public demand for using wastewater as a resource.
- Viewing water more holistically (ground, surface, storm, wastewater) as an integrated concept called “one water.”
- Balancing our core mission with environmental justice issues.
- A greater awareness of how land use patterns and development policy outside the district’s service area could impact the district.
- The need to be more flexible in approaches within the current rigid regulatory framework.
- The need to actively promote the district's long-term vision.

Addressing these themes and insights, the commission establishes high level ideals. Ideals are the next level of clarity down from vision, but broader and more forward looking than mission. Ideals represent what is necessary to meet the needs of our customers in the form of broad policy guidance to staff that spans all district priorities.

Two outcomes came out of strategic planning:

1. The commission reaffirmed a commitment to major efforts around inflow and infiltration reduction, pollution prevention/source reduction, building community understanding and continuing to provide reliable service to the public in the face of great challenges.
2. The commission established the following ideals to guide ongoing work efforts.

EQUITABLE: We deliver clean, safe water in an affordable and equitable manner that benefits everyone.

- Pursue equity at the micro and macro levels relative to ability to pay and cost of service
- A focus on efficiency through attention to asset management, spending and land use patterns.

RELIABLE: We see a future filled with change, where our reliability remains constant.

- Systems are reliable, redundant and safe to address climate change, extreme weather and funding requirements.
- Provide necessary capacity in its collection and treatment systems.

COOPERATIVE: We are good partners ready to assist on regional water needs.

- Work actively with customer communities as advisors and partners to "endeavor to be forward looking", anticipate regulatory changes.
- Put systems in place to be nimble, responsive and aware of what is happening in the region and how that may impact the district.
- Assure regional one water concepts are introduced into broader regional policy decisions and advocate for holistic approaches.

Visitors enjoy district rootbeer brewed with ultra-purified effluent during pollution prevention week.

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:

The operating fund budget addresses the operation of facilities and includes transfers to the capital projects fund and 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 for the operating fund budget.

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 from connection charges, transfers from the operating fund and interest earned on the fund's investments.

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 Sept.. 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 3).

FIGURE 3 | 2020 Budget Calendar

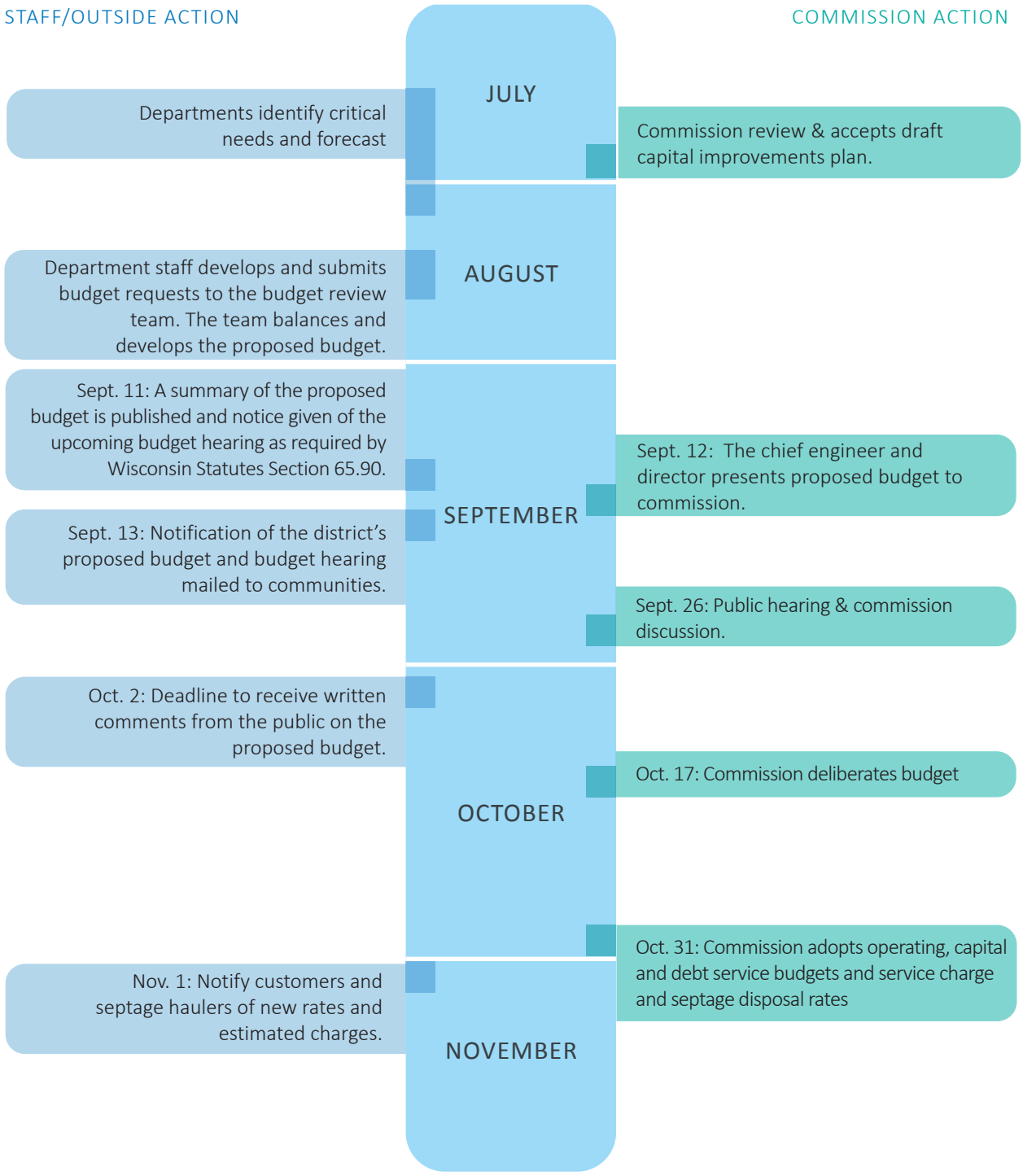


TABLE 1 | Amendment Procedures

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.

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:

- Users pay charges based on the cost of the service.
- 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.
- 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 upfront construction costs over those users that actually use the facility during its service life.
- 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 10-year projection.

Commissioner Swanson became a member of the commission in October 2018.

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:

- 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 and a budgeted maximum fund balance of 210 days of the annual operating costs.
- 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:

- 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:

- 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: 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 4 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 2018 through 2020.

FIGURE 4 | Fund Structure for Budgets

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

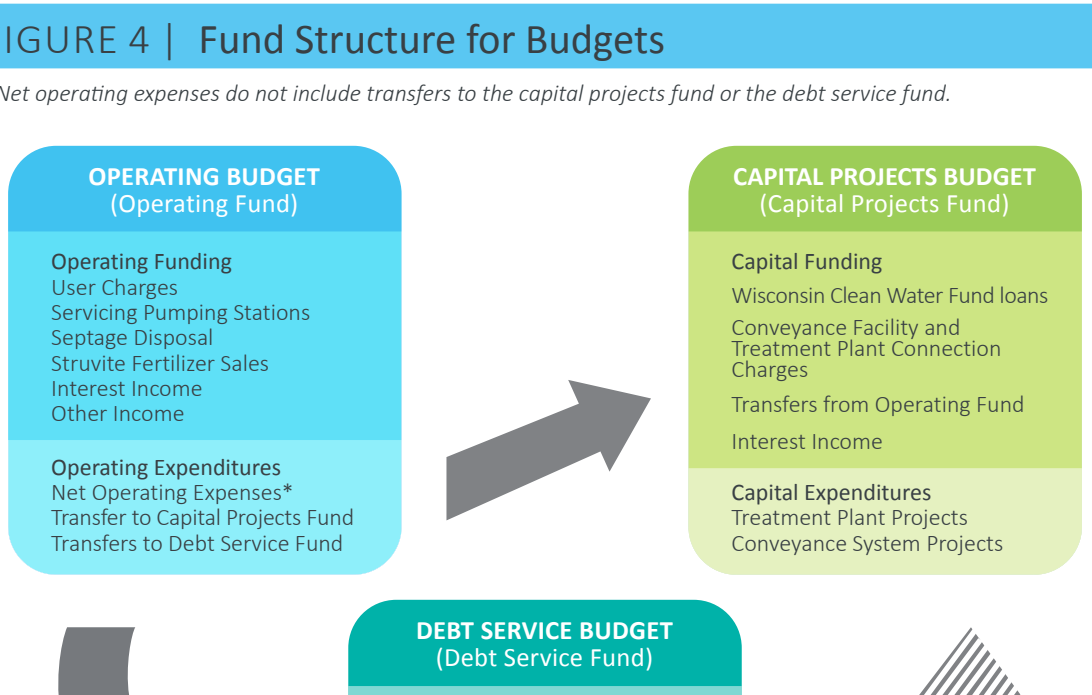


TABLE 2 | Combined Summary of Revenues & Expenditures

	2018 Actual	2019 Estimated	2019 Budget	Proposed 2020 Budget	Change from 2019 Adopted Budget	% Change
REVENUE CATEGORY						
OPERATIONS AND MAINTENANCE						
Sewer Service Charges	$36,586,000	$37,300,000	$37,674,000	$41,333,000	$3,659,000	9.71%
Septage Disposal Revenue	704,000	760,000	630,000	790,000	160,000	25.40%
Servicing Pumping Stations	339,000	411,000	429,000	520,000	91,000	21.21%
Struvite Fertilizer Sales	258,000	260,000	240,000	260,000	20,000	8.33%
All Other Operating Income	561,000	771,000	492,000	540,000	48,000	9.76%
Cash Reserves	-	-	1,200,000	-	(1,200,000)	-100.00%
TOTAL OPERATIONS AND MAINTENANCE REVENUES	$38,448,000	$39,502,000	$40,665,000	$43,443,000	$2,778,000	6.83%
CAPITAL PROJECTS						
Clean Water Fund Loans	$884,652	$14,417,000	$18,445,000	$37,581,000	$19,136,000	103.75%
Interceptor and Treatment Plant Connection Charges	2,932,675	2,000,000	1,825,000	2,750,000	925,000	50.68%
Interest on Investments	121,576	100,000	100,000	111,000	11,000	11.00%
Contribution from Operating Fund	-	1,200,000	1,200,000	915,000	(285,000)	-23.75%
TOTAL CAPITAL PROJECTS REVENUES	$3,938,903	$17,717,000	$21,570,000	$41,357,000	$19,787,000	91.73%
DEBT SERVICE						
Transfer from Operating Fund	$14,505,000	$15,158,000	$15,158,000	$15,840,000	$682,000	4.50%
Interest on Investments	243,000	426,000	228,000	437,000	209,000	91.67%
TOTAL DEBT SERVICE REVENUES	$14,748,000	$15,584,000	$15,386,000	$16,277,000	$891,000	5.79%
TOTAL REVENUES *(net of transfers and reserves)*	$42,629,903	$56,445,000	$60,063,000	$84,322,000	$24,259,000	40.39%
EXPENSE CATEGORY						
OPERATIONS AND MAINTENANCE						
Administration, Engineering & Planning	$4,992,000	$5,496,000	$5,788,000	$6,189,000	$401,000	6.93%
User Charge & Pretreatment Program	558,000	707,000	639,000	910,000	271,000	42.41%
Wastewater Collection	2,589,000	2,717,000	2,604,000	2,906,000	302,000	11.60%
Wastewater Treatment	10,956,000	11,910,000	12,221,000	13,460,000	1,239,000	10.14%
Effluent Division	123,000	106,000	122,000	129,000	7,000	5.74%
Metrogro Biosolids Reuse Program	1,577,000	1,798,000	1,687,000	1,806,000	119,000	7.05%
Capital Outlay	748,000	456,000	367,000	618,000	251,000	68.39%
Servicing Pumping Stations Owned by Others	339,000	411,000	429,000	520,000	91,000	21.21%
Contribution to Capitol Projects Fund	-	1,200,000	1,200,000	915,000	(285,000)	-23.75%
Contribution to Equipment Replacement Fund	125,000	450,000	450,000	150,000	(300,000)	-66.67%
Transfer to Debt Service Fund	14,505,000	15,158,000	15,158,000	15,840,000	682,000	4.50%
TOTAL OPERATIONS AND MAINTENANCE EXPENDITURES	$36,512,000	$40,409,000	$40,665,000	$43,443,000	$2,778,000	6.83%
CAPITAL PROJECTS						
Nine Springs Wastewater Treatment Plant Projects	$1,474,000	$4,544,400	$9,170,000	$17,671,000	$8,501,000	92.70%
Interceptors	3,161,000	8,048,000	8,942,000	14,873,000	5,931,000	66.33%
Pumping Stations and Force Mains	1,689,000	3,073,000	4,469,000	10,769,000	6,300,000	140.97%
Capital Budget Expenses	365,000	748,000	803,000	820,000	17,000	2.12%
TOTAL CAPITAL PROJECTS EXPENDITURES	$6,689,000	$16,413,400	$23,384,000	$44,133,000	$20,749,000	88.73%
DEBT SERVICE						
Principal Payments	$9,506,000	$9,794,000	$9,868,000	$10,213,000	$318,000	3.50%
Interest Payments	3,307,000	$3,137,000	3,216,000	3,731,000	428,000	16.01%
TOTAL DEBT SERVICE EXPENDITURES	$12,813,000	$12,931,000	$13,084,000	$13,944,000	$746,000	6.57%
TOTAL EXPENDITURES *(net of transfers and reserves)*	$41,384,000	$52,945,400	$60,325,000	$84,615,000	$24,176,000	40.27%

NMF= No Meaningful Figure

TABLE 3 | Operating and Capital Projects Budgets Combined

	OPERATING	CAPITAL PROJECTS
SOURCES OF FUNDS	Service charges, servicing pumping stations, struvite fertilizer sales, reserve funds, interest and other income	Wisconsin Clean Water Fund loans, conveyance facility and treatment plant connection charges, operating fund transfers, reserve funds and interest
USE OF FUNDS	Operating and maintenance expenses, debt service, capital outlay, transfers to capital projects fund	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 expenses 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.

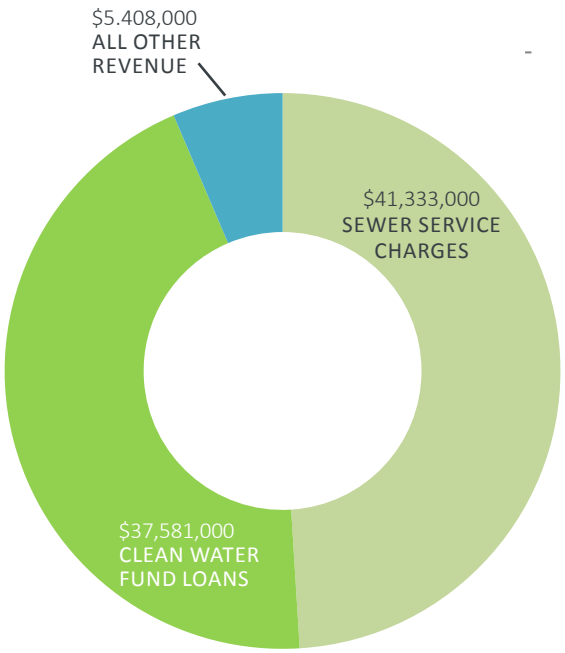
COMBINED SUMMARY OF OPERATING, CAPITAL PROJECTS AND DEBT SERVICE

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.

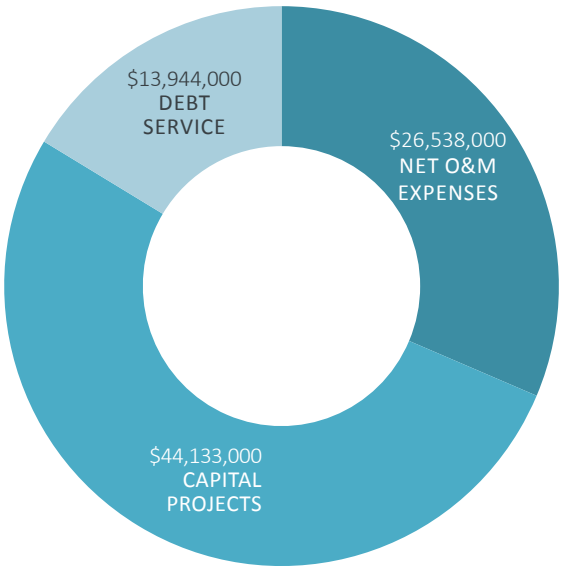
Table 3 provides details on the sources of funds, use of funds, basis of accounting and basis for accounting and expense in the operating and capital projects budgets

FIGURE 5 | Combined Summary of Revenues & Expenditures

COMBINED SUMMARY OF REVENUE



COMBINED SUMMARY OF EXPENDITURES



COMBINED SUMMARY OF REVENUES AND EXPENDITURES

The district's 2020 combined budget totals approximately $84.3 million in revenue and $84.6 million in expenditures. As seen in **Figure 5**, the primary sources of revenue in the combined budget are sewer service charges, 49.0 percent, and Clean Water Fund loans, 44.6 percent. On the expenditure side, the capital budget comprises 52.2 percent of the combined budget while operations and maintenance of the district facilities net of debt service totals 31.4 percent. Debt service is 16.5 percent of the expenditures.

Return to TOC

SECTION TWO

OPERATING BUDGET

OPERATING BUDGET OVERVIEW AND SUMMARY

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 budget including expenditures, revenues and operating reserves for the years 2018 through 2020.

Figure 6 summarizes the revenues and expenditure categories for the proposed 2020 budget.

The proposed 2020 operating budget includes revenue of $43,443,000, up $2.8 million or 6.8 percent from a budgeted $40,665,000 for 2019. Operating expenses are also budgeted at $43,443,000, up $2.8 million or 6.8 percent from budgeted expenses of 40,665,000 in 2019. Revenue from sewer service charges, the largest single category of revenue, is expected to total $41,333,000, up $3.7 million or 9.7 percent from $37,674,000 budgeted in 2019.

Actual revenues for 2019 are projected to total $39,502,000 up $37,000 from budget after accounting for the budgeted use of $1.2 million from reserves. Actual expenses for 2019 are projected to total $40,409,000, $256,000 less than budgeted. The 2019 operating fund balance is projected to decrease by $457,000 to $18,233,000.

2019 REVENUE REVIEW

For 2019, revenues will be approximately $37,000 or 0.1 percent more than budgeted after accounting for the budgeted use of reserves. Projections are for estimated revenues from service charges to be under budget totals by $374,000 largely because of lower than budgeted flows; revenues from interest to exceed budget by $92,000; septage disposal fees to exceed budget by $130,000; struvite fertilizer sales to exceed budget by $20,000 and miscellaneous income to total $179,000 more than budgeted.

Interest on investments is estimated to be $92,000 more than budgeted because of higher than expected interest rates. Septage revenues are anticipated to be $130,000 more than budgeted due to higher than expected volumes of regular and special hauled wastes. Struvite fertilizer sales is estimated to be $20,000 higher than budgeted due to greater than expected production of struvite. Miscellaneous income is estimated to be $179,000 more than budgeted which includes $60,000 in FEMA disaster recovery funds received for the August 2018 flood event. Annexation and plan review fees are estimated to be $9,000 above budget because of higher than expected development activity. Rent revenue was estimated to be $1,000 more than budgeted.

2019 EXPENDITURE REVIEW

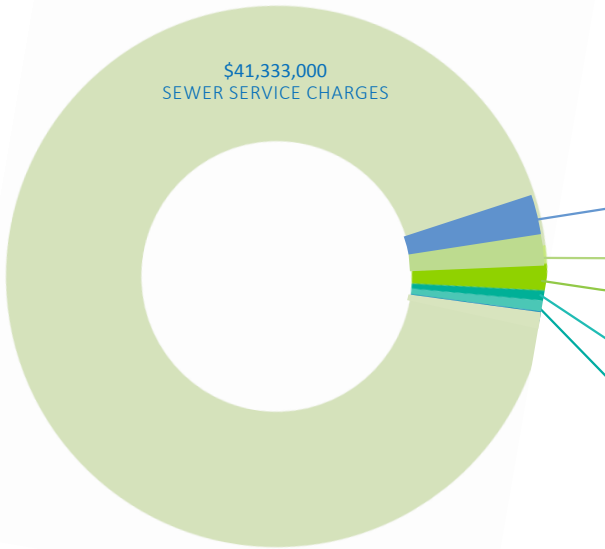
The district anticipated expenditures for 2019 of $40,409,000, $256,000 or 0.63 percent less than the $40,665,000 budgeted. During the year, wastewater treatment expenditures were running under budget by $311,000, administration, engineering and planning under by $292,000, servicing pumping stations owned by others under by $18,000, and effluent diversion by $16,000. Items anticipated to run over budget include wastewater collection by, $113,000, the Metrogro program, by $111,000, capital outlays, by $89,000, and user charge and pretreatment, by $68,000. The expenses for servicing pumping stations owned by others are offset by the revenue collected for that service.

TABLE 4 | 2020 Operating Budget

	2018 Actual	2019 Thru June	2019 Estimated Total	2019 Budget	2020 Budget	% Change
REVENUE CATEGORY						
Sewer Service Charges	$36,586,000	$18,529,000	$37,300,000	37,674,000	41,333,000	9.71%
Servicing Pumping Stations	339,000	234,000	411,000	429,000	520,000	21.21%
Rent	71,000	57,000	82,000	83,000	84,000	1.20%
Interest	197,000	152,000	322,000	230,000	250,000	8.70%
Annexation and Plan Review Fees	74,000	42,000	69,000	60,000	70,000	16.67%
Miscellaneous Income	198,000	98,000	272,000	93,000	110,000	18.28%
Septage Disposal Revenue	704,000	386,000	760,000	630,000	$790,000	25.40%
Pretreatment Monitoring	21,000	-	26,000	26,000	26,000	0.00%
Struvite Fertilizer Sales	258,000	125,000	260,000	240,000	260,000	8.33%
Cash Reserves	-			1,200,000		-100.00%
TOTAL REVENUES	$38,448,000	$19,623,000	$39,502,000	$40,665,000	43,443,000	6.83%
EXPENSE CATEGORY						
Administration, Engineering, and Planning	$4,992,000	$2,465,000	5,496,000	5,788,000	6,189,000	6.93%
User Charge & Pretreatment Program	558,000	286,000	707,000	639,000	910,000	42.41%
Wastewater Collection	2,589,000	1,145,000	2,717,000	2,604,000	2,906,000	11.60%
Wastewater Treatment	10,956,000	5,666,000	11,910,000	12,221,000	13,460,000	10.14%
Effluent Diversion	123,000	39,000	106,000	122,000	129,000	5.74%
Metrogro Biosolids Reuse Program	1,577,000	607,000	1,798,000	1,687,000	1,806,000	7.05%
Capital Outlay	748,000	127,000	456,000	367,000	618,000	68.39%
Servicing Pumping Stations Owned by Others	339,000	234,000	411,000	429,000	520,000	21.21%
Contribution to Capital Projects Fund	-		1,200,000	1,200,000	915,000	-23.75%
Contribution to Equipment Replacement Fund	125,000		450,000	450,000	150,000	-66.67%
Transfer to Debt Service Fund	14,505,000	-	15,158,000	15,158,000	15,840,000	4.50%
TOTAL EXPENDITURES	$36,512,000	$10,569,000	40,409,000	$40,665,000	43,443,000	6.83%
OPERATING FUND BALANCE						
BEGINNING BALANCE	$16,629,000	$18,690,000	$18,690,000	$18,084,000	$18,233,000	0.82%
TOTAL REVENUES LESS CASH RESERVES USED	38,448,000	19,623,000	39,502,000	39,465,000	43,443,000	10.08%
TOTAL EXPENDITURES LESS CONTRIBUTIONS TO ERF	36,387,000	10,569,000	39,959,000	40,215,000	43,293,000	7.65%
ENDING BALANCE	$18,690,000	$27,744,000	$18,233,000	$17,334,000	$18,383,000	6.05%

NMF = No Meaningful Figure

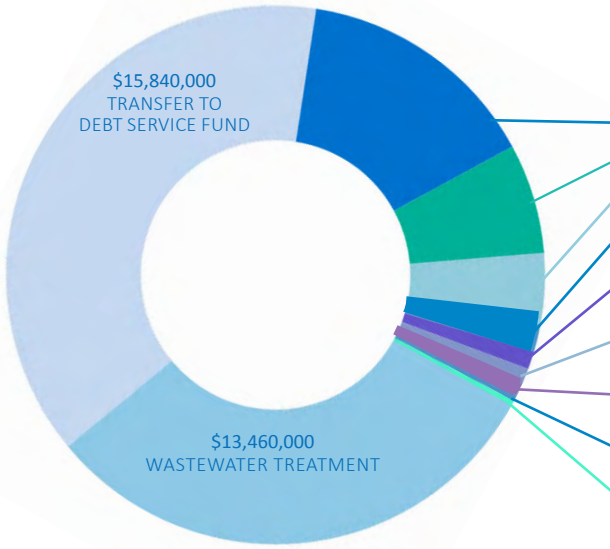
FIGURE 6 | Operating Budget



2020 OPERATING REVENUES

Total Operating Revenue $43,443,000

$790,000	SEPTAGE DISPOSAL REVENUE
$520,000	SERVICING PUMPING STATIONS
$290,000	OTHER
$260,000	STRUVITE FERTILIZER SALES
$250,000	INTEREST INCOME



2020 OPERATING EXPENDITURES

Total Operating Expenditures $43,443,000

$6,189,000	ADMINISTRATION, ENGINEERING & PLANNING
$2,906,000	WASTEWATER COLLECTION
$1,806,000	METROGRO BIOSOLIDS REUSE PROGRAM
$,915,000	CONTRIBUTION TO CAPITAL PROJECTS FUND
$910,000	USER CHARGE & PRETREATMENT PROGRAM
$150,000	CONTRIBUTION TO EQUIPMENT REPLACEMENT FUND
$520,000	SERVICING PUMPING STATIONS OWNED BY OTHERS
$618,000	CAPITAL OUTLAY
$129,000	EFFLUENT DIVERSION

2020 REVENUES

The budgeted revenues for 2020 of $43,443,000 million are 6.8 percent greater than budgeted revenues for 2019 of $40,665,000 million and 10.0 percent more than the estimated 2019 revenues of $39,502,000. For 2020, required service charge revenues will increase $3.7 million or 9.7 percent over the 2019 budgeted amount and $4.0 million over the estimated 2019 service charge revenues. Revenues from septage disposal are budgeted to increase by $160,000 to better match recent experience with these revenues. Revenues from servicing customers owned pumping stations are expected to increase by $91,000 because of additional planned maintenance for these stations. Revenues from struvite fertilizer sales are estimated to increase by $20,000 due to increased production. Based on interest rate trends, interest income is budgeted to increase slightly to $250,000 from $230,000 last year. Annexation and plan review fees are projected to increase by $10,000 and miscellaneous income to increase by $17,000 to better match recent experience with these revenues. The 2020 budget includes no use of reserves whereas the 2019 budget included the use of $1.2 million of reserves from exceptional 2018 revenues.

2020 EXPENDITURES

The budgeted expenditures of $43,443,000 are $2.8 million or 6.8 percent more than the budget for 2019. Total operating budget expenditures for personnel related costs including salaries, benefits, payroll taxes and other items, will increase by $1,327,000 or 11.5 percent, to $12.9 million. Non-personnel related costs increase by $1.45 million, or 5.0 percent, to $30.6 million. If the non-personnel costs are adjusted for the one-time items funded in 2019 with $1.2 million from reserves, the increase in non-personnel costs is $2.65 million, or 9.5 percent.

The personnel services increase is due to:

- A 3 percent market increase for all employees and a catch-up provision for some employees.
- Step and/or longevity increases for hourly employees.
- Performance increases for salaried employees.
- The addition of four full-time equivalent positions including a total salary and benefits cost of $195,000 for two operator positions, $114,000 for a process and project engineer position, and $85,500 for a locating technician/ sewer maintenance position.
- Additional costs for six part-time or limited term positions, $115,000.
- A 4.92 percent increase in rates and enrollment changes for health insurance, resulting in an increase of $150,000 for health insurance costs, to $1.55 million for 2020.

Significant non-personnel related operating expenditure increases include:

Clean Water Fund debt service	$682,000
Transfer/contribution to the capital projects fund*	$615,000
Increases in treatment plant chemicals	$265,000
Asset, Repair and Replacement	$230,000
Increases in IT equipment and software	$205,000

* Of the $1,200,000 transfer to the capital projects fund in the 2019 budget, $300,00 was budgeted as a continuing annual contribution and $900,000 was a one-time contribution funded from reserves. In the 2020 budget, the entire $915,000 transfer is budgeted as a continuing annual contribution. The budgeted increase in the annual continuing contribution is $615,000, the difference between $915,000 and $300,000.

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

Fleet Management Fund

The commission created a fleet management fund in 2018. The 2018 budget included $230,000 to start the fund. The 2019 budget included a $160,000 contribution to the fund. The 2020 budget includes a $195,000 contribution to the fund, an increase of $35,000. Appendix H shows the proposed five-year vehicle replacement schedule.

OPERATING FUND BALANCE

The 2020 operating fund balance is projected to increase by $150,000 to $18,383,000 from the estimated 2019 ending balance of $18,233,000.

The district's 2019 operating fund estimated ending balance includes the district's equipment replacement fund of $3.6 million and unrestricted operating reserves of $14.6 million or 223 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 2020 of $18.4 million includes an equipment replacement fund balance of $3.8 million and unrestricted operating reserves of $14.6 million or 201 days of operating expenses. The projected balance meets the district's end-of-year minimum balance of 180 days operating expenses and is below the maximum balance of 210 days.

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 36.5 percent of the proposed operating budget expenditures in 2020 and accounted for 37.3 percent of budgeted expenditures in 2019. The $682,000 increase in debt service in the 2020 budget is 25 percent of the total increase in expenditures of $2.8 million. The debt service expenses are paid through service charges.

In addition, the 2020 budget includes a $915,000 transfer from the operating fund to the capital projects fund in order to increase the amount of cash financing for capital projects and decrease the amount of debt financing needed. The 2019 budget also included a $1.2 million contribution to the capital project funds but that amount came from $300,000 of anticipated continuing annual transfers and $900,000 from one-time, exceptional service charge revenues. The 2020 contribution is being funded as part of an anticipated continuing annual transfer to the capital projects fund.

The district also funds some smaller capital investments in the capital outlay line item of the operating budget. The proposed 2020 operating budget includes $618,000 of capital outlay items, or 1.4 percent of total operating expenditures. Capital outlay items were budgeted at $367,000 or 0.9 percent of total operating expenditures in 2019.

Debt service increases to support the capital improvements program have driven the operating budget increases in the last decade. This driver will lessen in the coming years. The last six budgets covering the years 2013 through 2018 have seen operating budget increases for debt service of 10 percent for 2013 and 2014, 9 percent in 2015 and 2016, 6 percent in 2017 and 2018 and 4.5 percent in 2019. The 2020 budget includes a 4.5 percent increase in debt service. The annual debt service increases are projected to continue at 4.5 percent from 2021 to 2027. This lower rate of increase in debt service will reduce pressure on the district operating budget in future years.

OPERATING BUDGET PLANNING

The district has been engaged for several years in an effort to develop a multi-year operating budget projection. Progress made in 2019 included commission adoption of overall outcomes policies and approval of a strategic financial planning process. In May staff developed the first iteration on a four year projection for operating expenses. Later this year the district expects to complete its first treatment plant asset management plan. Work will continue in 2020 on developing a long term financial plan to guide the commission during annual budgeting.

2020 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.

Rate = (Required Revenue)/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. It is important to note that the district bills customer communities for the services provided and does not directly bill residential and business users of the sewerage system. Local sewer utilities add the costs to operate and maintain their local sewer systems to the district charges and send bills to individual residences and businesses for sewer service charges provided by both the district and the local sewer utility. 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 overall wastewater volumes and pollutant loadings that are slightly below budget through July. This experience with loadings suggests that the overall increases in 2020 rates will be approximately the same as the increase in required service charge revenues. If this loading trend continues, overall service charge rates for would be expected to increase about the same as the 9.7 percent increase in service charges. This projection of service charge rates is subject to change based upon actual flows and loadings in the coming months. The service charge rate determinations are made in October so that nine months of actual flow and loadings experience for the current year can be considered in determining the rates for the coming year.

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 serves five cities, eight villages and thirteen sanitary or utility districts as of Aug. 1, 2019.

SERVICING PUMPING STATIONS (FIGURE 7)

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 47 pumping stations owned by others. The station owner and the number of stations served as of Aug. 1, 2019, are shown in Figure 7.

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.

INTEREST

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

ANNEXATION & PLAN REVIEW FEES

This category covers district revenues 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-two haulers have permits to discharge at the treatment plant as of Aug. 1, 2019.

PRETREATMENT MONITORING

This category covers the district's expenses This category covers the district's revenues for industrial monitoring. The fees are paid by businesses that are required to have industrial treatment permits issued by the district. Twenty businesses have industrial discharge permits issued by the district as of Aug. 1, 2019.

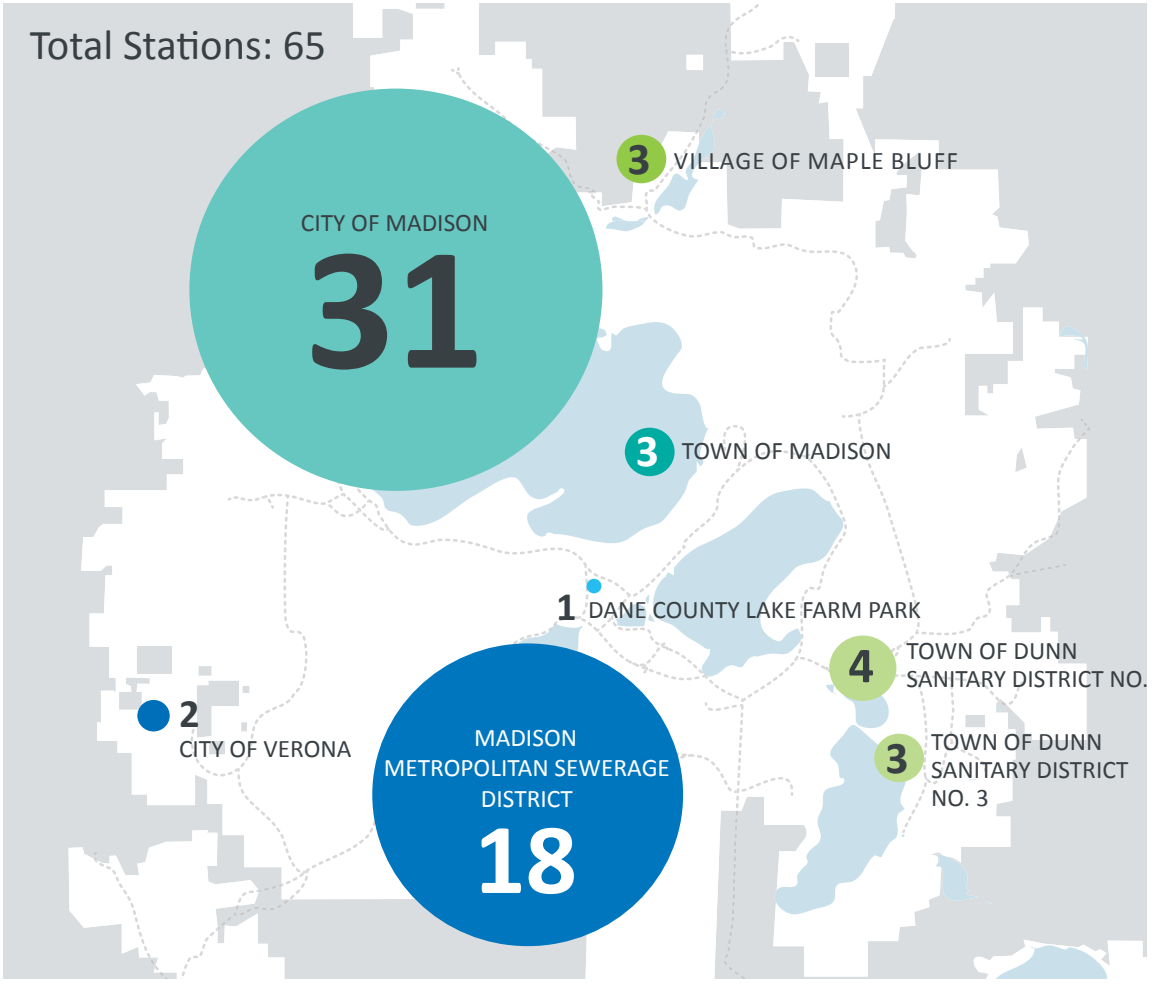
STRUVITE FERTILIZER SALES

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.

FIGURE 7 | Number of Pumping Stations Serviced by Location



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 provide 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.

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.

Records Management: Provides support for processing, accessing, retaining and disposing of district records.

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 96 miles of gravity sewer, 18 pumping stations and 32 miles of raw wastewater force mains serving 13 cities and villages and 13 sanitary and utility districts as of Aug. 1, 2019.

The district hosts tours to over 2,000 guests annually.

American white pelicans make a stop at the Wildlife Observation Unit during the spring migration.

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 90,000 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 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 47 such pumping stations as of Aug. 1, 2019.

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.

PERSONNEL

The district has experienced tremendous staff turnover over the past 5 years at all levels of the organization and this trend will continue as more employees retire or move on. We continue to prioritize leadership development through a number of methods such as the NACWA's Core Growth: Building Utility Leaders of the Future training program, the Certified Public Manager program at the University of Wisconsin and the Supervisory Academy through the City of Madison. Our investment in our people is crucial as the talent shortage worsens especially in the fields that are mission critical to the district such as STEM jobs and the skilled trades.

In 2018, the district began a three-year partnership with the YWCA to further build on the inclusion and diversity work the district began in 2017. This partnership began with creating equitable organizations training for district leadership and the employee leadership council. The goal of this work is to create significant sustainable organizational change not just diversity awareness. The district is continuing to implement the inclusion and diversity strategic plan and our use of the Intercultural Development Inventory, which is regarded as the premier tool for assessing organizational cultural competence.

The Employee Leadership Council is in its fourth 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 has established itself as a valuable employee resource and is regularly receiving requests from employees that are thoroughly evaluated before making recommendations to the executive team.

Safety has always been a district priority with a dedicated safety staff member, a safety committee and safety practices that go beyond mere compliance. Through those efforts a new priority has emerged- security of our people, the process and the plant. In 2019, the Department of Homeland Security conducted a voluntary assessment of district security practices to identify risks and long and short term opportunities for improvement. We will be using this assessment to identify our specific security needs and a multi-year approach to making improvements.

Table 5 shows changes in the district's overall staffing from 2018-2020. Four full-time positions are proposed in 2020, two operators, a locating technician and a process and project engineer.

Appendix I is a representation of the district's hierarchy with the proposed positions included. For more information on the proposed positions, please see the Operations and Maintenance departmental information section of this document.

District staff and contracted fish experts monitor streams for aquatic species.

TABLE 5 | Full-Time Equivalent Positions

DEPARTMENT	2018 FTE COUNT	2019 FTE COUNT	2020 PROPOSED	CHANGES FOR 2020
Administration	14	0	0	*Administration headcount moved into District Leadership and Support*
District Leadership and Support	7	14	14	
Ecosystem Services	17	17	17	
Engineering	7	8	8	
Operations and Maintenance	51	51	55	*1 Sewer Monitoring/Location Tech* *2 Operators* *1 Process and Project Engineer*
Planning and Strategy	6	14	14	
TOTALS	**102**	**104**	**108**	

Return to TOC

SECTION THREE

CAPITAL IMPROVEMENTS PLAN & BUDGET

The district hosted an open house for the Pumping Station 15 facility and gave area residents and park goers a sneak peak of an operational pumping station.

INTRODUCTION

The district's capital improvements plan, or CIP, is updated each year to reflect capital projects that are needed to keep the district's assets in good working order. Projects are included for a six-year time period using the best information and cost estimates that are available.The document also incorporates the district's financial situation by providing information on the necessary funding mechanisms for these projects.

The primary purpose of the district's CIP is to inform the 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. For some projects toward the end of the six-year timeframe, costs and schedules are generally less developed and thus placeholders have been included until the scope of work and actual costs can be better defined.

Information on specific projects in the CIP can be found in the project summaries in Appendix A. These project summaries describe the scope, need, cost and schedule for each project. A more detailed description of each project can be found in the full business case which can be found at the district's website at http://www.madsewer.org/Planning. 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

The 2020 CIP anticipates total funds received (identified as revenues) of $41.4 million, expenditures of $44.1 million and a projected year-end operating reserve of $6.1 million, down from a projected $8.9 million in 2019. The plan estimates that $37.6 million of additional debt will be incurred due to construction activities in 2020. Revenue collected from service charges for payment of debt service will increase from $15.2 million in 2019 to $15.8 million in 2020, a 4.5 percent increase. This percentage increase is necessary to continue funding the district's capital projects for the foreseeable future.

The district's capital expenditures for 2020 are expected to increase more than twofold relative to those in 2019. Some of the major construction activities and equipment purchases in 2020 include the following:

- Treatment plant improvements related to the 2016 liquid processing facilities plan. These projects include the addition of hydraulic capacity to the plant, rehabilitation of the 54 inch diameter influent line to the east primary tanks, construction of a new unit substation building, replacement of the effluent disinfection system and upgrades to the process control system.
- Lowering of the five influent flow meters in the Headworks Building to improve measurement accuracy and performance of the fine screening units.
- Remodeling of a portion of the first floor of the Operations Building at the treatment plant.
- Improvements to the Nine Springs Valley Interceptor between County Highway PD and Dunn's Marsh in the City of Fitchburg.
- Installation of a new relief sewer on the Northeast Interceptor between Pumping Station 13 and Lien Road in the City of Madison.
- Installation of a new relief sewer for the West Intercepting System in the University Avenue corridor between Walnut Street and Whitney Way in the City of Madison and the Village of Shorewood Hills.
- Rehabilitation of the West Interceptor–Spring Street relief sewer on the near west side of the City of Madison.
- Improvements to the HVAC system and mechanical and electrical systems at Pumping Station 7.
- Installation of a portion of a relief force main along Badger Mill Creek in the City of Verona.
- Rehabilitation of Pumping Station 13 and Pumping Station 14 in the City of Madison.

Lesser activities in 2020 include the following:

- Replacement of the effluent launder troughs on three final clarifiers at the treatment plant.
- Coating of process tanks and pavement replacement at the treatment plant.
- Repairing and restoring the Badfish Creek effluent channel near Grass Lake in the Town of Dunn.

The design of several large projects in the collection system will also begin in 2020. These projects include the rehabilitation of the existing Northeast Interceptor sewer between Pumping Station 13 and Lien Road and the rehabilitation of Pumping Station 4.

Planning work in 2020 will include completion of the update to the collection system facilities plan, which commenced in 2019. The original facilities plan was prepared in 2002 and was updated in 2011. The 2020 update will incorporate the population and flow projections prepared by the Capital Area Regional Planning Commission in 2018 as part of the collection system evaluation. Planning work will also begin in 2020 on the district's energy management master plan. This plan will take a comprehensive look at how the district currently uses energy at the treatment plant and will provide recommendations for how the district should use energy in the future. Particular consideration will be given to how the district utilizes its biogas and how energy can be optimized as aging infrastructure is replaced in the next ten years at the treatment plant. Work on the energy master plan is scheduled for completion in 2021 and will inform future work on facilities planning and projects related to energy management.

Work on the plant asset management plan is scheduled for completion in 2019. This plan, which began in 2018 as part of the asset management program, will provide data on plant assets, including locations, condition assessments and consequences of failure. This data will be used to guide decisions regarding future needs for equipment maintenance and replacement and the best methods to fund these activities. Implementation of these tasks will continue to be funded by the capital fund through 2024. After that time, it is expected that asset management activities will be supported entirely through the operating fund.

Residents enjoying a day at the beach speaks to the district's long-term vision to enrich life through clean water and resource recovery.

Table 6 provides a summary of the district's 2020 capital budget. This table includes a financial summary of actual results from 2018, ongoing information related to 2019 and expected 2020 activities. In addition to those projects previously mentioned in this section, numerous other projects are anticipated during the years 2021 through 2025. Table 7 shows estimates of the annual expenditures for each of the proposed capital projects over the next six years. The annual amounts shown are adjusted for inflation at a rate of 3 percent per year. 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 2025. The anticipated capital projects fund cash flow for 2020 to 2025 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 section on debt service. Chart 1 in the debt service section provides a look at projected debt service over the next ten years and the balances in the debt service fund over that time period.

The 2020 CIP includes an annual increase in the amount of debt service collected in 2020 from service charges of $682,000, or 4.5 percent, for a total of $15.8 million. The plan forecasts that this annual rate of increase should continue through the year 2029 to meet the district's projected debt service requirement. We believe that the district's aging infrastructure, along with new regulatory requirements, will continue to drive the need for increases in capital investments for the foreseeable future.

It should be noted that the 2020 CIP assumes increased connection charge revenues, relative to the 2019 CIP, for the six-year planning period in accordance with the district's recently adopted connection charge regulation. The new regulation includes a provision that changed the methodology for calculation of the treatment plant connection charge beginning on Jan. 1, 2019. The 2020 CIP reflects a gradual increase in the treatment plant connection charge rate that will be phased in over an eight-year period beginning in 2019.

CONFORMANCE WITH ADOPTED PLANS AND PROGRAMS

The 2020 CIP assumes that capital projects will be in conformance with the recommendations of the district's 2009 50-year master plan regarding centralized treatment. The master plan recommends that the district continue to treat all wastewater from its service area at the Nine Springs Wastewater Treatment Plant and to return a portion of the effluent to Badger Mill Creek. As such, none of the projects in the CIP assumes that a satellite treatment facility will be located anywhere in the district's service area in the foreseeable future.

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 asset management program and other planning efforts to help direct annual updates to its CIP. The following planning efforts provide the most significant guidance to the district's annual capital improvements planning.

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 updated its 2009 evaluation of the district's collection system capacity in 2017 and 2018. This update will in turn allow the district to update its collection system facilities plan.

SOLIDS HANDLING FACILITIES PLAN

This facilities plan formed the basis for work constructed during the 11th 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.

LIQUID PROCESSING FACILITIES PLAN

While the solids handling facilities plan investigated the plant's solids streams and processes, the liquid processing facilities plan reviewed the plant's liquid streams and processes. The facilities plan was substantially completed in 2017 and includes multiple projects that will address the plant's liquid processing needs. For purposes of the 2020 CIP, 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. The first phase of projects is scheduled for construction in 2019-2021.

ASSET MANAGEMENT PROGRAM

The district developed a draft plant asset management plan in 2011 that has helped guide improvements and planning at the treatment plant. In 2017, the district conducted 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 used advanced asset management principles and served as a guide for the development of a full-scale asset management plan. The full-scale plan began in 2018 and will be completed in 2019.

It is anticipated that the district's plant asset management plan and the collection system facilities plan will be crucial components of the annual capital improvements plan in the years to come. Condition defects in district assets caused by aging infrastructure will continue to be addressed by these plans. As the plans become more mature over time it is anticipated that asset risk will become more prominent in capital planning and allow for more precise identification of project needs and prioritization. These ongoing planning efforts, along with periodic initiatives such as the solids handling and liquid processing facilities plans, serve as valuable planning tools for the capital improvements plan.

Metrogro, a nutrient-rich organic product, is used by area farmers to grow crops.

The district works with partner organizations and our customer communities to obtain valuable feedback on a variety of strategic topics.

CAPITAL PROJECTS BUDGET OVERVIEW & SUMMARY

The district's CIP affects the district's finances in the following ways:

1. The plan is used to develop the capital projects fund budget;
2. The plan provides an estimate of annual cash flow that is required to fund projects. Enough cash must be available to continue funding construction in progress, fund any new construction projects and provide an adequate reserve for any unplanned projects and/or contingencies; and
3. The plan projects the amount of existing and future debt that will be incurred to fund the projects.

Historically the district has used loans to provide the necessary cash flow. In general, the district typically uses cash to fund 10 percent to 15 percent of project amounts, with loan revenue providing the remainder. This borrowing dictates the amount of debt service that the district must include in its service charges. The 2020 CIP aims to reduce the district's debt service by using more cash funding of projects. Like debt service, this additional cash would come from service charges and would be transferred from the operating fund to the capital fund. All other things being held equal in the district's budget, this additional transfer of cash will result in a higher service charge increase in the short term, but will decrease the district's debt service (and associated service charge increases) over the long term.

Table 6 provides a summary of the capital budget for years 2018 through 2020. For 2018, the summary shows the actual year-end totals for revenues and expenses for each project. For the current year, 2019, the summary shows the budgeted amount and the estimated year-end totals. For 2020, the summary shows anticipated revenues and expenditures. All estimates are rounded to the nearest thousand dollars.

It should be noted that four projects in Table 6 have been consolidated into a single project from one or more individual projects that were part of previous capital improvements plans. These projects have been consolidated for purposes of construction bidding as they involve similar types of work. The total project cost for the single, consolidated project shall serve as the point of control for the

purposes of meeting the project cost requirements of the district's "Commission Policy Statements on Capital Projects Budget and Debt Service Budget Development and Approval." Expenditures for all individual projects that have been consolidated will be reported in Table 6.1 for informational purposes and project cost tracking.

2018 SUMMARY

For 2018, expenditures of $6.7 million exceeded revenues of $3.9 million, leaving an end-of-year balance of $7.6 million. Revenues included clean water loan proceeds of $0.9 million, connection charge revenues of $2.9 million and investment income of $122,000. Connection charge revenue exceeded the budgeted amount by approximately $1.4 million, due primarily to one large payment of $1.2 million from the Epic Corp. in late 2018. Expenditures included $1.5 million in treatment plant project expenses, $3.2 million in interceptor project expenses, $1.7 million in pumping station and force main project expenses and $365,000 of capital budget expenses.

2019 SUMMARY

The 2019 capital budget showed 2019 expenditures exceeding revenues by $1.8 million; we now anticipate that revenues will exceed expenditures by $1.3 million. The year-end fund balance is projected to be $8.9 million, which is greater than the budgeted $4.9 million by approximately $4.0 million. The primary reason for the difference in these estimates is connection charge revenue. As mentioned in the previous section, actual connection charge revenue in 2018 exceeded the budgeted amount by $1.4 million due primarily to the $1.2 million payment from Epic. The year-end fund balance for the 2019 budget does not reflect this payment as it was not received at the time of the estimate. Additionally, we are now projecting that actual connection charge revenue in 2019 will exceed the budget estimate by $175,000. This revision reflects the new treatment plant rates which were calculated under a new method and approved by the commission in the fall of 2018.

The district embraces a one water approach which views all water; drinking water, wastewater, stormwater, grey water and more, as resources that must be managed holistically and sustainably.

TABLE 6 | Capital Projects Budget

	2018 Actual	2019 Thru June	2019 Estimated Total	2019 Budget	Proposed 2020 Budget	% Change
REVENUE CATEGORY						
CWF LOANS	**$884,652**	**$0**	**$14,417,000**	**$18,445,000**	**$37,581,000**	**103.75%**
Pumping Station 11 & 12 Rehab	256,015	-	-	-	-	NMF
Pumping Station 15 Rehabilitation	339,561	-	-	-	-	NMF
Pumping Station 12 Force Main Relocation at Verona Road	220,381	-	-	-	-	NMF
West Int.- West Randall to Near PS 2 (lining roject)	68,694	-	-	-	-	NMF
Pumping Station 10 Force Main Rehabilitation	-	-	1,390,000	-	-	NMF
West Interceptor- Pumping Station 5 to Gammon Ext (lining project)	-	-	506,000	-	-	NMF
Pumping Station 7 Improvements	-	-	2,250,000	2,050,000	1,897,000	-7.46%
(1) Liquid Processing Improvements- Phase 1	-	-	2,660,000	7,200,000	12,250,000	70.14%
Northeast Interceptor- Truax Extension Relief	-	-	4,950,000	4,950,000	4,676,000	-5.54%
Southwest Interceptor- Haywood Ext Replacement	-	-	1,900,000	1,384,000	-	-100.00%
(1) 2019 Treatment Plant Piping Improvements Project	-	-	761,000	771,000	-	-100.00%
NSVI Improvements- McKee Road to Dunn's Marsh	-	-	-	2,090,000	3,000,000	43.54%
Headworks Flow Metering	-	-	-	-	2,191,000	NMF
West Interceptor- Shorewood Relief	-	-	-	-	5,250,000	NMF
Operations Building First Floor Remodel	-	-	-	-	625,000	NMF
(1) Pumping Station 13 and 14 Rehabilitation	-	-	-	-	5,900,000	NMF
(1) Interceptor Rehabilitation- 2020	-	-	-	-	1,792,000	NMF
CONNECTION CHARGE REVENUES	**$2,932,675**	**738,385**	**$2,000,000**	**$1,825,000**	**$2,750,000**	**50.68%**
INTEREST ON INVESTMENTS & MISC. INCOME	**$121,576**	**92,621**	**$100,000**	**$100,000**	**$111,000**	**11.00%**
CONTRIBUTION FROM OPERATING FUND	**-**	**-**	**$1,200,000**	**$1,200,000**	**$915,000**	**-23.75%**
TOTAL SOURCES OF FUNDS	**$3,938,903**	**$831,007**	**$17,717,000**	**$21,570,000**	**$41,357,000**	**91.73%**
EXPENSE CATEGORY						
NINE SPRINGS WTP PROJECTS	**$1,473,981**	**$483,813**	**$4,544,400**	**$9,170,000**	**$17,671,000**	**92.70%**
New Maintenance Facility/Space Needs Improvements	4,750	-	-	-	-	NMF
Liquid Processing Facilities Plan	1,070	-	-	-	-	NMF
(1) Liquid Processing Improvements- Phase 1	997,318	395,122	1,517,400	6,260,000	12,295,000	96.41%
Badfish Creek Effluent Force Main Standpipe	78,445	-	96,000	-	-	NMF
Clarifier Stress Testing	109,428	-	-	-	-	NMF
Nitrite Shunt Pilot	16,762	-	-	-	-	NMF
Annual Process Tank Coating and Repair	163,287	2,495	210,000	185,000	191,000	3.24%
Annual Pavement Improvements	62,014	-	59,000	59,000	61,000	3.39%
Minor Capital Improvements	25,641	45,862	193,000	106,000	109,000	2.83%
Shop One Site Improvements	10,432	575	190,000	103,000	-	-100.00%
Headworks Flow Metering	4,833	22,691	195,000	128,000	2,091,000	1533.59%
Septage Receiving Modifications	-	-	-	-	5,000	NMF
Headworks Screening	-	-	-	-	10,000	NMF
Resource Recovery Facility	-	387	52,000	52,000	258,000	396.15%
Energy Management Master Plan		-	-	-	412,000	NMF
Metrogro Applicators & Equipment	-	1,830	820,000	979,000	-	-100.00%
Operations Building First Floor Remodel	-	2,025	74,000	160,000	599,000	274.38%
Miscellaneous Treatment Plant Projects	-	6,708	77,000	77,000	110,000	42.86%
Engine Generator and Blower Control Panel Replacements	-	5,195	270,000	270,000	-	-100.00%
(1) 2019 Treatment Plant Piping Improvements Project	-	924	791,000	791,000	-	-100.00%
Final Clarifier 4, 5 and 6 Effluent Launder Trough Replacement	-	-	-	-	239,000	NMF
15 kV Electrical Service Replacement	-	-	-	-	95,000	NMF
CMMS Replacement	-	-	-	-	706,000	NMF
Lagoon Dikes Stabilization	-	-	-	-	361,000	NMF
Plant HVAC Improvements	-	-	-	-	129,000	NMF
INTERCEPTORS	**$3,160,506**	**$527,229**	**$8,048,000**	**$8,942,000**	**$14,873,000**	**66.33%**
West Int.- Randall Avenue to Near PS 2 (lining project)	124,366	-	-	-	-	NMF
Northend Int.- Sherman Avenue (lining project)	447	-	-	-	-	NMF
Lower Badger Mill Creek Int.- Phase 4	703,721	-	-	-	-	NMF
NSVI-Morse Pond Extension	1,462,132	1,015	235,000	-	-	NMF
SEI - Rehab upstream of PS 9 (lining project)	176,348	64,110	75,000	-	-	NMF
Southeast Int. Relocation- Monona Waterfront Redevelopment	251,287	-	-	-	-	NMF
West Int.- PS 5 to Gammon Extension (lining project)	23,655	15,642	492,000	-	-	NMF
Southwest Interceptor- Haywood Ext. Replacement	58,231	328,914	1,867,000	1,324,000	-	-100.00%
NSVI Improvements-McKee Road to Dunn's Marsh	4,930	2,737	135,000	2,050,000	3,033,000	47.95%
NEI- Truax Extension Relief	351,462	100,677	4,625,000	4,625,000	4,666,000	0.89%
West Interceptor- Shorewood Relief	3,925	13,591	260,000	582,000	5,073,000	771.65%
(1) Interceptor Rehabilitation- 2020	-	-	55,000	57,000	2,019,000	3442.11%
Northeast Interceptor Joint Grouting	-	544	304,000	304,000	-	-100.00%
NEI- Truax Extension Rehab (lining project)	-	-	-	-	82,000	NMF

TABLE 6 | Capital Projects Budget (cont.)

	2018 Actual	2019 Thru June	2019 Estimated Total	2019 Budget	Proposed 2020 Budget	% Change
PUMPING STATIONS AND FORCE MAINS	**$1,688,998**	**$284,045**	**$3,073,000**	**$4,469,000**	**$10,769,000**	**140.97%**
PS 11 & 12 Rehab	2,995	-	-	-	-	NMF
PS 15 Rehab	40,733	-	-	-	-	NMF
PS 12 FM Relocation at Verona Road	502	-	-	-	-	NMF
Grass Lake Dike Stabilization	57,352	30,353	65,000	-	417,000	NMF
PS 10 Force Main Rehab	1,207,540	48,669	180,000	-	-	NMF
PS 7 Improvements	377,434	143,896	1,920,000	1,772,000	1,934,000	9.14%
PS 17 Force Main Relief- Phase 1	2,443	11,575	173,000	937,000	2,114,000	125.61%
Automated Power Transfer at Pumping Stations 10 and 11	-	3,889	268,000	268,000	-	-100.00%
(1) PS 13 & PS 14 Rehabilitation	-	-	390,000	1,394,000	5,788,000	315.21%
PS 4 Rehabilitaiton	-	-	-	-	415,000	NMF
PS 16 Force Main Rehabilitation	-	-	-	21,000	21,000	0.00%
Miscellaneous Collection System Improvements	-	45,663	77,000	77,000	80,000	3.90%
CAPITAL BUDGET EXPENSES	**$365,085**	**-$2,055**	**$748,000**	**$803,000**	**$820,000**	**2.12%**
Capital Budget Expenses	-	-	52,000	52,000	52,000	0.00%
Plant Asset Management Plan Implementation	347,690	(57,182)	317,000	317,000	323,000	1.89%
Collection System Evaluation	16,299	-	-	-	-	NMF
Collection System Facilities Plan Update	1,096	542	70,000	125,000	135,000	8.00%
Badger Mill Creek Phosphorus Compliance	-	54,584	309,000	309,000	310,000	0.32%
TOTAL EXPENDITURES	**$6,688,570**	**$1,293,031**	**$16,413,400**	**$23,384,000**	**$44,133,000**	**88.73%**
CAPITAL PROJECTS FUND BALANCE						
BEGINNING BALANCE	$10,316,177	$7,566,511	$7,566,511	$6,731,000	$8,871,000	31.79%
TOTAL SOURCES OF FUNDS	3,938,903	831,007	$17,717,000	21,570,000	41,357,000	91.73%
TOTAL EXPENDITURES	6,688,570	1,293,031	$16,413,000	23,384,000	44,133,000	88.73%
ENDING BALANCE	**$7,566,511**	**$7,104,487**	**$8,871,000**	**$4,917,000**	**$6,095,000**	**23.96%**

NMF=No Meaningful Value

'(1). This project consists of two or more individual projects that were part of previous capital improvement plans. The individual projects have been consolidated for the 2020 CIP and are now shown as a single project for purposes of bidding, in accordance with the district's "Commission Policy Statements on Capital Projects Budget and Debt Service Budget Development and Approval." The total project cost for the single, consolidated project shall serve as the point of control hereafter for the purposes of meeting the project cost requirements of said policy. Expenditures for the individual projects are reported in Table 1.2 for informational purposes.

TABLE 6.1 | Detailed Information for Consolidated Projects

	2018 Actual	2019 Thru June	2019 Estimated Total	2019 Budget	Proposed 2020 Budget	% Change
EXPENSE CATEGORY						
LIQUID PROCESSING PROJECTS - PHASE 1	**$997,318**	**$375,930**	**$1,517,400**	**$6,260,000**	**$12,295,000**	**96.41%**
Plant Peak Capacity Improvements	409,624	154,517	566,000	2,733,000	4,661,000	70.55%
UV Disinfection System Replacement	143,120	44,096	203,000	160,000	1,893,000	1083.13%
East Blower Controls	32,063	14,886	41,000	205,000	351,000	71.22%
Primary Tanks 1 and 2 Rehabilitation	60,184	40,033	24,000	238,000	403,000	69.33%
54 Inch Primary Influent Rehabilitation	63,086	13,565	87,000	422,000	719,000	70.38%
East-West Plant Flow Metering	28,326	25,072	400	81,000	138,000	70.37%
Plant Unit Substation Improvements	134,589	46,682	442,000	1,630,000	2,783,000	70.74%
Process Control System Upgrade- Phase Two	126,327	37,080	154,000	791,000	1,347,000	70.29%
2019 TREATMENT PLANT PIPING IMPROVEMENTS PROJECT	**$0**	**$1,848**	**$791,000**	**$791,000**	**$0**	**-100.00%**
W1 Piping Improvements	-	924	579,000	579,000	-	-100.00%
Hot Water Piping Improvements	-	924	212,000	212,000	-	-100.00%
INTERCEPTOR REHABILITATION - 2020	**$0**	**$0**	**$55,000**	**$57,000**	**$2,019,000**	**3442.11%**
West Interceptor- Spring Street Relief (lining project)	-	-	55,000	57,000	1,787,000	3035.09%
NEI Relief Sewer and E. Johnson Street Relief Sewer Rehab	-	-	-	-	232,000	NMF
PUMPING STATION 13 & PUMPING STATION 14 REHABILITATION	**$0**	**$0**	**$390,000**	**$1,394,000**	**$5,788,000**	**315.21%**
PS 13 Rehabilitation	-	-	205,000	706,000	2,930,000	315.01%
PS 14 Rehabilitation	-	-	185,000	688,000	2,858,000	315.41%

2020 REVENUES & EXPENDITURES

The proposed 2020 CIP anticipates revenues from all sources totaling $41.4 million and expenditures of $44.1 million with a resulting year-end capital fund balance of $6.1 million. The projected year-end fund balance for 2020 represents a fund balance decrease of $2.8 million relative to the estimated year-end balance for 2019. The decrease in the capital fund balance for 2020 results from the financing of many projects and initiatives through cash reserves. These projects and initiatives include: phase one of the Pumping Station 17 relief force main ($2.1 million); stabilization of the Grass Lake dike ($417,000); preparation of the Energy Management Master Plan ($412,000); work on replacing the district's computerized maintenance management system ($706,000); and various capital budget expenses related to long-term planning ($820,0). Increasing the amount of cash reserves for project funding is driven by the following: (1). An effort to lessen reliance on debt; and (2). The aforementioned projects are likely not eligible for a reduced market interest rate under the Clean Water Fund Loan Program.

Cash reserves will also be used to pay for design work for the rehabilitation of Pumping Station 4 and rehabilitation of the Northeast Interceptor in 2020. These design costs will initially be paid from cash reserves but they can be reimbursed through loans from the Clean Water Fund in subsequent years once construction commences.

As detailed in Table 6, anticipated 2020 revenues include $37.6 million in Clean Water Fund loan proceeds for the projects listed below:

- Pumping Station 7 Improvements ($1.9 million)
- Liquid Processing Improvements – Phase 1 ($12.3 million)
- Northeast Interceptor – Truax Extension Relief ($4.7 million)
- NSVI Improvements – McKee Road to Dunn's Marsh ($3.0 million)
- Headworks Flow Metering ($2.2 million)
- West Interceptor – Shorewood Relief ($5.3 million)
- Operations Building First Floor Remodel ($625,000)
- Pumping Station 13 and Pumping Station 14 Rehabilitation ($5.9 million)
- Interceptor Rehabilitation – 2020 ($1.8 million)

Other anticipated revenues include $2.8 million in conveyance facility and treatment plant connection charges (connection charge revenues) and $111,000 in interest on investments. The estimate for connection charge revenues assumes that the new methodology for calculation of treatment plant connection charges, as adopted by the commission in July 2017, will be phased in over a period of eight years starting in 2019. Interest on investments has increased slightly in the last year but remains a minor source of revenue for the capital fund (0.3 percent).

Commission members prioritize needs through a strategic planning exercise.

Commissioner Grant Foster being sworn in as the newest member of the district's nine-person commission board May of 2019.

Also detailed in Table 6, the highest expense items for 2020 include the following projects:

- Liquid Processing Improvements – Phase 1 ($12.3 million)
- Headworks Flow Metering ($2.1 million)
- Operations Building First Floor Remodel ($600,000)
- Computerized Maintenance Management System ($710,000)
- NSVI Improvements – McKee Road to Dunn's Marsh ($3.0 million)
- Northeast Interceptor – Truax Extension Relief ($4.7 million)
- West Interceptor – Shorewood Relief ($5.1 million)
- Interceptor Rehabilitation – 2020 ($2.0 million)
- Grass Lake Dike Stabilization ($420,000)
- Pumping Station 7 Improvements ($1.9 million)
- Pumping Station 17 Force Main Relief – Phase 1 ($2.1 million)
- Pumping Station 13 and Pumping Station 14 Rehabilitation ($5.8 million)
- Design of Pumping Station 4 Rehabilitation ($415,000)

Other anticipated expenditures include an additional $2.6 million in other capital project expenditures as well as $820,000 in capital budget expenses.

2020 CAPITAL PROJECTS FUND BALANCE

The 2020 capital projects fund ending balance of $6.1 million is projected to increase by 24.0 percent, or $1.2 million, in 2020 compared to the budgeted 2019 ending balance of $4.9 million and to decrease by 31.3 percent, or $2.8 million, compared to the estimated 2019 ending balance of $8.9 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.

District policy requires a minimum capital projects fund balance (or reserve) of the greater of $3 million or 10 percent of anticipated expenditures for the forthcoming fiscal year. Planned expenditures in 2021 are $26.7 million. Therefore, for 2020, the minimum acceptable balance is $3 million (10 percent of $26.7 million is $2.7 million). The projected 2020 end-of-year balance is projected to be $6.1 million, which is above the minimum acceptable amount.

Volunteer for the adaptive management program taking stream buffer measurements.

SIX-YEAR CAPITAL PROJECTS BUDGET SUMMARY

The district's CIP includes projections for projects that are either underway and will continue into 2020 or for those new projects that will begin within the six year planning horizon. These projects have been identified by district staff to address a variety of needs such as hydraulic capacity, condition or to meet new regulatory requirements. Costs and schedules for these projects are continually updated as the scopes become better defined and as priorities and funding strategies change over time.

Table 7 provides a summary of the six-year capital projects plan, including total costs and the schedule for each project within the planning horizon. This table shows approximately $161 million worth of expenditures over the six-year period from 2020 to 2025, representing projects whose costs total $206 million.

PROJECT SUMMARIES AND BUSINESS CASES

Summary descriptions for each of the projects 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 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.

Additional project information for most projects is contained in comprehensive business cases, located on the district's website at http://www.madsewer.org/Planning. 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.

TABLE 7 | Six-Year Capital Projects Summary

No.	Project	Total Project Cost	2020 - 2025 Cost	2020	2021	2022	2023	2024	2025
NINE SPRINGS WTP PROJECTS		**$109,788,000**	**$73,688,000**	**$17,671,000**	**$7,874,000**	**$13,856,000**	**$12,042,000**	**$6,359,000**	**$15,886,000**
A01	Liquid Processing Improvements - Phase 1	16,788,000	14,246,000	12,295,000	1,951,000	-	-	-	-
A02.1	Headworks Flow Metering	2,291,000	2,091,000	2,091,000	-	-	-	-	-
A02.2	Septage Receiving Modifications	3,392,000	3,392,000	5,000	281,000	1,530,000	1,576,000	-	-
A02.3	Headworks Screening	3,999,000	3,999,000	10,000	329,000	1,803,000	1,857,000	-	-
A02.4	Activated Sludge Projects	10,769,000	9,476,000	-	439,000	3,762,000	3,875,000	145,000	1,255,000
A02.5	Nitrite Shunt Pilot	2,631,000	2,614,000	-	214,000	2,400,000	-	-	-
A02.6	Plant Aeration Systems Projects (Nitrite Shunt)	22,907,000	11,914,000	-	-	-	-	1,242,000	10,672,000
A02.7	East and West Blower Switchgear	2,626,000	1,408,000	-	-	-	6,000	220,000	1,182,000
A02.8	Headworks Grit Management	2,679,000	0	-	-	-	-	-	-
A03	Shop One Interior Renovations	272,000	272,000	-	53,000	219,000	-	-	-
A04	Resource Recovery Facility	2,899,000	2,847,000	258,000	212,000	382,000	1,126,000	869,000	-
A05.1	Energy Management Master Plan	624,000	624,000	412,000	212,000	-	-	-	-
A05.2	Plant Energy Facilities Plan	942,000	942,000	-	-	464,000	478,000	-	-
A05.3	Plant Energy Projects	17,524,000	1,504,000	-	-	-	-	591,000	913,000
A06	Final Clarifier 4, 5 and 6 Effluent Launder Trough Replacement	239,000	239,000	239,000	-	-	-	-	-
A07	Annual Process Tank Coating and Repair	1,232,000	1,232,000	191,000	196,000	202,000	208,000	214,000	221,000
A08	Annual Pavement Improvements	392,000	392,000	61,000	63,000	64,000	66,000	68,000	70,000
A09	Minor Capital Improvements	706,000	706,000	109,000	112,000	116,000	119,000	123,000	127,000
A10	Metrogro Applicators & Equipment	4,104,000	3,092,000	-	796,000	743,000	765,000	788,000	-
A11	Operations Building First Floor Remodel	1,729,000	1,655,000	599,000	1,056,000	-	-	-	-
A12	Miscellaneous Treatment Plant Projects	545,000	545,000	110,000	82,000	84,000	87,000	90,000	92,000
A13	15 kV Electrical Service Replacement	3,002,000	3,002,000	95,000	11,000	113,000	116,000	1,313,000	1,354,000
A14	CMMS Replacement	4,282,000	4,282,000	706,000	833,000	1,318,000	1,425,000	-	-
A15	Lagoon Dikes Stabilization	1,719,000	1,719,000	361,000	583,000	437,000	338,000	-	-
A16	Plant HVAC Improvements	580,000	580,000	129,000	451,000	-	-	-	-
A17	Campus Space Master Plan	915,000	915,000	-	-	219,000	-	696,000	-
INTERCEPTORS		**$58,325,000**	**$52,886,000**	**$14,873,000**	**$9,145,000**	**$11,057,000**	**$6,004,000**	**$3,965,000**	**$7,842,000**
B01	NSVI Improvements-McKee Road to Dunn's Marsh	4,621,000	4,481,000	3,033,000	1,448,000	-	-	-	-
B02	NEI- Truax Extension Relief	9,646,000	4,666,000	4,666,000	-	-	-	-	-
B03	West Interceptor- Shorewood Relief	14,242,000	13,978,000	5,073,000	4,387,000	4,518,000	-	-	-
B04	Interceptor Rehabilitation- 2020	2,074,000	2,019,000	2,019,000	-	-	-	-	-
B05	NEI- Truax Extension Rehab (lining project)	5,875,000	5,875,000	82,000	2,854,000	2,939,000	-	-	-
B06	NEI- Waunakee Extension Relief (Phase 1)	7,665,000	7,665,000	-	456,000	3,551,000	3,658,000	-	-
B07	NEI- FEI to SEI Rehab (lining project)	2,069,000	2,069,000	-	-	49,000	2,020,000	-	-
B08	Lower Badger Mill Creek Int.- Phase 5	4,291,000	4,291,000	-	-	-	326,000	3,965,000	-
	Lining projects starting beyond 5 years	2,139,000	2,139,000	-	-	-	-	-	2,139,000
	Other Future Collection System Projects	5,703,000	5,703,000	-	-	-	-	-	5,703,000

TABLE 7 | Six-Year Capital Projects Summary (cont.)

No.	Project	Total Project Cost	2020 - 2025 Cost	2020	2021	2022	2023	2024	2025
PUMPING STATIONS AND FORCE MAINS		**$34,884,000**	**$31,881,000**	**$10,769,000**	**$9,165,000**	**$2,046,000**	**$5,974,000**	**$1,935,000**	**$1,992,000**
C01	Grass Lake Dike Stabilization	542,000	417,000	417,000	-	-	-	-	-
C02	PS 7 Improvements	4,247,000	1,934,000	1,934,000	-	-	-	-	-
C03	PS 17 Force Main Relief- Phase 1	2,994,000	2,819,000	2,114,000	705,000	-	-	-	-
C04	PS 13 & PS 14 Rehabilitation	11,350,000	10,960,000	5,788,000	5,172,000	-	-	-	-
C05	PS 4 Rehabilitaiton	5,162,000	5,162,000	415,000	3,206,000	1,541,000	-	-	-
C06	PS 17 Capacity Upgrade	1,623,000	1,623,000	-	-	126,000	1,497,000	-	-
C07	PS 17 Force Main Relief- Phase 2	3,049,000	3,049,000	-	-	235,000	2,814,000	-	-
C08	PS 16 Force Main Rehabilitation	1,657,000	1,657,000	21,000	-	60,000	1,576,000	-	-
C09	Miscellaneous Collection System Improvements	515,000	515,000	80,000	82,000	84,000	87,000	90,000	92,000
	Other Future Pumping Station Improvements	3,745,000	3,745,000	-	-	-	-	1,845,000	1,900,000
CAPITAL BUDGET EXPENSES		**$3,422,000**	**$3,042,000**	**$820,000**	**$530,000**	**$736,000**	**$694,000**	**$202,000**	**$60,000**
D01	Capital Budget Expenses	334,000	334,000	52,000	53,000	55,000	56,000	58,000	60,000
D02	Plant Asset Management Plan Implementation	1,109,000	1,109,000	323,000	265,000	189,000	188,000	144,000	-
D03	Collection System Facilities Plan Update	206,000	135,000	135,000	-	-	-	-	-
D04	Badger Mill Creek Phosphorus Compliance	1,773,000	1,464,000	310,000	212,000	492,000	450,000	-	-
TOTALS		$206,419,000	$161,497,000	$44,133,000	$26,714,000	$27,695,000	$24,714,000	$12,461,000	$25,780,000

TABLE 7.1 | Six-Year Capital Projects Summary for Consolidated Projects

Project	Total Project Cost	2020 - 2025 Cost	2020	2021	2022	2023	2024	2025
EXPENSE CATEGORY								
LIQUID PROCESSING PROJECTS - PHASE 1	**$16,788,000**	**$14,246,000**	**$12,295,000**	**$1,951,000**	**$0**	**$0**	**$0**	**$0**
Plant Peak Capacity Improvements	5,646,000	4,661,000	4,661,000	-	-	-	-	-
UV Disinfection System Replacement	4,197,000	3,844,000	1,893,000	1,951,000	-	-	-	-
East Blower Controls	425,000	351,000	351,000	-	-	-	-	-
Primary Tanks 1 and 2 Rehabilitation	488,000	403,000	403,000	-	-	-	-	-
54 Inch Primary Influent Rehabilitation	870,000	719,000	719,000	-	-	-	-	-
East-West Plant Flow Metering	167,000	138,000	138,000	-	-	-	-	-
Plant Unit Substation Improvements	3,365,000	2,783,000	2,783,000	-	-	-	-	-
Process Control System Upgrade- Phase Two	1,630,000	1,347,000	1,347,000	-	-	-	-	-
INTERCEPTOR REHABILITATION - 2020	**$2,074,000**	**$2,019,000**	**$2,019,000**	**$0**	**$0**	**$0**	**$0**	**$0**
West Interceptor- Spring Street Relief (lining project)	1,842,000	1,787,000	1,787,000	-	-	-	-	-
NEI Relief Sewer and E. Johnson Street Relief Sewer Rehab	232,000	232,000	232,000	-	-	-	-	-
PUMPING STATION 13 & PUMPING STATION 14 REHABILITATION	**$11,350,000**	**$10,960,000**	**$5,788,000**	**$5,172,000**	**$0**	**$0**	**$0**	**$0**
PS 13 Rehabilitation	5,750,000	5,545,000	2,930,000	2,615,000	-	-	–	–
PS 14 Rehabilitation	5,600,000	5,415,000	2,858,000	2,557,000	-	-	–	–

CAPITAL PROJECTS BUDGET EXPENSES

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 2019 budget included $494,000 related to ongoing planning efforts in the collection system and at the treatment plant including, but not limited to, asset management program expenses. The 2020 budget allocates a total of $820,000 for these longer-term planning efforts. Of this total, $310,000 of the 2020 expenses in this category are to study alternatives for meeting the anticipated lower phosphorus requirements for effluent that is discharged to Badger Mill Creek. This work will include evaluating data from the pilot testing of various treatment plant methods and selecting a preferred alternative for additional pilot testing.

To allow for implementation of the district's treatment plant asset management plan, $323,000 is included for this item in the 2020 CIP. Further details regarding this plan and the support needed to implement its recommendations in subsequent years are included in the business case for the plant asset management plan implementation, which can be found on the district's website. The program expenses for this category are anticipated to decline over the next five years as costs of implementing the asset management program are gradually transferred from the capital budget to the operating budget.

Additional expenditures that are anticipated in 2020 for this category include: (general) capital budget expenses ($52,000) and preparation of the collection system facilities plan update ($135,000). The first expenditure covers general planning expenses related to development of the CIP. The second item is for resources to study and prepare an update to the district's collection system facilities plan. While the original 2002 plan and the 2011 update were completed by district staff, it is anticipated that a portion of the 2020 update will require an engineering consultant for specialized work. This specialized work will focus on creating a strategic plan for the district to follow for the control of infiltration and inflow in the district's collection system as well as that of its customer communities. A particular emphasis will be placed on how to address inflow and infiltration on private property.

The district has a thriving wildlife population of birds, animals, reptiles and amphibians.

TABLE 8 | Capital Projects Fund Cash Flow Summary 2020-2025

REVENUES	2020	2021	2022	2023	2024	2025
CLEAN WATER FUND LOANS	37,581,000	21,218,000	21,670,000	21,159,000	5,198,000	20,679,000
CONNECTION CHARGES	$2,750,000	$3,200,000	$3,650,000	$4,125,000	$4,575,000	$5,050,000
INTEREST REVENUES	111,000	109,000	84,000	88,000	90,000	88,000
TRANSFER FROM (TO) OPERATING FUND	$915,000	$961,000	$1,009,000	$1,059,000	$1,112,000	$1,168,000
TOTAL REVENUES	$41,357,000	$25,488,000	$26,413,000	$26,431,000	$10,975,000	$26,985,000
EXPENDITURES	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
NINE SPRINGS WTP PROJECTS	$17,671,000	$7,874,000	$13,856,000	$12,042,000	$6,359,000	$15,886,000
INTERCEPTORS	14,873,000	9,145,000	11,057,000	6,004,000	3,965,000	7,842,000
PUMPING STATIONS AND FORCE MAINS	10,769,000	9,165,000	2,046,000	5,974,000	1,935,000	1,992,000
CAPITAL BUDGET EXPENSES	820,000	530,000	736,000	694,000	202,000	60,000
TOTAL EXPENDITURES	$44,133,000	$26,714,000	$27,695,000	$24,714,000	$12,461,000	$25,780,000
CAPITAL PROJECTS FUND CASH FLOW	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
BEGINNING BALANCE	$8,871,000	$6,095,000	$4,869,000	$3,587,000	$5,304,000	$3,818,000
TOTAL REVENUES	41,357,000	25,488,000	26,413,000	26,431,000	10,975,000	26,985,000
TOTAL EXPENDITURES	44,133,000	26,714,000	27,695,000	24,714,000	12,461,000	25,780,000
ENDING BALANCE	$6,095,000	$4,869,000	$3,587,000	$5,304,000	$3,818,000	$5,023,000

Commission member Sara Eskrich engaging with customer community partners during a community meeting in March 2019.

CAPITAL PROJECTS FUND CASH FLOW SUMMARY

Table 8 provides a summary of the district's construction account cash flow for the period from 2020 to 2025. The table includes anticipated revenue and expenditures for this six-year period. Total revenues for the period are anticipated at $158 million with total expenditures anticipated at $161 million. Further details related to revenues are provided in the next section showing anticipated disbursements from the Wisconsin Clean Water Fund Program, while expenditures were discussed previously as part of the six-year capital project summary for the district's CIP.

The district's construction account includes revenues from four sources: loan proceeds, interceptor and treatment plant connection charges, interest received on account balances and service charge revenues transferred from the operating fund to the capital fund. The projection anticipates funds from each of these sources during the six-year period; $128 million from loan proceeds, $23.3 million from collection of connection charges, $570,000 from interest and $6.2 million in transfers from the operating fund.

INCREASED CASH FINANCING AND CAPITAL PROJECTS FUND BALANCES

The 2020 capital improvements plan takes a small step toward reducing use of debt financing for capital projects and increasing cash financing. The plan would transfer $915,000 from the operating fund to the capital projects fund in 2020 and anticipates an increase in this annual transfer of five percent per year. Over the six-year planning horizon, the plan anticipates a total transfer of $6.2 million.

Transfers from the operating fund to the capital projects fund are not common for the district. A transfer of $172,000 was made in 2017. A transfer of $1.2 million has been made in 2019, using unanticipated service charge revenue from the high flow events in fall 2018. The 2019 budget furthermore anticipated that a transfer of $315,000 would be made in 2020, increasing by five percent each year thereafter. Thus, the 2020 CIP includes an additional $600,000 beyond that anticipated in the 2019 CIP.

District pollution prevention staff members engage the public on a variety of topics including chloride reduction, what is flushable and proper disposal of pharmaceuticals.

The anticipated transfers would reduce the need for Clean Water Fund borrowing. Assuming 20-year loan durations, two percent interest, and $6.2 million in reduced borrowing, the district would see a savings in interest payments of about $1.4 million total. It is unknown at this time which particular projects would be funded with cash instead of loans. For planning purposes, the 2020 CIP assumes reductions in particular loan draws during the 2020-2025 period.

Under the 2020 CIP, including the transfer amount, the cash balance in the capital fund would remain above the minimum level of $3 million throughout the planning period, reaching its lowest balance of $3.6 million in 2022. (The cash balance rises and falls depending on the timing of cash-funded projects.)

If the transfer from the operating fund to the capital projects fund was reduced, the interest savings from lower borrowing would also be reduced. More immediately, a reduced transfer would create cash flow problems in the capital projects fund. If the cash transfer was limited to $315,000 in 2020 and increasing five percent per year thereafter, the capital projects fund would see a closing balance of only $340,000 in 2024. The balance would rise above the minimum acceptable level in 2026. However, the low 2024 balance would pose a significant risk of unavailable funds for needed projects, especially unanticipated projects. Furthermore, the low cash balances would be inconsistent with commission policy to "…target a minimum end-of-year balance … of $3 million…".

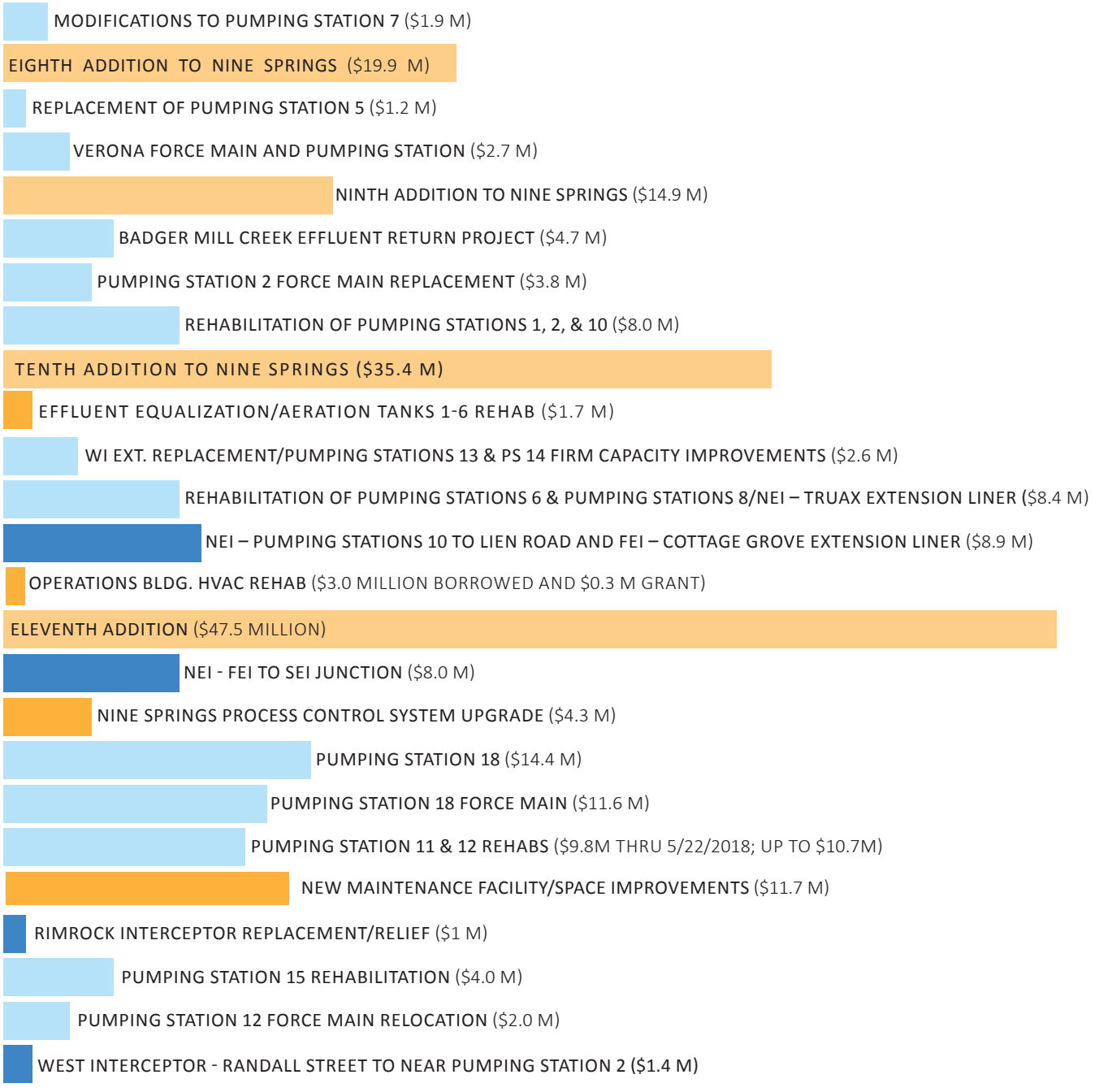
Alternatively, a transfer amount of $315,000 could be coupled with additional Clean Water Fund loan borrowing. Under this approach, the fund's cash balance could be kept just above $3 million through additional borrowing of about $5.9 million over the period. This level of borrowing would forgo the interest savings benefit but would be consistent with past practice of borrowing for most eligible projects. This option was rejected because of the district's interest in moving toward greater cash financing.

Third, a transfer amount of $315,000 could be coupled instead with delays in projects. This would partially address the immediate cash flow problem but the minimum end of year balances would not be met in 2022 and 2024. Additionally, total spending and borrowing would be unchanged over the long-term with this alternative. It was rejected because the schedules in the 2020 CIP represent the district's best professional judgement about project needs and risks.

Adaptive management helps keep phosphorus out of area streams and lakes, thereby reducing algae bloom.

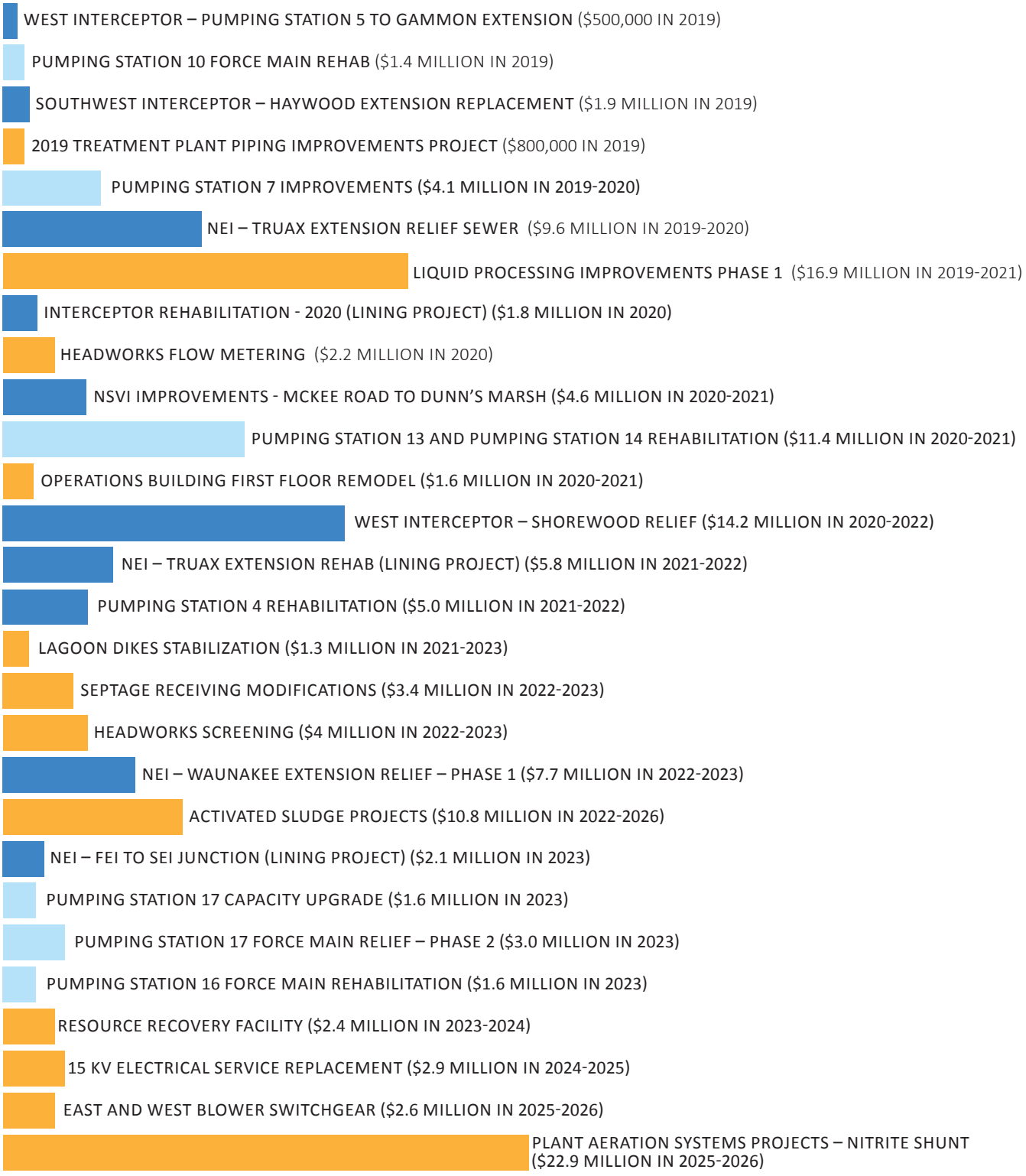
Wisconsin Clean Water Fund Loan Program

Although the district can, and may, fund future projects with general obligation bonds, continued use of the Wisconsin Clean Water Fund Loan Program is anticipated for most of the larger projects in the plan. As of Aug. 14, 2019, the district has borrowed $233.2 million from this program for the following projects:



Wisconsin Clean Water Fund Loan Program

The district also anticipates that it will require funding for many future projects, with funding for many of them coming from Clean Water Fund loans. The projects listed below are expected to qualify for a reduced interest rate from the Clean Water Fund over the 20-year life of the loan. This reduced interest rate has averaged approximately 2 percent in the past year. Use of the loan program helps to ensure that adequate capital reserves are on hand to address any unforeseen capital costs.



Return to TOC

SECTION FOUR

DEBT SERVICE BUDGET

OVERVIEW

This section discusses debt service considerations in the capital improvements plan. It gives background on capital financing and use of debt, and discusses the debt fund balance and collections of service charges for debt service payments.

The district's capital projects are paid for with monies in the capital projects fund. Those monies are of two types: loan proceeds from the state's Clean Water Fund Loan Program and cash that comes from connection charges revenues, from service charge revenue transferred from the operating fund and from interest on the capital projects fund balance.

Loans allow for costs of capital projects to be spread out over time, at the price of additional interest payments. Cash avoids the obligation to pay interest, but is insufficient to cover the costs of large projects unless a cash balance is built up in advance or service charges are raised significantly during the project.

District policy is to finance most capital projects through Clean Water Fund loans. Depending on the year, roughly between 85 and 90 percent of capital project costs are financed with loans. The district fully uses available cash from connection charges and interest on fund balances. The cash balance in the capital projects fund has not grown over time, except for brief periods when cash-only expenditures are low due to project timing.

Three factors are leading the district to reevaluate the role of debt financing in capital projects. First, the cost of serving new areas is rising with the size and complexity of the system, yet system expansion is not eligible for subsidized Clean Water Fund loans. Second, as the district's infrastructure ages, a higher proportion of capital costs will be needed for repair and replacement of existing assets. Third, district commissioners have expressed interest in reducing use of debt as a policy matter. Reasons include reducing interest payments over the long run and increasing flexibility in financing options.

The commission has not formally revisited its policy on use of debt, but has directed staff to develop a strategic financial plan for commission approval, which will address reduced debt financing, among other factors. The 2020 CIP takes a first step in that direction by using slightly less debt for capital projects than would have been done under past practice.

TRENDS IN DISTRICT DEBT

At the start 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 and 1970s. 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 for research and other small projects.

In addition, the cost of meeting required service levels is rising due to various factors. In particular, as existing assets age, additional investment is required to repair and ultimately replace them. Several of the projects in the CIP are driven by this factor, notably the work to assess energy generation and use at the Nine Springs Wastewater

District policy is to finance most capital projects through Clean Water Fund Program.

The Suck the Muck Program helps reduce phosphorus in our waterways through the process of dredging and disposal of legacy creek sediment. The process reduces the amount of phosphorus in area waterways.

Treatment Plant. Furthermore, the required level of service itself is rising with increasingly stringent regulatory requirements and district growth.

As grant availability has ended and capital costs have continued to rise, the district's use of debt has risen correspondingly. The district's outstanding principal has risen from $62 million in 2011 to approximately $127 million in 2018. Outstanding principal was highest in 2015 and 2016, when it totaled approximately $140 million. Major recent drivers for the increase have been the eleventh addition to the Nine Springs Wastewater Treatment Plant and the addition of Pumping Station 18. Outstanding principal will rise again under the CIP, to roughly $178 million in 2025, driven in part by costs for liquid process improvements. Outstanding interest obligations will similarly rise from $11.0 million in 2011 to about $35 million in 2025.

Higher debt means higher interest payments. In 2011, the district payed $1.8 million in interest on outstanding loans, rising to $3.3 million in 2018. Interest payments in 2025 are forecast to be over $5 million. Since 2011, approximately 10 percent of service charge revenue has been used for interest payments.

A commonly used metric for use of debt is the percentage of capital expenditures financed with debt. The 2020 Capital Improvements Plan will result in 80 percent debt financing for the six-year period from 2020 to 2025.[1]

1 The appropriate level of debt for a public utility depends on many factors, including revenue reliability, age of infrastructure, and changes in environmental compliance standards. It can be prudent to use high levels of debt during periods of high capital construction or rapidly rising regulatory standards. However, as a general matter, ratings agencies advise that utilities finance roughly 35 to 55 percent of capital expenditures with debt. To achieve a 55 percent level in recent years, the district would have had to collect roughly $7 million per year in additional service charge revenue. Over the long term, additional collections would be offset by lower interest payments. Note that district policy on use of debt is established by the commission.

By the year 2025, needed capital projects are expected to increase a typical household's annual water utility bill by approximately $38.

DEBT SERVICE FUND BALANCES AND PAYMENTS

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. 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.

Having a separate debt service fund allows the district to limit year-to-year changes in service charge revenues. 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. When the district anticipates significantly increased debt service obligations in future years, the balance is allowed to rise gradually in anticipation. For periods without significant increases, the balance is allowed to remain slightly above the minimum. 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.

As shown in Table 9, the year-over-year increase in the amount collected has varied. From 2007 to 2011, the amount increased by between 3.4 percent and 4.8 percent each year. From 2012 to 2016 the increase was higher, between 9 percent and 12 percent. More recently, the annual increase has moderated.

TABLE 9 | Debt Service Collected from Service Charges 2007-2027

YEAR	AMOUNT COLLECTED FOR DEBT SERVICE	PERCENT INCREASE OVER PREVIOUS YEAR	TYPE OF DATA
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%	Actual
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%	
2019	$15,158,000	4.5%	
2020	$15,840,000	4.5%	*Proposed*
2021	$16,552,000	4.5%	
2022	$17,297,000	4.5%	
2023	$18,076,000	4.5%	
2024	$18,889,000	4.5%	Projected
2025	$19,739,000	4.5%	
2026	$20,627,000	4.5%	
2027	$21,556,000	4.5%	

TABLE 10 | Six-Year Debt Service Summary

	2020	2021	2022	2023	2024	2025
DEBT SERVICE PAYMENTS	$13,943,000	$15,831,000	$17,851,000	$20,040,000	$18,446,000	$18,952,000
DEBT SERVICE COLLECTED IN RATES						
DEBT SERVICE REQUIREMENTS FOR SUCCEEDING YEAR	$15,831,000	$17,851,000	$20,040,000	$18,446,000	$18,952,000	$20,467,000
ADDITIONS TO (USE OF) DEBT SERVICE RESERVE	$9,000	$(1,299,000)	$(2,743,000)	$(371,000)	$(63,000)	$(728,000)
DEBT SERVICE INCLUDED IN SERVICE CHARGE RATES	$15,840,000	$16,552,000	$17,297,000	$18,075,000	$18,889,000	$19,739,000
PRINCIPAL AMOUNT OF OUTSTANDING DEBT AT FIRST OF THE YEAR	$131,879,299	$159,247,655	$169,476,364	$178,665,042	$185,560,595	$178,408,606

The 2020 CIP anticipates an annual increase of service charges collected for debt service of 4.5 percent per year through the planning period. The amount collected will rise from $15.8 million in 2020 to $21.6 million in 2027. The 2020 CIP anticipates reducing the fund balance to closer to the minimum requirement over the planning period. The balance is about $10 million above the minimum currently, and will drop to about $3.5 million by 2029. In 2020, the reserve is about 73 percent of debt service payments for 2020. By 2029, the proportion will drop to about 13 percent.

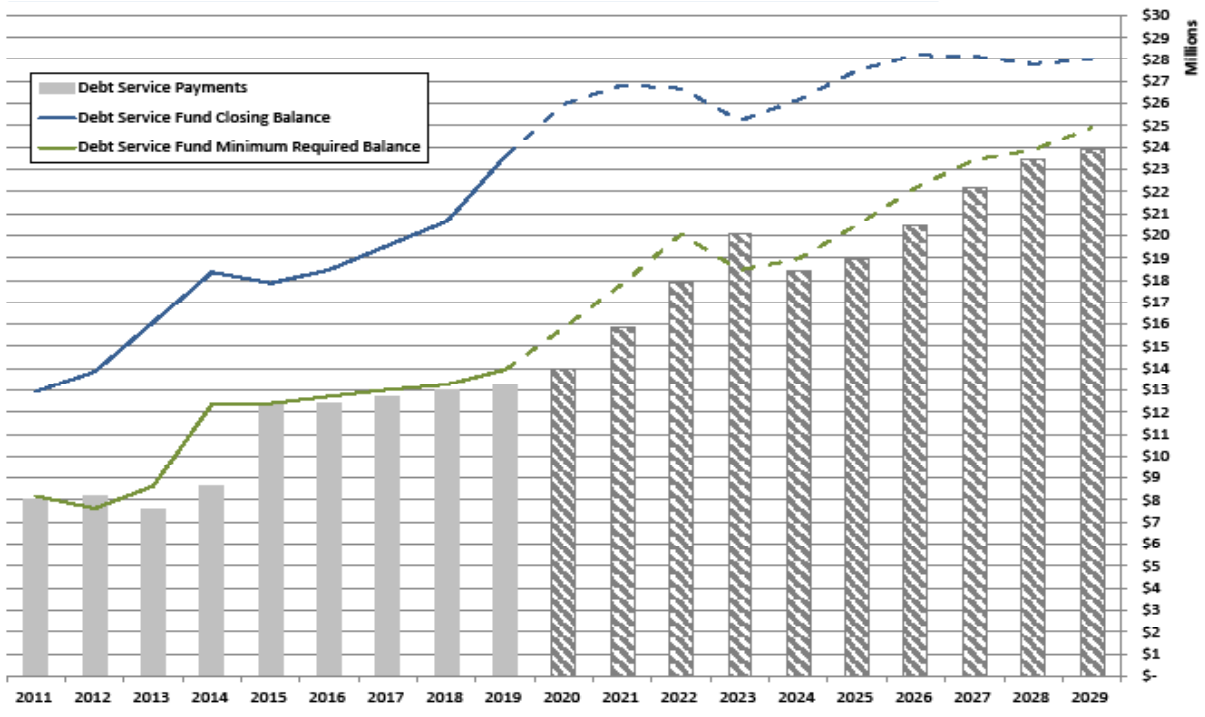
Chart 1 shows the debt service fund balance and the minimum required balance. Historical values are shown since 2011; projected values are shown to 2029. The chart also shows debt service payments for each year. As mentioned, the minimum balance for any given year is equal to the payment obligations for the succeeding year. Table 10 provides detail on debt service payments and use of the debt service reserve.

IMPACTS ON HOUSEHOLD BILLS

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. Holding other factors constant, $1 million in new debt service currently equates to approximately $6 to $7 for a typical household's annual bill. Using that guide, the $5.9 million debt service increase anticipated between 2019 and 2025 would increase a typical household's annual bill between $35 and $41 over that period, up from $323 in 2018.

CHART 1 | Historical and Projected Debt Service

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



DEBT LEVELS AND CONTROLS

There are important policy considerations with district debt. First, compared to a typical household or commercial business, the district's ability to repay debt is more 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. Currently, the equalized property valuation is approximately $48.6 billion. The district's debt limit is 5 percent of that, or approximately $2.43 billion. The district's projected debt at the end of 2025, $178 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. This may be a factor in the district's strategic financial planning.

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. Strict limitations on use of debt could provide an additional control, but would risk jeopardizing the district's service level or causing undesirable — and ultimately more costly — delays in needed projects.

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 November 1. Table 12 shows projected 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 12.1 percent to $26.6 million in 2020. 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 2020 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, 2019 or anticipated through 2021 are shown in Table 12. Note that the table does not include any debt that will be incurred beyond 2021.

TABLE 11 | Debt Service Budget

	2018 Actual	2019 Thru June	2019 Estimated Total	2019 Budget	Proposed 2020 Budget	% Change
REVENUES						
Transfer from Operating Fund	$14,505,000	$0	$15,158,000	$15,158,000	$15,840,000	4.50%
Interest	243,000	101,000	426,000	228,000	437,000	91.67%
TOTAL REVENUES	**$14,748,000**	**$101,000**	**$15,584,000**	**$15,386,000**	**$16,277,000**	**5.79%**
EXPENDITURES						
First Half Interest	$1,711,000	$1,601,000	$1,601,000	$1,642,000	$ 1,767,000	7.31%
Principal	9,506,000	9,794,000	9,794,000	9,868,000	10,213,000	3.22%
Second Half Interest	1,596,000	0	1,536,000	1,574,000	1,964,000	19.57%
TOTAL EXPENDITURES	**$12,813,000**	**$11,395,000**	**$12,931,000**	**$13,084,000**	**$13,944,000**	**5.70%**
DEBT SERVICE FUND BALANCE						
BEGINNING BALANCE	$19,546,000	$21,481,000	$21,481,000	$21,411,000	$24,134,000	12.75%
TOTAL REVENUES	14,748,000	101,000	15,584,000	15,386,000	16,277,000	5.79%
TOTAL EXPENDITURES	12,813,000	11,395,000	12,925,000	13,084,000	13,830,000	5.70%
ENDING BALANCE	**$21,481,000**	**$10,187,000**	**$24,134,000**	**$23,713,000**	**$26,467,000**	**12.12%**

TABLE 12 | Estimated Debt Service Payment Schedule

YEARS ENDING DECEMBER 31	PRINCIPAL	INTEREST	TOTAL
2020	10,185,885	3,720,649	13,906,535
2021	10,923,458	4,870,487	15,793,945
2022	12,453,506	5,262,689	17,716,195
2023	13,826,529	5,135,184	18,961,713
2024- 2028	58,940,285	20,428,234	79,368,520
2029- 2033	55,121,722	11,462,167	66,583,889
2034- 2037	25,378,058	3,968,034	29,346,092
TOTAL	**186,829,445**	**54,847,443**	**241,676,888**

Return to TOC

SECTION FIVE

DEPARTMENTAL INFORMATION

The district serves 26 Madison area customer communities covering approximately 184 square miles and 380,000 people.

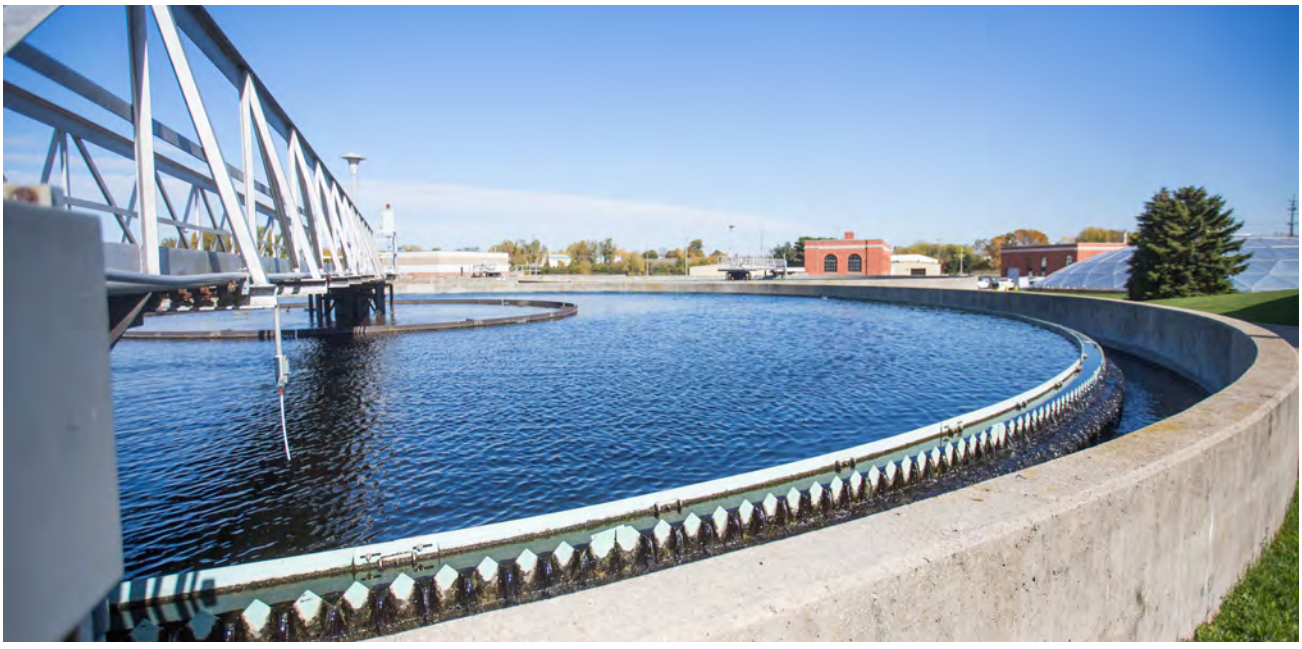
DEPARTMENT INFORMATION

The district is made up of five departments: district leadership and support, engineering, planning and strategy, operations and maintenance and ecosystem services. Each department's section includes a purpose statement, budget summary (all totals are rounded to the nearest thousand), influence factors and major changes to the budget. Each section also includes goals. The blue highlighted goals are district-wide initiatives.

TABLE 13 | Departmental Budget Summary

	2019 Adopted Budget	2020 Budget	2019 Change from 2020	% from 2019 Budget
District Leadership and Support	3,361,000	3,443,000	82,000	2.44%
Engineering	927,000	1,034,000	107,000	11.54%
Ecosystem Services	4,426,000	4,773,000	347,000	7.84%
Operations and Maintenance	12,921,000	14,421,000	1,500,000	11.61%
Planning and Strategy	3,871,000	3,930,000	59,000	1.52%
Debt Service	15,158,000	15,840,000	682,000	4.50%
TOTAL	**40,664,000**	**43,441,000**	**2,777,000**	**6.83%**
TOTAL WITHOUT DEBT SERVICE	**25,506,000**	**27,601,000**	**2,095,000**	**8.21%**
MAJOR EXPENSE CATEGORIES				
Asset Addition, Repair and Replacement	18,029,000	18,878,000	850,000	4.71%
Personnel Services	11,690,000	13,002,000	1,312,000	11.22%
Contract Services	4,111,000	4,500,000	390,000	9.49%
Materials, Supplies and Misc.	5,768,000	6,265,000	497,000	8.62%
Leave Allocation Adjustment	(133,000)	(118,000)	15,000	-11.28%
Transfer to Capital Projects Fund	1,200,000	915,000	(285,000)	-23.75%
TOTAL	**40,665,000**	**43,442,000**	**2,779,000**	**6.83%**

.



The district receives and treats approximately 41 million gallons of wastewater daily at the Nine Springs Wastewater Treatment Plant.

District Leadership and Support Department

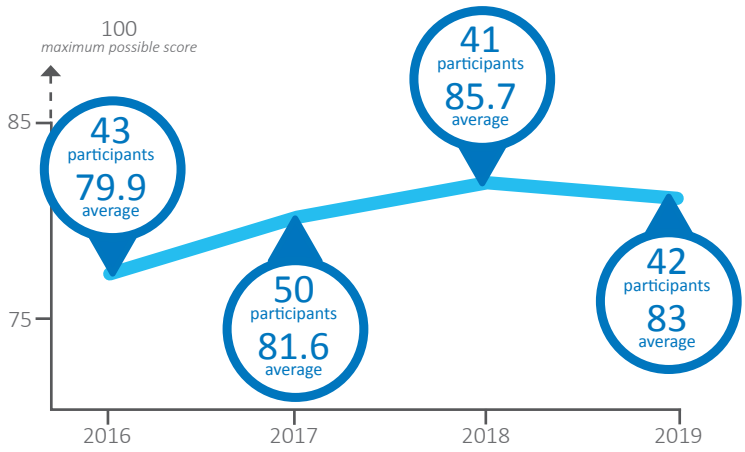
14 FTES

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

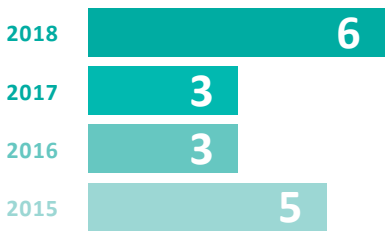
KEY RESULT INDICATORS

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



RECORDABLE INJURIES



BUDGET SUMMARY

2019 ADOPTED BUDGET | TOTAL: $3,361,000

2020 BUDGET | TOTAL: $3,443,000

	2019 Adoped Budget	2020 Budget	Change from 2019
* PERSONNEL SERVICES	1,852,000	2,010,000	158,000
* ASSET ADDITION, REPAIR AND REPLACEMENT	540,000	240,000	(300,000)
* CONTRACT SERVICES	802,000	1,026,000	224,000
* MATERIAL, SUPPLIES AND MISC.	168,000	168,000	0

**Restated 2019*

2.4%
change from 2019 budget
(+$82,000)

Personnel Services: 8.5%
Asset Addition, Repair and Replacement: -55.6%
Contract Services: 27.9%
Material, Supplies & Misc.: 0%

KEY RESULT INDICATORS

2018 AUDIT RESULTS

2018 ☑ 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
2018	☑ YES	☐ NO
2019	☑ YES	☐ NO

INTERCULTURAL DEVELOPMENT INVENTORY

98%
Percentage of employees completing inventory

88
District group score

INFLUENCE FACTORS

1. Workplace violence, security threats and data breaches are becoming common in the U.S., which is decreasing employees' feeling of security at work.
2. Rising public interest in water quality issues and holistic water thinking is causing greater dependence on trusted sources, such as the district for information.
3. Having a diverse and inclusive work environment is no longer a benefit, it is a necessity. Our communities are diverse and our workplace has to evolve to support diversity in order to recruit, retain and engage employees at the highest level.
4. Recruitment and retention of top talent for science, technology, engineering and mathematics (STEM) related jobs and the trades have become more competitive as the available workforce shrinks and economic growth continues.
5. There is increasing utility industry awareness that leveraging water investments can create workforce opportunity and increase community economic development.
6. Collaboration with diverse community groups is increasingly important particularly as contaminants of emerging concern, such as PFAS, are gaining wide interest and concern.
7. The district is continuing to grow, innovate and fill vacancies from retirements requiring us to invest more in human resources recruitment, training and development.
8. Projections for increased capital and operating obligations will exert pressure on district finances, requiring increased focus on district revenues and expenditures.
9. The upcoming change in the district's work and asset management software present the requirement and the opportunity to develop new financial systems.

DEPARTMENT UPDATE

The department of leadership and support works actively to support effective commission and organizational governance, corporate strategic communications, employee development and safety and budget management and accountability. Budget, accounting and procurement programs were added to this department during 2019 to create a more cohesive executive office that can better support department programs.

The department is made up of 14 full-time employees: chief engineer and director; assistant chief engineer; comptroller/budget manager; staff accountant; two accounting assistants; procurement agent; purchasing and inventory assistant; human resources manager; health, safety and security leader; communications and public affairs manager; executive coordinator; program resource associate; and program resource assistant.

MAJOR CHANGES TO THE BUDGET

An addition of $80,000 for security improvements at the Nine Springs Treatment Plant. The district completed a voluntary assessment with the Department of Homeland Security to identify and prioritize our long and short term opportunities for improvement. We needed additional resources to support the improvements such as security cameras and plant access control

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 overview and strategic planning section.

1. ENCOURAGE ELC ENGAGEMENT IN DISTRICT DECISION MAKING WITHIN THE SCOPE OF THE ELC'S CHARGE AND EXPLORE OTHER OPPORTUNITIES FOR ENGAGEMENT.

   Background: The Employee Leadership Council and Executive Team conducted a joint meeting in 2019 to develop a roadmap for strengthening the quality of the working relationship and working together to effectively implement change at the district.

   Goal: Implement key actions identified in the roadmap.

2. EQUITY

   Background: The district faces increasing financial pressure from a combination of aging infrastructure, increasing regulatory requirements and the end of federal funding. In addition, the cost of water utility service — including district charges — is unaffordable for some in our community. The commission received a report from staff of potential affordability programs and their feasibility and the issue was turned over to the commission for guidance. During strategic planning in 2019, the commission established an ideal that "we deliver clean and safe water in an affordable and equitable manner that benefits everyone." In addition, the commission has adopted outcomes policy O-2C which sets the goal that "charges for services are justified, adequate, equitable and predictable." The district's capital asset management and investment work is responsible for the first two factors, justification and adequacy of charges. Equity and predictability are joint concerns with the district and its customer communities.

   Goal: Engage customer communities on concerns and options for equitability and predictability of district service charges through the periodic customer community meeting process.

District staff working on a pollinator garden with Friends of Capital Springs Recreation Area Naturalist, Jane Carlson.

3. IMPROVE CULTURAL COMPETENCY OF THE ORGANIZATION

Background: Having a diverse and inclusive work environment is no longer a benefit, it is a necessity. The district's customer communities are diverse and the district's working environment must evolve to support diversity in order to recruit, retain and engage employees at the highest level. 2020 marks our third year of our partnership with the YWCA to evaluate 10 focus areas that support equity in the workplace.

Goal: 2020 marks our third year of our partnership with the YWCA. We plan to complete an accessibility audit and culture audit. The accessibility audit will examine our physical environment and technology to identify our ability to meet the needs of diverse employees and visitors. The culture audit will examine our communication, website, intranet, handbook and other forms of messaging to determine how it can be improved to support an equitable, inclusive and diverse work environment.

4. SAFETY AND SECURITY

Background: The Nine Springs campus has limited security protocols and infrastructure in place. With workplace violence and security threats becoming more common, the district has initiated a process to take a comprehensive look at security, with a focus on employee safety and network security.

Goal: Implement recommendations for the safety and security needs assessment performed in 2019. New funds have been included to complete this first phase of the work. Future year budgets will include funds for necessary upgrades to district facilities. There will likely be some policy decisions that weigh the cost/benefit for how safe the district should be. Safety includes both physical assets and network security.

The district has initiated a process to take a comprehensive look at security.

5. FINANCIAL SYSTEMS AND SUCCESSION PLANNING

Background: The district is planning to replace its existing work and asset management system [or computerized maintenance management system] which will require the development of new financial systems and software. At the same time, the district's budget manager has announced her retirement for mid 2020.

Goal: The budget includes funds to review our existing financial systems as part of the preparation for implementing a new work and asset management system and integrating new budget/accounting procedures and financial software. It also includes funds for a smooth transition from the incumbent to new budget manager.

6. PROCUREMENT

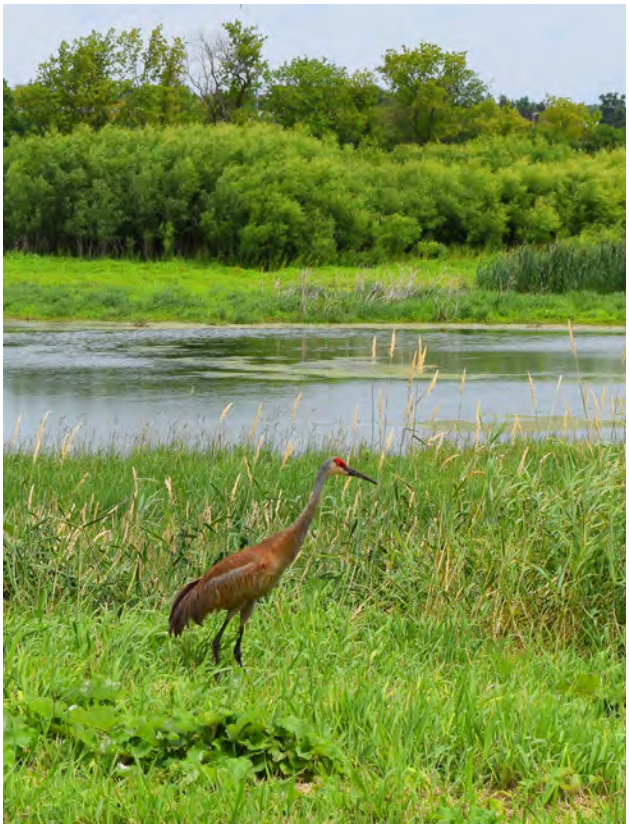
Background: The district is operating using an existing procurement code that was last revised in 1999. Since that time, new procurement methods have emerged, along with technologies for advertising and bidding.

Goal: Rewrite the procurement code to support the business needs of district programs, provide for efficiency and competitiveness.

7. COMMUNICATION

Background: After a successful year of customer community meetings, and receiving the results from a customer community attitude survey, the district will improve efforts to provide access to information of interest regarding water quality and build more community awareness about the district and services provided. Public attention to contaminants of emerging concern, such as PFAS, will require more active and proactive community engagement and communication.

Goal: Refine the strategic communications plan to reflect the feedback from customers at meetings and through surveys and to support program priorities such as inflow and infiltration, Yahara WINS, resource recovery, PFAS and pollution prevention.



Sandhill cranes make their home in the district's wildlife observation area.

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

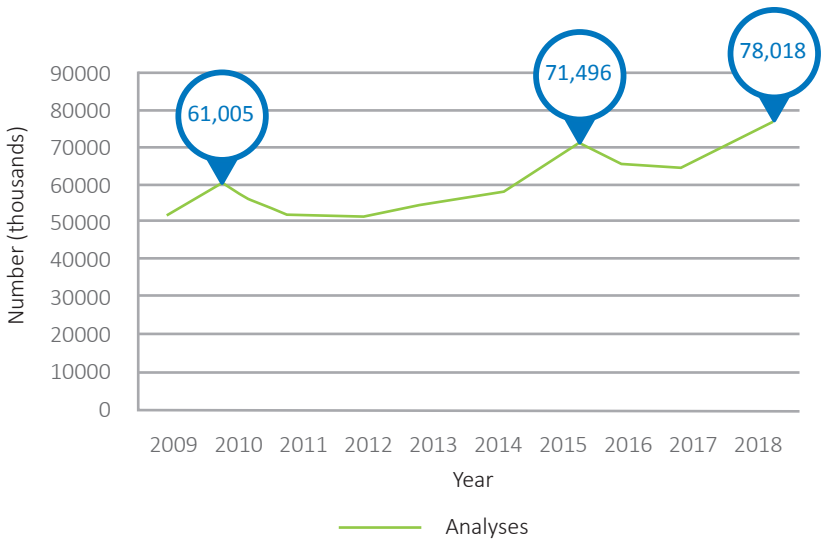
WPDES PERMIT COMPLIANCE

2018 99.955% COMPLIANCE

Percentage based on NACWA scoring for peak performance award

NATIONAL ASSOCIATION OF CLEAN WATER AGENCIES' PEAK PERFORMANCE AWARD

IN HOUSE LABORATORY ANALYSES



BUDGET SUMMARY

2019 ADOPTED BUDGET | TOTAL: $4,426,000

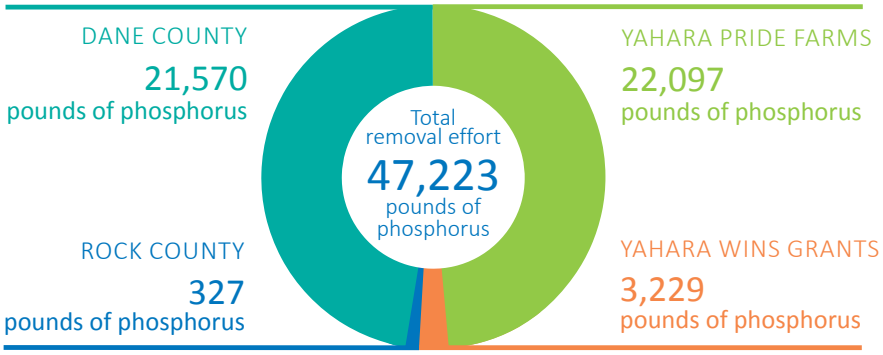
2020 BUDGET | TOTAL: $4,773,000

	2019 Adopted Budget	2020 Budget	Change from 2019
PERSONNEL SERVICES	1,960,000	2,137,000	177,000
ASSET ADDITION, REPAIR AND REPLACEMENT	283,000	342,000	59,000
CONTRACT SERVICES	1,643,000	1,743,000	100,000
MATERIAL, SUPPLIES AND MISC.	541,000	552,000	11,000

7.8%
change from 2019 budget
(+$347,000)

Personnel Services: 9.0%
Asset Addition, Repair and Replacement: 20.8%
Contract Services: 6.1%
Material, Supplies & Misc.: 2.0%

YAHARA WINS PARTNERS REPORTED PHOSPHORUS REDUCTIONS IN 2018



2017-18 WATER QUALITY PROFESSIONAL GRANTS

3
awards

780
water softeners upgraded

Total awarded:
$56,000

Results:
522
pounds per day reduction

2018 ROAD SALT REDUCTION GRANTS

7
awards

Total awarded:
$47,500

Results:
50%
average reduction among participants

INFLUENCE FACTORS

1. Increasing community awareness about the impacts of excess nutrients and other emerging contaminants on surface water is creating rising expectations for effective local action around source reduction measures and pollution prevention as a way to improve influent and effluent water quality as well as biosolids quality.
2. The projected scarcity for mined phosphorus will create more volatility in prices and more demand for dependable and affordable nutrient-rich byproducts as well as increased expectations for employing the best science, technology to ensure sustainable use and application of fertilizer.
3. Meeting regulatory obligations through traditional infrastructure solutions is becoming less cost effective as those solutions are limited to improving water quality only after it reaches the plant and can be disproportionately expensive relative to environmental gains.
4. Adaptive management as well as regulatory focus related to nutrients and contaminants of emerging concern is creating the potential for additional analytical sampling, monitoring, and testing of: the collection system, plant processes, receiving streams and in the watershed.
5. Rising desire from industrial users and the communities they are located in to proactively find source reduction solutions that involve collaborative permitting, best management practices and local limits examination.

DEPARTMENT UPDATE

The ecosystem services department is aligned based on four program areas: resource recovery; pollution prevention; laboratory services; and pretreatment and waste acceptance programs. Within these four areas are 17 full-time employees: director of ecosystem services, pretreatment coordinator, pollution prevention manager, two pollution prevention specialists, lab manager, six chemists, resource recovery manager, biosolids program coordinator, a diesel truck driver and two mechanics.

MAJOR CHANGES TO THE BUDGET

1. 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.
2. An increase of $20,000 will be used to replace aging laboratory analytical testing equipment.
3. An increase of $40,000 to support a new program to increase the number of acres available for summer biosolids nutrient recycling.

KEY RESULT INITIATIVES

The following initiatives highlight some of the department's efforts. The initiatives align with the five pillars described in the overview and strategic planning section.

1. PHOSPHORUS MANAGEMENT FOR BADGER MILL CREEK

   Background: Badger Mill Creek is an effluent dominated stream downstream of one of the district's two discharge locations. The Nine Springs Wastewater Treatment Plant produces a high quality effluent with respect to phosphorus, but the effluent phosphorus concentration exceeds applicable water quality criterion. The staff is studying a variety of potential compliance options including adaptive management, phosphorus trading, treatment, obtaining a variance or a site specific criterion.

   Goal: The commission will review and approve an inital draft preliminary compliance alternatives plan that outlines the combination of options the district intends to pursue to achieve compliance.

2. BIOSOLIDS RECYCLING PROGRAM MANAGEMENT

Background: The district currently recycles biosolids through the Metrogro program. With every Metrogro application, nutrients, including phosphorus, are applied to area farm fields as fertilizer. More intense seasonal storms, as a result of climate change, are making consistent field application of fertilizer challenging. Phosphorus is needed for crop production, but how it is applied is equally important; phosphorus must be applied where the crops can use it and it also must be kept out of area surface waters.

Goal: Strengthen and diversify the biosolids management program to decrease pressure on a liquid fertilizer program by exploring alternative biosolids management options.

Raise community awareness of the benefits and safety of using recycled biosolids and continue to build on existing outreach efforts that support agricultural demand for Class A biosolids.

3. REDUCE CHLORIDE TO MEET REGULATORY REQUIREMENTS

Background: Over the past decade the district has worked to reduce sources of chloride received by the district with a goal of meeting water quality standards and protecting fresh water. The district currently has a chloride variance as part of its discharge permit to achieve the best possible outcomes for the environment and customer communities. The district has made a preliminary determination that a variance with source reduction is the best compliance option to protect all local waters from chloride pollution.

Goal: Focus chloride reduction strategies on high-impact policy changes that result in large-scale reductions, as well as continued emphasis on large scale commercial reductions. The district will also begin to field test and employ strategies that target residential interventions to reduce the impact of residential water softeners to the chloride load passing through the plant.

4. INCREASED EMPHASIS ON INDUSTRIAL USERS

Background: The district pretreatment program exists to put controls in place that prevent pollutants from entering the system that are capable of causing immediate or long-term problems. The program has long employed pollution prevention strategies to ensure that pollutants are not directly dischared to the sewer system.

Goal: Examination of the Sewer Use Ordinance and updated local limits to gain flexibilities regarding enforcement of the ordinance and to better give customers certainty on what is expected of them to protect the sewer system

Engineering Department

8 FTES

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

KEY RESULT INDICATORS

CAPITAL PROJECTS MANAGEMENT

PROJECTS ON TARGET

- ☑ West Interceptor- PS5 to Gammon Extension Rehab
- ☑ Liquid Processing Improvements-Phase 1
- ☑ Northeast Interceptor- Truax Extension Relief
- ☑ Grass Lake Dike Restoration
- ☑ Liquid Processing Improvements- Headworks Flow Metering
- ☑ Pumping Station 17 Forcemain Relief- Phase 1
- ☑ Pumping Stations 13 & 14 Rehabilitation
- ☑ Operations Building First Floor Remodel

PROJECTS UNDER ADDITIONAL MONITORING

- Ⓜ Pumping Station 7 Improvements (Budget Increase)
- Ⓜ Southwest Interceptor- Haywood Drive Replacement (Budget Increase)

PROJECTS REQUIRING COURSE CORRECTION

NONE

BUDGET SUMMARY

2019 ADOPTED BUDGET | TOTAL: $927,000

2020 BUDGET | TOTAL: $1,034,000

	2019 Adopted Budget	2020 Budget	Change from 2019
PERSONNEL SERVICES	554,000	645,000	91,000
ASSET ADDITION, REPAIR AND REPLACEMENT	221,000	184,000	(37,000)
CONTRACT SERVICES	147,000	201,200	54,200
MATERIAL, SUPPLIES AND MISC.	4,700	4,200	(500)

11.6%
change from 2019 budget
(+ $107,000)

Personnel Services: 16.4%
Asset Addition, Repair and Replacement: -16.7%
Contract Services: 36.9%
Material, Supplies & Misc.: -10.6%

INFLUENCE FACTORS

1. As the economy continues to stay strong and the skilled labor pool shrinks, there will be increased demand for construction services, reducing the availability of qualified bidders and increasing bids.
2. The average age of the district's infrastructure continues to increase (it is now nearing 40 years old), which means that many district facilities are reaching the end of their useful life. This will require increased investments for future capital improvement projects.
3. Ensuring that our facilities, both pump stations and the treatment plant, continue to operate during power outages, will be a focus in coming years.
4. A more informed and connected citizenry will require project engineers to dedicate more time to engage external stakeholders, which will extend project timelines and increase soft costs.
5. Extreme weather events, including increased frequency of extreme precipitation events, are challenging the wastewater conveyance and treatment system. Conditions are no longer the same as they once were (i.e., they are no longer "stationary"), and the district must adapt as needed.
6. The level of service (including the desire for no overflows) that is expected by customers and regulators is increasing, which is causing more thorough reviews of resilient solutions.

DEPARTMENT UPDATE

In 2019, the engineering department increased from seven full-time employees to eight, as the collection system engineer position was added. In addition to this, the department consists of 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 projects range in value from less than $100,000 to $40 million or more. No new full-time employees are proposed for 2020.

MAJOR CHANGES TO THE BUDGET

1. The budget includes an increase in salaries/ wages with a transfer to general operating accounts from capital accounts. This is based on recent trends and is due to increased general administrative work, including training, continuing education, asset management initiatives, etc. The budget also includes market pay adjustments and progression increases for eligible employees as well as increased health insurance and fringe benefits costs.

2. The new collection system engineer position is budgeted for a full year in 2020 (it was only budgeted for nine months in 2019).

3. The budget contains an increase of $65,000 for access improvements to the Far East Interceptor and protection of the West Interceptor where it crosses the Pheasant Branch Creek.

4. The budget includes a decrease of $50,000 for providing back-up power generation at the treatment plant. This has been transferred to the O&M department budget.

5. An on-going budget item ($50,000) has been added for professional services required for the development and implementation of an I/I reduction program.

KEY RESULT INITIATIVES

The following initiatives highlight some of the department's efforts. The initiatives align with the five pillars described in the overview and strategic planning section.

1. COLLECTION SYSTEM RELIABILITY

   Background: The August 2018 storm event was a reminder as to how vulnerable the district's infrastructure is to extreme weather. In 2019, the district's customer communities indicated the reduction of inflow and infiltration (I & I) as a priority. This priority was confirmed by the commission during strategic planning, including an emphasis on overall collection system reliability to respond to climate change. The district funded a collection system engineer who is charged with managing the collection system and taking the lead on the I & I reduction program. A firm was retained to begin the study process, evaluate options, and recommend next steps for developing an I & I reduction program.

   Goal: The study process will continue through 2020 with the commission receiving check in points on various policy questions, including but not limited to:

   - Evaluate options for the District's role in implementing the program.
   - Identify changes that would be required to the District's sewer use ordinance and any other legal implications with national and state laws that would need to be addressed to implement a private property infiltration and inflow program.
   - Assess financial incentives and funding options for implementing the program and describe how each option specifically impacts the District and the customer communities.
   - Recommend strategies for public input/ education and establishing acceptance from customer communities

2. STRATEGIC INITIATIVES

- Continued development of a forcemain inspection program, including recommendations from the force main condition assessment plan.
- Continue coordination with WisDOT, private companies, customers and other municipalities to ensure our collection system facilities are not adversely impacted by other projects.
- Complete the installation of treatment plant operational continuity/resiliency (back-up power generation).

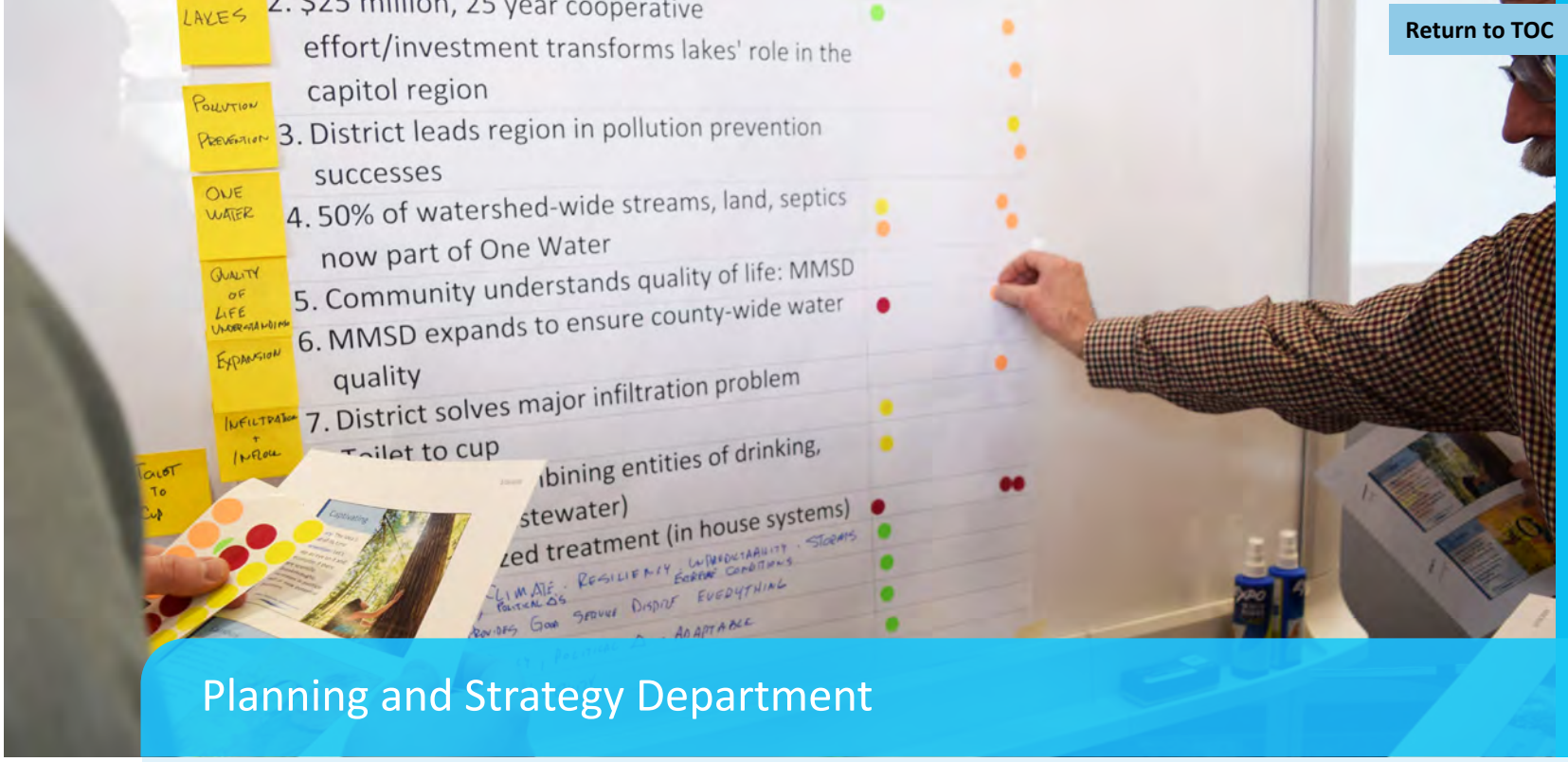
3. CONSTRUCTION

- Complete design, bidding, and construction for rehabilitation of the West Interceptor-Spring Street Relief.
- Manage construction for the first "phase" of liquid processing improvements. This is a large project ($13M+) that includes peak capacity improvements, UV disinfection replacement, east blower controls and substation rehabilitation.
- Complete planning and design, and begin construction for the rehabilitation of the Nine Springs Valley Interceptor from Dunn's Marsh to McKee Road.
- Manage construction of the headworks building venturi meter lowering project.
- Complete construction for improvements to Pumping Station 7.
- Manage construction of the Grass Lake dike stabilization project.
- Complete construction for the Northeast Interceptor-Truax Extension Relief.
- Complete planning and design for the Pumping Station 17 Force Main relief project (in conjunction with the City of Verona) and begin construction in late 2020.

4. PLANNING AND DESIGN

- Complete a space needs study and planning/design for the Operations Building first floor remodel and begin construction.
- Complete planning and design for the West Interceptor Shorewood Relief from Whitney Way to Walnut Street.
- Complete planning and design for the rehabilitation of Pumping Station 13 and 14 and begin construction.
- Begin planning and design for the rehabilitation of Pumping Station 4.
- Begin planning and design for the rehabilitation of the NEI Truax Extension from Lien Road to Rieder Road.

Return to TOC

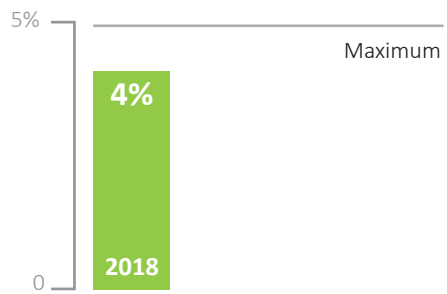


Planning and Strategy Department

14 FTES

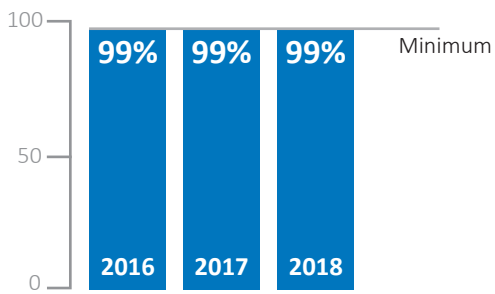
The planning and strategy department provides services in two areas: (a) capital asset management and investment; and (b) information technology. The capital asset area includes the asset management program, capital improvements planning, district service area growth, and strategic financial planning. The goal is to have needed capital assets at lowest lifecycle cost. Information technology includes data management, applications development, and network infrastructure. The goal is to provide information systems that meet district business needs and user needs in a cost-effective manner.

LIMIT AT RISK ASSETS



Zone 5 is assets with the highest combined likelihood of failure and consequence of failure. They need to be addressed within approximately five years. Target: No more than 5 percent of total number of treatment plant assets in zone 5.

MAXIMIZE NETWORK UPTIME



Time when the district's computer networks are available, excluding planned maintenance outages. Target: at least 99 percent.

BUDGET SUMMARY

2019 ADOPTED BUDGET | TOTAL: $3,871,000

2020 BUDGET | TOTAL: $3,930,000

	2019 Adopted Budget	2020 Budget	Change from 2019
* PERSONNEL SERVICES	1,665,000	1,850,000	185,000
* ASSET ADDITION, REPAIR AND REPLACEMENT	306,000	431,000	125,000
* CONTRACT SERVICES	608,000	562,000	(46,000)
* MATERIAL, SUPPLIES AND MISC.	93,000	172,000	79,000
* TRANSFER TO CAPITAL PROJECTS	1,200,000	915,000	(285,000)

**Restated 2019*

2.0%
change from 2019 budget
(+$59,000)

Personnel Services:	11%
Asset Addition, Repair and Replacement:	41%
Contract Services:	-8%
Material, Supplies & Misc.:	85%
Transfer to Capital Projects:	-24%

INFLUENCE FACTORS

1. In the 1960s, 1970s and 1980s, the district expanded its plant and collection system significantly to meet new environmental standards and regional growth. Now, those assets are aging and will need to be maintained and replaced on an ongoing basis. The cost of managing the district's existing assets is in addition to costs for still-rising environmental standards and continuing regional growth.

2. The districts' physical infrastructure is becoming more complicated, technical and interdependent. Planning for its growth and replacement requires correspondingly more sophisticated capital planning and asset management approaches.

3. The district's primary software system for asset management and financial functions (Oracle WAM v. 1.9) is no longer fully supported by its vendor, creating both a short term challenge for replacing the system and a long term opportunity to reengineer district asset management, maintenance and financial programs to be more efficient. Short term challenges include less support from the vendor, requiring additional third party support and customized workarounds by IT staff.

4. Information technology continues to become more cloud-based and network-reliant. This creates opportunities for greater usability and data management but additional need for security and a robust network infrastructure (see next factor).

5. The world is seeing a steady increase in network hacks, security breaches and ransomware attacks. Perpetrators are becoming sophisticated and include organized crime and state-sponsored groups. Defending against attacks and ensuring adequate recovery tools and insurance is a growing responsibility of IT groups in all organizations. Security also requires cultural and behavioral changes in the overall organization.

DEPARTMENT UPDATE

The department was formed in 2016 by combining positions from the engineering department and operations and maintenance department. In late 2018, the information technology group joined the department, to support greater integration between IT and two critical pieces of asset management, the computerized maintenance management system and the geographic information system. (The 2019 adopted budget figures given above have been adjusted to reflect that change and therefore do not match the figures given in the published 2019 budget. A corresponding adjustment has been made to the district leadership and support budget figures.)

The department has fourteen employees: seven working in IT, six working in capital asset management and investment, and a director. This includes a position added in 2018 to manage the district's computerized maintenance management system.

MAJOR CHANGES TO THE BUDGET

Excluding the capital fund transfer in item 1 below, the department budget increases by a total of $343,000 over 2019 levels. This is mainly due to an increase of $185,000 for salary and benefits; and an increase of $149,000 for IT network hardware. Specifically:

1. The budget reflects a transfer from the operating fund to the capital fund of $915,000, following the 2020 capital improvements plan. This is intended to be an ongoing transfer and is an increase from the $300,000 per year transfer begun in the 2019 budget. Note that the 2019 budget included an additional one-time transfer of $900,000 from unanticipated revenue due to high flow events. (Although this is an inter-fund transfer, it is shown as a department operating expense in the adopted budget.)
2. The budget increases salaries and benefits by a total of $185,000. This is a combination of market and progression increases for employees, increases in district fringe benefit costs, funding for additional student intern hours and full funding for a new position that was funded at only 75 percent in 2019. The operating expenditure increase also includes a transfer of some asset management program staff hours from the capital fund to the operating fund.
3. The non-IT training and conference budget is down $8,500 from $23,500 in 2019 to $15,000 in 2020. The 2019 budget was high in anticipation of GIS-related training that was not needed.
4. The IT budget increases by $185,000 for critical network equipment including servers, network storage, backup and switches for both the administrative and process control networks. The increase is driven both by needs for additional server capacity, file storage and backup capacity as district computing grows.
5. The IT budget increases by $31,000 to provide additional software requested by workgroups: locating and ticketing software for sewer maintenance and the collection system engineer, and pretreatment compliance tracking software for ecosystem services.
6. The IT increases above are partially offset by a spending decrease of $67,000 due to: (a) reduction in backup device service costs; (b) incorporation of network support, server repair and virus protection into existing service agreements and licenses; (c) fewer 2020 requests for tablet devices than normal; (d) lower developer software costs from conversion to a new database administration tool; and (e) reduced consulting assistance needs in 2020.

KEY RESULT INITIATIVES

1. STRATEGIC FINANCIAL PLANNING

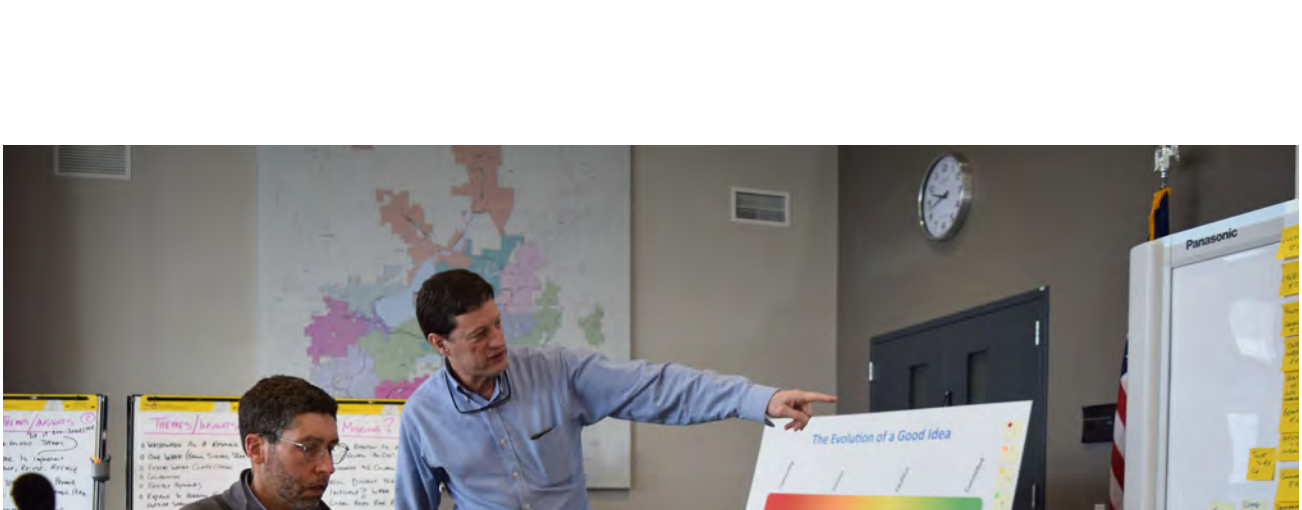
Background: The district has a formal policy statement on strategic financial planning which calls for the district to develop "an overall strategy for continued financial viability and integrity." In 2019, the commission advised staff on the elements desired in a strategic financial plan and on the process for keeping such a plan up to date. They also received a report from staff on macro trends that will influence the district's financial future and received commission preferences their long term directions.

Goal: Successfully implement the first full year of strategic financial planning which includes updating the commission on the plan in March, presenting minor capital scenarios in July, developing operating, capital and debt service budgets in October and receiving commission direction on desired changes to strategic financial guiding principles in November.

2. COLLECTION SYSTEM FACILITIES PLAN

Background: The district's collection system facilities plan identifies needed investments in the collection system. It addresses increasing system capacity, replacement of aging assets and strategic issues like power reliability and infiltration and inflow. The plan is the counterpart to the plant asset management plan. The collection system plan is updated periodically as needed and is augmented by other studies. The most recent update was in 2009. Updating the plan is a several year effort including study of anticipated regional growth and wastewater flows, evaluation of collection system assets and supplementary studies. Work on the current update began in 2018 with a study of future collection system flows, performed by the Capital Area Regional Planning Commission for the district.

Goal: Substantially complete the collection system facilities plan, with final revisions and approvals occurring in 2021.



The commission collaborated with staff and provided long-term direction for financial planning in 2019.

A staff member assesses the age and condition of equipment as part of the comprehensive asset management program.

3. COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM AND FINANCIAL SYSTEMS

Background: As indicated in Influence Factors, the district's primary software system for asset management and financial functions (Oracle WAM v. 1.9) is no longer supported by its vendor. This relates to the department in two ways. First, the department is responsible for developing and properly using a new computerized maintenance management system (CMMS), as part of the asset management program. A dedicated position was created in 2019 for this purpose. Second, the IT workgroup is responsible for supporting and providing technology resources for the new CMMS, for new financial systems that will be needed with the end of WAM and for support of WAM until its replacement. IT support includes staffing project teams and providing technical services like system configuration testing, programming, data analysis, data cleaning, software implementation planning. Critically, IT will plan and manage system integration issues.

Goal: Make progress on the project as described in the 2020 capital improvements plan. Provide IT services for the project as described above.

4. NETWORK RESILIENCY AND SECURITY

Background: As indicated in Influence Factors, the district is increasingly concerned with network resiliency and security. This is an ongoing responsibility of the department. Focus areas include: (a) redundancy for essential equipment like data storage, backup appliances and the process control network; (b) use of cloud services for additional redundancy and resiliency; (c) cyber security insurance for financial loss and restoration costs from network attacks; (d) partnership with the Department of Homeland Security and other agencies; (e) user training and guidelines such as password use; and (f) IT disaster recovery planning.

Goal: Establish and maintain appropriate plans in the listed focus areas and make progress according to those plans through 2020.

5. RECORDS MANAGEMENT PROGRAM

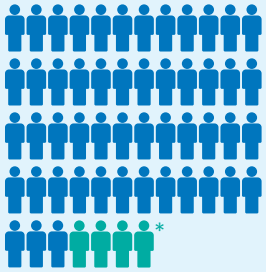
Background: The district began a records management program in 2019. Although the foundation of the program is established and early work completed, significant ongoing work remains. Because of the importance of records management to efficient district processes, the program remains an explicit goal for 2020. Work will focus on implementing two software "modules": one for integration of the document system with the district's geographic information system; the other for agenda management, to streamline staff support for the commission and other critical meetings. In addition, the program will continue to develop customized workflows for individual workgroups and to train district staff.

Goal: Implement software modules for OnBase-Esri integration and for agenda management. Develop workflows for workgroups following the records management program plan.

The Information Technology group is working on network resiliency and security through a variety of projects.

Operations and Maintenance Department

51 FTES



*4 PROPOSED FTE'S

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

2017	16,032	million gallons
2018	16,857	million gallons
through July, 2019	9,868	million gallons

METROGRO

2017	35.7	million gallons
2018	35.2	million gallons
through July, 2019	20.0	million gallons

BUDGET SUMMARY

2019 BUDGET | TOTAL: $12,921,000

2020 BUDGET | TOTAL: $14,421,000

	2019 Adopted Budget	2020 Budget	Change from 2019
PERSONNEL SERVICES	5,527,000	6,241,000	714,000
ASSET ADDITION, REPAIR AND REPLACEMENT	1,521,000	1,842,000	321,000
CONTRACT SERVICES	911,000	969,000	58,000
ENERGY	3,570,000	3,677,000	107,000
MATERIAL, SUPPLIES AND MISC.	1,392,000	1,692,000	300,000

11.6%
change from 2019 budget
(+ $1,500,000)

Personnel Services: 12.9%
Asset Addition, Repair and Replacement: 21.1%
Contract Services: 6.4%
Energy: 3.0%
Material, Supplies & Misc.: 21.6%

RESOURCE RECOVERY

BIOGAS

2017 — 305.1 million cubic feet
2018 — 288.9 million cubic feet
through July, 2019 — 175.7 million cubic feet

METROMIX

2017 — 2335 cubic yards
2018 — 2125.4 cubic yards
through July, 2019 — 870.1 cubic yards

STRUVITE

2017 — 585.1 tons
2018 — 719.4 tons
through July, 2019 — 430.9 tons

REUSED EFFLUENT

2017 — 184 million gallons
2018 — 185.2 million gallons
through July, 2019 — 126 million gallons

INFLUENCE FACTORS

1. The district is experiencing an increasing volume of unplanned maintenance driven by aging infrastructure and integration challenges associated with new assets. Costs for routinely scheduled preventive maintenance also are on the rise due to the overall increased complexity of the plant's operations. Together, these factors are exerting upward pressure on staffing costs as well as expenditures on parts and equipment.

2. The district now incurs significant energy costs and energy-related costs will continue to rise in the years ahead as the district's aging energy production infrastructure requires replacement. A planned energy study is expected to identify the most cost effective strategies and technologies for energy management.

3. The district's water and solids treatment processes are dependent on the use chemicals. The current market volatility and increased costs will continue to make treatment levels a balance between minimizing operating costs and meeting regulatory limits.

DEPARTMENT UPDATE

The operations and maintenance department includes 51 employees who serve the district by operating and maintaining district assets. The operations section is beginning a comprehensive energy management study, researching low phosphorous treatment alternatives to meet new regulatory limits, and restructuring the operator staffing and schedule to achieve improved staff safety and a higher level of service for the plant process and its equipment. The maintenance section activities focus on conducting preventive and reactive maintenance activities at the treatment plant, the pumping stations and the collection system along with monitoring and sampling for customer billing. The department has been significantly involved in asset management and reliability centered maintenance. Involvement and activities related to asset management and reliability centered maintenance along with involvement in the liquid processing facilities construction phase will continue in 2020.

MAJOR CHANGES TO THE BUDGET

1. Personnel services are budgeted to increase by $714,000 or 13 percent. Changes within the personnel services section include the addition of four new staff positions, market and progression increases for employees and increased health insurance and fringe benefits costs.

2. An increase of $107,000 or 3 percent is included for energy use and provider supplied redundancy.

3. An increase of $230,000 is included for asset repair and replacement, and contract services for mechanical replacement parts, programmable logic controller (PLC) replacements, and increased capacity for annual digester cleaning.

4. The budget includes an increase of $265,000 for chemicals (polymers and ferric chloride) due to market volatility and rising costs.

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 overview and strategic planning section.

1. COMPREHENSIVE ENERGY MANAGEMENT MASTER PLAN

Background: The district's commitment to sustainability extends to the efficiency, consumption and sourcing of energy needed to ensure reliable operations and meet customer expectations for service at an acceptable cost. As plant assets age and require replacement, a comprehensive energy management master plan will inform equipment purchasing and energy-related contract decisions.

Goal: Initiate a comprehensive energy management master planning project with expected completion in 2021. The commission will receive staff updates on the progress of the study in 2020.

2. ASSET MANAGEMENT MAINTENANCE PERFORMANCE

Background: The district is developing a comprehensive asset management program. Reliability-centered maintenance is one of the keys to asset management and is being developed along with the plant asset management plan and the new computerized maintenance management system. Effective maintenance requires careful balancing of unplanned maintenance and planned maintenance. If maintenance is too reactive, too many assets will reach failure, raising costs and increasing harm to other parts of the operation. If too much maintenance is planned, staff will waste time and money on assets that do not require attention or for which failure has little consequence. Achieving the proper balance requires accurate data and relevant analysis of asset information and maintenance practices. This is enabled by a properly configured computerized maintenance management system. There are many factors involved, including asset condition, consequence of

Monitoring services crew members enter a manhole to collect flow data and samples.

failure, maintenance history, failure modes, staff time per asset and spending per asset, among others. For daily use by maintenance supervisors and staff, information must be summarized in key performance indicators. Finally, maintenance supervisors and staff must establish and follow proper procedures, including appropriate work planning.

Goal: In 2020, the operations and maintenance department will continue to implement reliability-centered maintenance recommendations including:

- implementation of new operator scheduling and work duties leading to improved maintenance procedures and work planning.
- development and analysis of maintenance key performance indicators that support balancing of planned and unplanned maintenance and cost control.
- implementation of the concepts that make up the IPSECA process for completing work. IPSECA stands for Identify, Plan, Schedule, Execute, Close, and Analyze. Focus will be placed on developing workflows and strategies for identifying, planning and scheduling work.

The winter of 2019 saw some of the coldest weather on record. Pictured above a district clarifier at -26 degrees Fahrenheit.

Return to TOC

APPENDICES

Return to TOC

APPENDIX A: PROJECT SUMMARIES

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.

On our district website (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 (2020- 2025).

TABLE OF CONTENTS - PROJECT SUMMARIES

CIP ID#
A01.1

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 was 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

2020 EXPENDITURE ($2020)	TOTAL COST
$4,661,000	$5,646,000

CIP ID#
A01.2

Ultraviolet Disinfection System Replacement

START DATE:
2018
COMPLETION DATE:
2021

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 was 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 (UV) 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 UV system needs a corresponding upgrade in hydraulic capacity

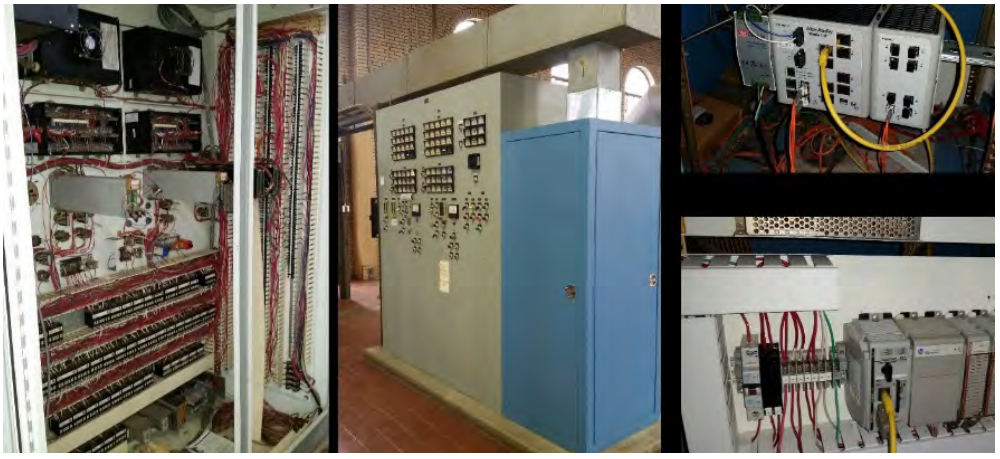
FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$1,893,000	$4,197,000

CIP ID#
A01.3

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 2016 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

2020 EXPENDITURE ($2020)	TOTAL COST
$351,000	$ 425,000

CIP ID#
A01.4

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 was 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

2020 EXPENDITURE ($2020)	TOTAL COST
$403,000	$488,000

CIPID# A01.5

54 Inch 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 was 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 pre-stressed 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 10th addition construction in 2005 and a rehabilitation project was put out for bid in 2007. The bids received then were over the project budget and a decision was made to temporarily delay the project approximately 10 years.

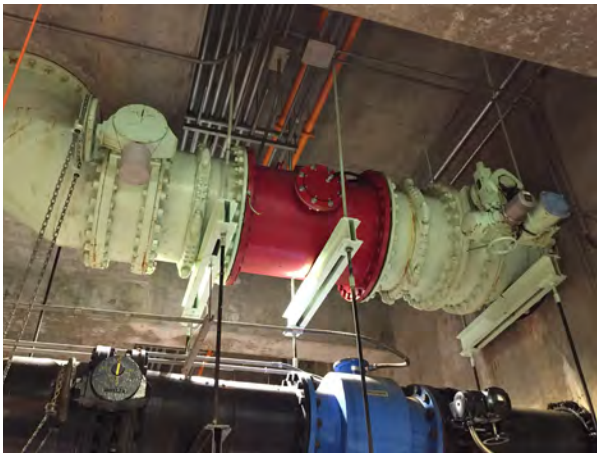
FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$719,000	$870,000

CIP ID#
A01.6

East-West Plant Flow Metering

START DATE:
2018
COMPLETION DATE:
2020



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 was 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 that 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.

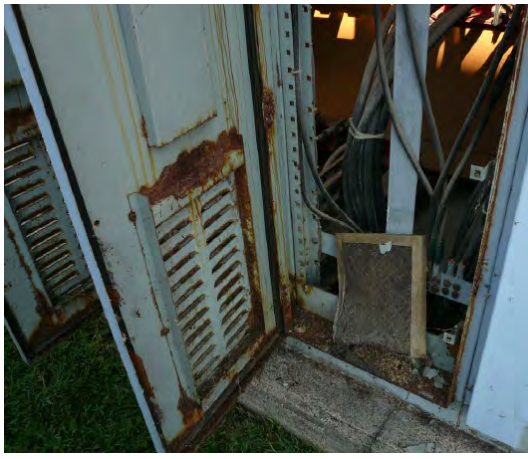
FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$138,000	$167,000

CIP ID#
A01.7

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. 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 was 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-1980s 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

2020 EXPENDITURE ($2020)	TOTAL COST
$2,783,000	$3,365,000

CIP ID#
A01.8

Process Control System Upgrade – Phase Two

START DATE:
2018
COMPLETION DATE:
2020



PROJECT TYPE	Plant Improvements – Process Control System (PCS)
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project will replace the controllers that provide automation for the secondary treatment system. This project was 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 PCS upgrade project in 2016 at a cost of $4.3 million. Phase two of the project involves replacing 10 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 PCS upgrade 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 PCS upgrade 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

2020 EXPENDITURE ($2020)	TOTAL COST
$1,347,000	$1,630,000

CIP ID#
A02.1

Headworks Flow Metering

START DATE:
2019
COMPLETION DATE:
2020

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 to the west of the headworks building will also be needed. This project was included in the 2016 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 10th addition project approximately 10 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. 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). As such, it is desirable to implement this project prior to the planned replacement of the fine screening equipment so that performance of the screens can be evaluated under improved operating conditions (see related project ID A02.3).

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$2,091,000	$2,291,000

CIP ID#
A02.2

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 was 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 10th 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.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$5,000	$3,392,000

CIP ID#
A02.3

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 was 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 one quarter inch 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 handlings 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. (see related project A02.1)

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$10,000	$3,999,000

CIP ID#
A02.4

Activated Sludge Projects

START DATE:
2021
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 was 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

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$ 10,769,000

CIP ID#
A02.5

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 (see related project ID# A02.6). 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 does 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

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$2,631,000

CIP ID#
A02.6

Plant Aeration System Projects (Nitrite Shunt)

START DATE:
2024
COMPLETION DATE:
2026

PROJECT TYPE	Plant Improvements – Aeration System
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project involves implementation of the nitrite shunt biological nutrient removal process on a plant wide basis. This project assumes successful bench scale and pilot testing of the process in prior years (see related project ID A02.5). It is anticipated that costs associated with the project will be funded through the Clean Water Fund program.
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 implanting the changes plant wide.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$22,907,000

CIP ID#
A02.7

East and West Blower Switchgear

START DATE:
2024
COMPLETION DATE:
2026

PROJECT TYPE	Plant Improvements – Activated Sludge Process
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is to replace the switchgear that powers the blower motors in the east blower building and the west blower building. The equipment in these buildings has exceeded its expected service life of 30 years and needs replacement in conjunction with the blower systems at these facilities. It is expected that the project will be funded with a loan from the Clean Water Fund.
BACKGROUND	The switchgear equipment for the east blower building was installed in 1963 and powers four blower motors. The switchgear equipment for the west blower building was installed in 1985 and currently powers three blower motors. While this equipment is regularly inspected and well maintained, it has exceeded its expected service life and should be replaced as part of the blower system improvements that are anticipated in future phases of the liquid processing projects. Failure to replace this equipment in a timely manner increases the risk of arc-fault events and the likelihood of permit violations due to interruptions in the secondary treatment process.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$2,626,000

CIP ID#
A03

Shop One Interior Renovations

START DATE:
2021
COMPLETION DATE:
2022

PROJECT TYPE	Plant Improvements – Shop One
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project will renovate the interior spaces on the first floor of the Shop One building. The affected spaces include the former purchasing office and the former mechanic workshop area. A consultant will be retained to conduct a space needs analysis and preliminary design of the area in 2021. The final design and construction is scheduled for 2022. It is anticipated that these improvements will be funded from capital reserves.
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. These renovations included conversion of the former electrician's workspace to a meeting room. The meeting room is currently used in conducting public tours of the treatment plant and for large group meetings for district staff. This project will focus on renovating the remaining unfinished spaces on the first floor of the Shop One building, including the former purchasing room and former mechanics workspace. When complete, the renovations will provide additional space for interacting with the community to promote the 'One Water' concept.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$272,000

CIP ID#
A04

Resource Recovery Facility

START DATE:
2019
COMPLETION DATE:
2024

PROJECT TYPE	Plant Improvements – Biosolids End Use
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The primary purpose of this project is to evaluate the best means for managing the district's biosolids using life-cycle cost principles. This study will include analysis of the district's existing liquid program (Metrogro) and other alternatives such as composting. The results of the planning phase may lead to the design and construction of future facilities that are needed to store, mix and distribute the biosolids, depending on the recommended alternative. The construction of future facilities will only be undertaken if a market for a class A biosolids product exists and it can be produced in a competitive manner. If implemented, it is expected that the projected will be funded through a loan from the Clean Water Fund.
BACKGROUND	The district has been pursuing development of a class A biosolids product to diversify its biosolids reuse program since the early 2000s. Early research focused on adding amendments such as sand and sawdust to the dewatered biosolids. The cost of these amendments was high and market interest was low. Current focus has shifted to investigate a composted or air-dried product. Composting significantly reduces the volume of the material, creates less odors than mixing biosolids with amendments and creates a product that would be compatible with uses within urban and rural markets. Small-scale composting trials were successfully conducted in 2017 and 2018 and will continue in 2019 to determine the product's viability.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$258,000	$2,899,000

CIP ID#
A05.1

Energy Management Master Plan

START DATE:
2020
COMPLETION DATE:
2021

PROJECT TYPE	Energy related projects – use reduction/generation
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This study will take a comprehensive look at how the district is currently using energy at the treatment plant and will create a roadmap for how to best manage energy in the future. Particular focus will be placed on how to optimize energy use as critical pieces of equipment are replaced in the coming years, such as the district's gas-driven electrical generators. Expected areas of study include the following: replacing or retiring generators; selling upgraded biogas; and creation of other value-added products from anaerobic digestion. The cost of the master plan study will be funded from capital reserves.
BACKGROUND	Brown and Caldwell/Strand Associates performed an energy study in 2014 with the goal of outlining a strategy for the district to achieve energy independence. These strategies included ways to reduce energy usage, improve the utilization of digester gas, and produce more energy. Many of the projects were associated with the aeration system, the largest use of energy at the plant. One major area not addressed in the 2014 study pertained to biosolids handling and distribution. Additionally, the 2014 study was intended to be periodically updated to reflect changes in technology, system changes, and changes in the regulatory and rate environment. With the recent issues with aging biogas powered engines, the addition of air permit requirements, and new opportunities for biogas upgrading and sale, updating the energy plan was deemed a sensible next step to determine the best use of energy infrastructure.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$412,000	$624,000

CIP ID#
A05.2

Plant Energy Facilities Plan

START DATE:
2022
COMPLETION DATE:
2023

PROJECT TYPE	Energy related projects – use reduction/generation
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This 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 use, 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. The facilities plan will build on the results and recommendations from the district's Energy Management Master Plan, which is scheduled for completion in 2021.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$942,000

CIP ID#
A05.3

Plant Energy Projects

START DATE:
2024
COMPLETION DATE:
2027

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 energy management master plan (CIP ID#A05.1) and plant energy facilities plan (CIP ID# A05.2). At this time, we anticipate that further study will focus on 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 management master plan and the plant energy 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

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$17,524,000

CIP ID#
A06

Final Clarifier 4, 5 and 6 Effluent Launder Trough Replacement

START DATE:
2020
COMPLETION DATE:
2020

PROJECT TYPE	Plant Improvements – Final Clarifiers
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project will replace the effluent launder troughs on final clarifiers four through six. The existing steel troughs have corroded to the point where they are unsafe and may interfere with system performance. It is anticipated that this project will be funded with reserves from the capital fund.
BACKGROUND	In the fall of 2017 district staff discovered numerous holes in the effluent launder trough of final clarifier six. It is thought that these holes are due to corrosion. Similar holes were found in the launder trough for final clarifier five in the spring of 2018. The troughs need to be structurally sound, as they need to be able to safely support a worker while performing maintenance on the clarifier. Further, as the troughs continue to corrode, the holes in the steel will enlarge and more mixed liquor will combine with the effluent, compromising treatment efficiency. While there is no visible damage to final clarifier four at present, it was installed at the same time as the other two clarifiers and operates under similar conditions. It is proposed that the effluent launder troughs on all three final clarifiers be replaced as part of one project in 2020.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$239,000	$239,000

CIP ID#
A07, A08, A09

Miscellaneous Capital Improvements

START DATE:
ONGOING
COMPLETION DATE:
ONGOING

PROJECT TYPE	Plant improvements – Miscellaneous Capital Improvements
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This summary covers three areas: (A07) Annual Process Tank Coating and Repair ($191,000) (A08) Annual Pavement Improvements ($61,000) (A09) Minor Capital Improvements (109,000)
BACKGROUND	The district annually includes funds in its capital budget for coating of process tanks and resurfacing of roads. These funds are used to protectively coat the tanks 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.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$361,000	ONGOING

CIP ID#
A10

Metrogro Applicators and Equipment

START DATE:
2021
COMPLETION DATE:
2024

PROJECT TYPE	Metrogro Applicators and Equipment
LOCATION	Metrogro Program
DESCRIPTION	This line item is included in the capital improvements plan to fund the replacement of four new biosolids applicators and two storage tanks over the next five years. It is anticipated that these replacements will be funded through reserves from the capital fund.
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. The district's standard is to replace an applicator when it reaches 10,000 hours of service. Using that standard, four applicators will require replacement between 2021 and 2024. The six-year capital improvements plan calls for one applicator to be replaced each year during this period. It should be noted that the purchases of this equipment is subject to change, pending the outcomes of the district's biosolids management study (CIP ID# A04).

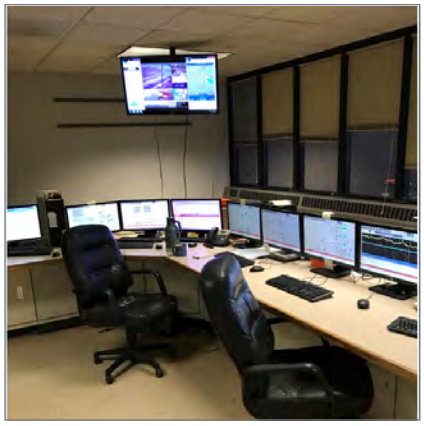
FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$4,104,000

CIP ID#
A11

Operations Building First Floor Remodel

START DATE:
2019
COMPLETION DATE:
2021



PROJECT TYPE	Building Improvements
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is to evaluate, design and build site improvements on the first floor of the Operations Building that will provide a safer and more efficient use of space for staff from the operations and ecosystems services departments. The improvements will also allow for safer and enhanced tours of the laboratory facility by the general public. It is anticipated that funding for these improvements will be through a loan from the Clean Water Fund.
BACKGROUND	Some aspects of this project were evaluated in the space needs study performed by Bray Architects in 2013. In that study, the operators' control room was evaluated and a need for improved personal storage and better efficiency was identified. Specific recommendations for improvement of these conditions were not advanced and implemented, however. Since the 2013 study was performed, three members of the ecosystems services department have moved into offices in the laboratory and the operations supervisor and lead operator now share a standard sized office near the control room. These recent changes have led to concerns over worker safety, the safety of the public during facility tours and unsanitary conditions in these work spaces. It is now desired to further evaluate these conditions and implement improvements as part of this project.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$599,000	$1,729,000

CIP ID#
A12

Miscellaneous Treatment Plant Improvements

START DATE:
ONGOING
COMPLETION DATE:
ONGOING

PROJECT TYPE	Variable
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of these projects is to make modifications or minor improvements to capital assets at the treatment plant on an annual basis to ensure that they remain in good working condition and to ensure the safety of the district's workers. These projects will be funded through reserves in the capital fund.
BACKGROUND	As the district's assets at the treatment plant continue to age and process complexity increases, operations staff have noted a need to make a number of minor improvements to assets to ensure the assets remain in good working order. In many cases, the projects are relatively small in scope, yet they are too large and time consuming to be addressed by the district's maintenance staff. The intent of this item in the capital budget is to provide an annual allowance for the identification and completion of these smaller improvement projects at the treatment plant. The projects will be administered through the operations or engineering department and completed by a contractor in accordance with the district's procurement code.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$110,000	ONGOING

CIP ID#
A13

15 kV Electrical Service Replacement

START DATE:
2020
COMPLETION DATE:
2025

PROJECT TYPE	Plant Improvements – Electrical Distribution
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	This project proposes to replace the outdoor service switchgear, transformers and busway system for the incoming electrical service to the treatment plant. This system is responsible for transforming the incoming voltage from 15,000 volts to 5,000 volts so that it can be utilized by plant equipment. It is anticipated that any future equipment replacement will be funded through a loan from the Clean Water Fund. Initial investigation and assessments of equipment condition will be paid for through capital fund reserves.
BACKGROUND	This equipment was installed in 1984-85 and is located outside, just north of the effluent building. The equipment steps down the incoming voltage to 5,000 volts for use by large equipment such as the effluent pumps and the blowers for the aeration system (a secondary system further steps down the voltage from 5,000 volts to 480 volts for use by other equipment). Industry standards estimate a service life of 40 to 50 years for this equipment. Based on the lower bound of this estimate, the district is planning for the equipment to be replaced in 2024. Staff intends to hire a consultant in 2020 to do a thorough evaluation of the equipment's condition. A more definitive schedule will be established after that time.

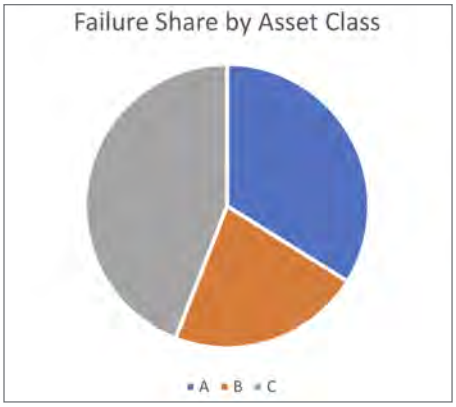
FINANCIAL ANALYSIS

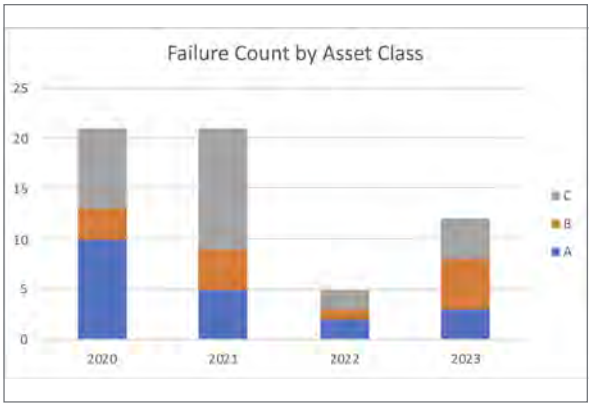
2020 EXPENDITURE ($2020)	TOTAL COST
$95,000	$3,002,000

CIP ID#
A14

CMMS Replacement

START DATE:
2020
COMPLETION DATE:
2023





PROJECT TYPE	Plant Improvements – Computerized Maintenance Management System
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is twofold: (1). Purchase and implement a new computerized maintenance management system (CMMS) that utilizes a reliability-centered maintenance approach to assets; and (2). Purchase and implement a new financial system with enhanced reporting and analysis features for financial and budgetary processes. Due to their interaction with each other, both of these systems will be analyzed and implemented in parallel through one project which spans several years. The cost of this project will be funded through reserves in the capital fund.
BACKGROUND	The district installed its initial CMMS in 1997 for a cost of approximately $1.0 million (roughly $1.6 million in 2019 dollars). The company that developed the system eventually was purchased by Oracle. While the system has generally served the district well since 1997, Oracle is now planning to upgrade its system to a new version which is more complex and targets large users with different needs than the district. As such, the district has a need to obtain a new CMMS and financial system that better supports the district's approach to asset management. Management of the CMMS project will be through a new position in the Planning and Strategy Department, while management of the financial project will likely be done through a consultant.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$706,000	$4,282,000

CIP ID#
A15

Lagoon Dikes Stabilization

START DATE:
2020
COMPLETION DATE:
2023

PROJECT TYPE	Plant Improvements – Lagoon Management
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is to conduct a geotechnical study of the dikes in the district lagoons and implement measures to stabilize them, especially in periods of high water levels. The entire project will be conducted in several phases between 2020 and 2023, and any recommended repairs will be prioritized and implemented as needed. It is anticipated that the geotechnical study will be funded through cash reserves, while any necessary improvements will be funded through a loan from the Clean Water Fund.
BACKGROUND	The district's lagoons, located east of Moorland Road, were used to store biosolids until the early 1980's, at which time application on agricultural lands commenced. Some of the biosolids in the lagoons were found to have levels of polychlorinated biphenyls, or PCB's. The district worked with the EPA to clean up the lagoons in the late 1990's through addition of soil, a fabric cover and a new dike. The lagoons now provide wildlife habitat and recreational opportunities for the public and also act as storage reservoirs for excess plant inflow. During the extreme rainfall event in August of 2018, the water level in Nine Springs Creek reached historic levels, causing a leak which allowed water from the creek to move into the lagoon area. To protect the integrity of the dikes and prevent any migration of contaminated biosolids to the environment, it is desired to fully evaluate the dikes and repair any defective sections.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$361,000	$ 1,719,000

CIP ID#
A16

Plant HVAC Improvements

START DATE:
2020
COMPLETION DATE:
2021

PROJECT TYPE	Plant Improvements – HVAC
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is to upgrade and replace aging HVAC systems in various buildings at the treatment plant. HVAC systems need to be in good working order so that they meet applicable building codes, provide a safe environment for staff and protect equipment from damage caused by changing environmental conditions. Due to the harsh environments that these systems treat, they have deteriorated beyond reasonable repair and need to be replaced. It is anticipated that this project will be funded through reserves in the capital fund.
BACKGROUND	This project will address HVAC deficiencies in the dissolved air floatation (DAF) thickener 1 building and the gravity belt thickener (GBT) building. The DAF thickener 1 building has an exhaust fan located at the top of the fiberglass dome. In 2017 the fan became inoperable and the lack of ventilation now poses safety and equipment concerns. The GBT building was constructed in the late 1980's. No appreciable HVAC improvements have been implemented since that time. Replacement of the air handling units and exhaust fans are needed at this time, as well as an exhaustive study of the system to ensure that the proper number of air changes in this building is being achieved due to the harsh conditions present.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$129,000	$580,000

CIP ID#
A17

Campus Space Master Plan

START DATE:
2022
COMPLETION DATE:
2024

PROJECT TYPE	Plant Improvements – Space Needs
LOCATION	Nine Springs Wastewater Treatment Plant
DESCRIPTION	The purpose of this project is to evaluate existing facilities at the treatment plant, estimate future space needs and conditions and develop a long-term plan to accommodate those needs. Plant security will be an integral part of the evaluation to ensure that the campus is secure and safe for all staff and visitors. It is likely that this project will include the implementation of some security enhancements in the near term. It is anticipated that this project will be funded through capital fund reserves.
BACKGROUND	Traditionally the district has planned for future space needs in conjunction with major plant additions that were driven by permit compliance and/or capacity needs. The district has many large projects in its six-year capital plan that will require additional space and coordination. These projects include the following: liquids processing improvements projects, energy management master plan, biosolids master plan, Shop One site improvements and renovations, and a potential resource recovery facility. All of these projects should be evaluated together to effectively plan the future layout of the plant grounds. In addition, this master plan will incorporate campus security considerations into the analysis and provide both short and long term recommendations for improvements.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$915,000

CIP ID#
B01

NSVI Improvements– McKee Road to Dunn's Marsh

START DATE:
2019
COMPLETION DATE:
2021

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 add capacity and 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 inches, will be rehabilitated with a cured-in-place liner and/or replaced. 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. The Capital Area Regional Planning Commission is projecting that additional capacity will be needed in the defective sections as early as 2030. As such, either a relief sewer or replacement sewer will be provided as part of this project.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$3,033,000	$4,621,000

CIP ID#
B02

NEI – Truax Extension Relief

START DATE:
2018
COMPLETION DATE:
2020

PROJECT TYPE	Capacity Improvement – Conveyance System
LOCATION	Northeast Interceptor- US Highway 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 on the east side of USH 51 through the City of Madison's Reindahl Park and along Lien Road 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.

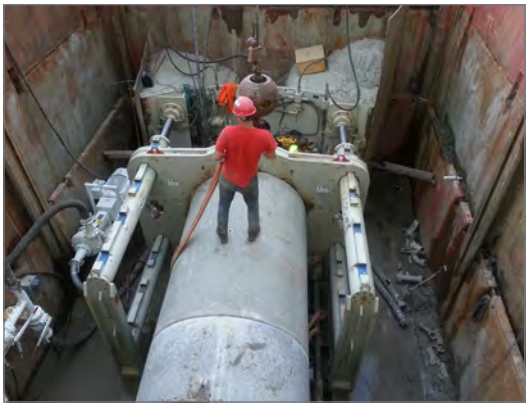
FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$4,666,000	$9,646,000

CIP ID#
B03

West Interceptor – Shorewood Relief

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 district's 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 its 2009 report entitled "MMSD Collection System Evaluation" 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 2011 collection system facilities plan update 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

2020 EXPENDITURE ($2020)	TOTAL COST
$5,073,000	$14,242,000

CIP ID#
B04.1

West Interceptor - Spring Street Relief (lining project)

START DATE:
2019
COMPLETION DATE:
2020

PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	West Interceptor – Spring Street Relief North 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 inch 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 inch cast iron sewer along the West Interceptor, north of West Washington Avenue. It is anticipated that the project will be funded with a Clean Water Fund loan.
BACKGROUND	The West Interceptor – Spring Street Relief Sewer was constructed in 1940 and is composed of cast iron. 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, allowing the pipeline to be successfully rehabilitated with a liner.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$1,787,000	$1,842,000

CIP ID#
B04.2

NEI Relief Sewer and E. Johnson Street Relief Sewer Rehab (lining project)

START DATE:
2020
COMPLETION DATE:
2020

PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	NEI Relief Sewer and E. Johnson Street Relief Sewer E. Johnson Street/N. First Street, City of Madison
DESCRIPTION	The purpose of this project is to extend the service lives of two aging district interceptors near the intersection of E. Johnson Street and N. First Street in the City of Madison. It is proposed to rehabilitate approximately 300 feet of the Northeast Interceptor Relief Sewer and the East Johnson Street Relief Sewer by inserting a new liner into the existing sewers. This rehab work should prolong the life of these facilities by 50 years or more. It is anticipated that these improvements will be funded through reserves in the capital fund.
BACKGROUND	The Northeast Interceptor Relief Sewer was constructed in 1937 and is comprised of 30" cast iron sewer. Like other district pipes of similar age and type, this sewer is showing evidence of extreme corrosion and is susceptible to failure if it is not rehabilitated. The E. Johnson Street Relief Sewer was installed in 1979 and is 36" reinforced concrete pipe. The reinforcing steel in approximately 84 feet of this interceptor is clearly visible. This corrosion is likely due to high strength waste from the former Oscar Mayer meat packaging facility. Replacing these sewers during the 2019 street reconstruction project in this area was investigated but rejected due to utility conflicts and the high groundwater table. Since additional capacity is not needed in either interceptor, rehabilitation with a new liner is a cost effective and less intrusive option than replacement.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$232,000	$232,000

CIP ID#
B05

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 corridor, 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 inch concrete pipe will be rehabilitated through the installation of a new cured-in-place liner within the existing pipe. This project will be undertaken shortly after a new relief sewer is installed roughly parallel to the existing sewer (see CIP ID# B02). It is anticipated that this project will be financed through a Clean Water Fund loan.
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 ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$82,000	$5,875,000

CIP ID#
B06

NEI – Waunakee Extension Relief (Phase 1)

START DATE:
2021
COMPLETION DATE:
2023

PROJECT TYPE	Capacity Relief – Conveyance System
LOCATION	Northeast Interceptor – Waunakee Extension Yahara River to Village of Waunakee, 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 16,500 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 are expected to create a need for the district to add capacity to the Waunakee Extension of the Northeast Interceptor. The Capital Area Regional Planning Commission (CARPC) is projecting that capacity will be reached in several segments of the Waunakee Extension by the year 2022 based on population forecasts. Periodic flow monitoring performed by district staff as part of the billing program validates these projections. 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

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$7,665,000

CIP ID#
B07

NEI – FEI to SEI Rehab (lining project)

START DATE:
2022
COMPLETION DATE:
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 inch 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 a loan from the Clean Water Fund.
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.

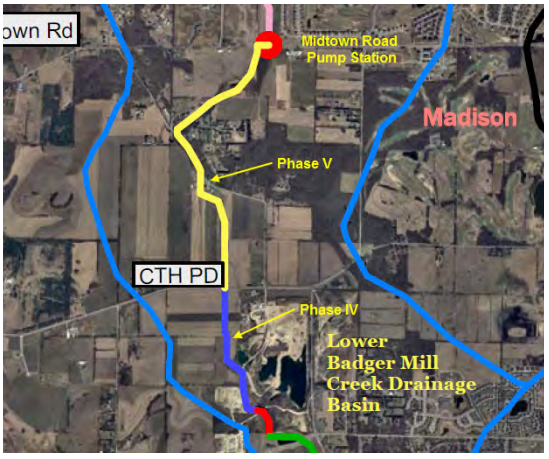
FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$2,069,000

CIP ID#
B08

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 & City of Madison
DESCRIPTION	This project will extend the district's Lower Badger Mill Creek Interceptor from Highway PD to Midtown Road to provide service for new development and relieve the City of Madison's existing pumping 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	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. Phases one through four of the interceptor were constructed between the years 2006 and 2018. 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 the district's Pumping Station 17 and/or when new development between Highway PD and Midtown Road dictates the need to provide service.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$4,291,000

CIP ID#
C01

Grass Lake Dike Stabilization

START DATE:
2018
COMPLETION DATE:
2020

PROJECT TYPE	System Rehabilitation – Effluent Conveyance System
LOCATION	Badfish Creek and 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 these measures will include a combination of repair methods, including rebuilding sections of the dike, redirecting the channel and enhancing habitat by inserting toewood and rootwads at strategic locations and by remeandering the channel. Funding of the improvements will be via 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 grounds department over the years, these problems are recurring and a more permanent solution is needed. Cardo Inc. was retained in September 2018 to provide an assessment of the problem, recommend solutions and prepare a design for improvements. The preliminary assessment has been completed and the final design should be done in the spring of 2019. Construction is scheduled for completion by fall of 2020.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$417,000	$542,000

CIP ID#
C02

Pumping Station 7 Improvements

START DATE:
2018
COMPLETION DATE:
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 improvements: replacement of existing controllers and control system; replacement of electrical switchgear (including outdoor transformers and utility equipment); installation of an odor control system; replacement of the HVAC system; separation of control room space from garage and screen room; pump replacement; and replacement of manual valves with electrically actuated valves. This project will be funded with a loan from the Clean Water Fund.
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 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

2020 EXPENDITURE ($2020)	TOTAL COST
$1,934,000	$4,247,000

CIP ID#
C03

Pumping Station 17 Force Main Relief - Phase 1

START DATE:
2018
COMPLETION DATE:
2021

PROJECT TYPE	Capacity Improvement – Conveyance System
LOCATION	Pumping Station 17 Force Main Badger Mill Creek, Highway M to north 6,900 feet, City of Verona
DESCRIPTION	This project will add a relief force main to the existing 16 inch force main that will provide additional capacity for wastewater that is pumped from Pumping Station 17 in the City of Verona. Approximately 6,900 feet of force main will be installed in the first phase of construction and 6,400 feet in the second phase, increasing the capacity of the force main system from 7.2 to 20.3 million gallons per day. It is anticipated that this project will be funded through reserves from the capital fund.
BACKGROUND	At this time the Pumping Station 17 force main serves only areas within the City of Verona. 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 its pumping station in this location. Capacity relief will be needed for both Pumping Station 17 and its force main system when this occurs. Relief for the force main system has been separated into two construction phases to coordinate with a City of Verona public works project. During phase 1, currently scheduled for 2020-2021, the City will install a new gravity sewer roughly parallel to the district's force main along Badger Mill Creek.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$2,114,000	$2,994,000

CIP ID#
C04.1

Pumping Station 13 Rehabilitation

START DATE:
2019
COMPLETION DATE:
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 a Clean Water Fund loan.
BACKGROUND	Table 5.1 of the district's 2011 collection system facilities plan update included a capacity and condition assessment for each of its 17 pumping stations across six categories. This table was updated in May of 2017 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. Overall Pumping Station 13 received the highest priority ranking among the 18 pumping stations with regard to the need for future rehabilitation.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$2,930,000	$5,750,000

CIP ID#
CO4.2

Pumping Station 14 Rehabilitation

START DATE:
2019
COMPLETION DATE:
2021

PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Pumping 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 a Clean Water Fund loan.
BACKGROUND	Table 5.1 of the district's 2011 collection system facilities plan update included a capacity and condition assessment for each of its 17 pumping stations across six categories. This table was updated in May of 2017 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 third highest priority ranking among the 18 pumping stations with regard to the need for future rehabilitation.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$2,858,000	$5,600,000

CIP ID#
C05

Pumping Station 4 Rehabilitation

START DATE:
2020
COMPLETION DATE:
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 a Clean Water Fund loan.
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

2020 EXPENDITURE ($2020)	TOTAL COST
$415,000	$5,162,000

CIP ID#
CO6

Pumping Station 17 Capacity Upgrade

START DATE:
2022
COMPLETION DATE:
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 three new pumping units and variable frequency drives. Other planned improvements include a new programmable logic controller and power redundancy upgrades. It is anticipated that this project will be funded through a loan from the Clean Water Fund.
BACKGROUND	At this time Pumping Station 17 serves only areas within the City of Verona. 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 its pumping station in this location. A capacity upgrade will be needed for Pumping Station 17 when this occurs.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$1,623,000

CIP ID#
C07

Pumping Station 17 Force Main Relief – Phase 2

START DATE:
2022
COMPLETION DATE:
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 inch force main and will provide additional capacity for wastewater that is pumped from Pumping Station 17 in the City of Verona. Approximately 6,900 feet of force main will be installed in the first phase of construction and 6,400 feet in the second phase. It is anticipated that this project will be funded through a loan from the Clean Water Fund.
BACKGROUND	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 its pumping station in this location. Capacity relief will be needed for the force main system when this occurs. Relief for the force main system has been separated into two construction phases. The district is proposing to construct phase one of the relief force main in conjunction with a City of Verona utility project in 2020 and 2021 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.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$0	$3,049,000

CIP ID#
C08

Pumping Station 16 Force Main Rehabilitation

START DATE:
2020
COMPLETION DATE:
2023

PROJECT TYPE	System Rehabilitation – Conveyance System
LOCATION	Pumping Station 16 Force Main North Gammon Road (Colony Drive to Mineral Point Road), City of Madison
DESCRIPTION	The purpose of this project is to correct condition defects in the Pumping Station 16 force main on North Gammon Road between Colony Drive and Mineral Point Road. Approximately 400 feet of interceptor sewer downstream of the interceptor will also be rehabilitated as part of this project. It is anticipated that this project will be funded through a loan from the Clean Water Fund.
BACKGROUND	The Pumping Station 16 force main was installed in 1979-80 on Gammon Road from Pumping Station 16 in the City of Middleton to just north of Mineral Point Road in the City of Madison. The system consists of approximately 6,900 feet of 36 inch diameter ductile iron pressure sewer and 2,900 feet of 30 inch diameter ductile iron sewer that is not pressurized. The majority of the pressurized sewer is fully submerged at all times and is believed to be in good condition. Approximately 1,600 feet of the non-pressurized sewer is not fully submerged with wastewater and thus is showing evidence of corrosion via inspection by closed circuit television. District staff intends to retain a consultant in the year 2020 to do a more thorough evaluation of the pipe condition to verify the need for rehabilitation. The project proposes to either rehabilitate the corroded force main sections with a cured-in-place liner or to replace those sections with new pipe.

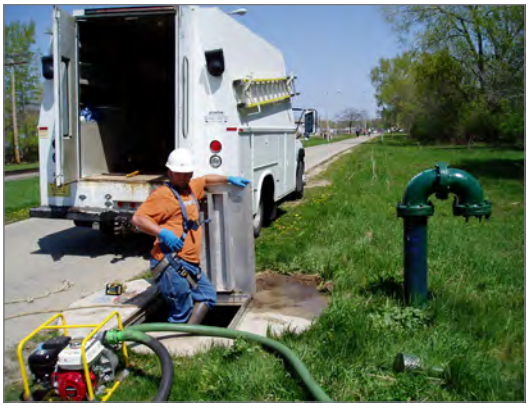
FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$21,000	$1,657,000

CIP ID#
C09

Miscellaneous Collection System Improvements

START DATE:
ONGOING
COMPLETION DATE:
ONGOING



PROJECT TYPE	Variable
LOCATION	Conveyance System
DESCRIPTION	The purpose of these projects is to make modifications or minor improvements to capital assets in the collection system on an annual basis to ensure that they remain in good working condition and enhance the safety of the district's workers. These projects will be funded through reserves in the capital fund.
BACKGROUND	As the district's assets in the collection system age, operations staff members have noted a need to make a number of minor improvements to ensure that they remain in good working order. In many cases, the projects are relatively small in scope, yet they are too large and time consuming to be addressed by the district's maintenance staff. The intent of this item in the capital budget is to provide an annual allowance for the identification and completion of these smaller improvement projects. The projects will be administered through the operations or engineering department and completed by a contractor in accordance with the district's procurement code.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$80,000	ONGOING

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 (CIP).
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

2020 EXPENDITURE ($2020)	TOTAL COST
$52,000	ONGOING

CIP ID#
D02

Plant Asset Management Plan Implementation

START DATE:
2020
COMPLETION DATE:
2024

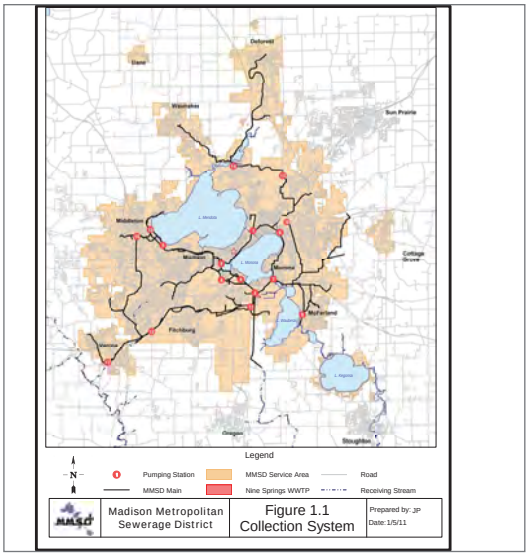
PROJECT TYPE	Capital Budget Expenses
LOCATION	District-wide
DESCRIPTION	This project is to implement the plant asset management plan, which is currently being developed. The plan provides data on assets, including locations, conditions and consequences of failure. Tools and procedures are required to use this data, particularly for the maintenance program and capital planning program. Tasks within this project include cleanup and migration of data in the current maintenance management system; implementation of reliability centered maintenance; development of a utility for in-field condition assessments; integration with the GIS system; improvement of positional accuracy for force mains and interceptors; and improvement in tools used for planning maintenance work. Funding for this work will be through reserves from the capital fund.
BACKGROUND	The district follows the practices of advanced asset management, a systematic approach to asset management. It uses comprehensive data on asset types, locations, conditions and consequences of failure to facilitate cost-effective maintenance and replacement decisions and manage risk. In previous capital improvement plans, asset management has been pursued as an ongoing capital expense, with costs escalating year-over-year to approximate inflation. The program has advanced to the point where it can begin integrating into the normal course of business of the district. Over the six years of this plan, annual capital spending will decline from just over $300,000 in 2019 to just over $100,000 in 2024. The decline reflects more precise estimates of project costs, made possible by progress to date on developing the plant asset management plan. In addition, planning and strategy department salary costs related to the plan will return to the operating fund gradually over the first four years of the plan. It is possible that additional operating budget authority will be needed in the maintenance group in future years to continue implementing the plan. Exact needs will not be known for a few years. Finally, it is expected that future asset management capital projects will be needed, including condition assessments and updates to plans.

2020 EXPENDITURE ($2020)	TOTAL COST
$323,000	$1,109,000

CIP ID#
D03

Collection System Facilities Plan Update

START DATE:
2018
COMPLETION DATE:
2020



PROJECT TYPE	Capital Budget Expenses
LOCATION	Collection System
DESCRIPTION	The district's collection system facilities plan is a key planning document that is periodically updated based on projections from the Capital Area Regional Planning Commission. Funding for this study will be through reserves from the capital fund.
BACKGROUND	The purpose of the collection system facilities plan is to update and revise the previous plan conducted in 2011. As with the original 2002 plan, the 2011 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. Following the Capital Area Regional Planning Commission's update of the district's collection system evaluation in 2018, 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 retained to complete a portion of the 2019-2020 update, with particular attention given to work on control of inflow and infiltration.

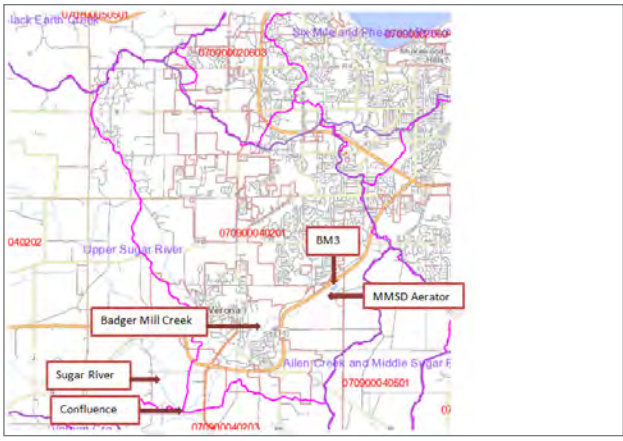
FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$135,000	$206,000

CIP ID#
D04

Badger Mill Creek Phosphorus Compliance

START DATE:
2019
COMPLETION DATE:
TBD



PROJECT TYPE	Effluent
LOCATION	Badger Mill Creek Town of Verona & City of Verona
DESCRIPTION	The purpose of this project is to allow for evaluation, plan development and implementation of a solution to address new phosphorus water quality criterion for Badger Mill Creek. It is expected that the new water quality standards will be set forth in the district's next Wisconsin Pollution Discharge Elimination System (WPDES) permit. The district is beginning preliminary planning for the new standards in 2019, assuming that the maximum length of a compliance schedule will be nine years. It is anticipated that early planning work related to this effort will be funded through reserves from the capital fund.
BACKGROUND	Badger Mill Creek is an effluent dominated stream located in the Town of Verona and City of Verona. The district returns approximately 3.6 million gallons per day of treated effluent to this waterway to offset groundwater that is pumped out of the Sugar River basin and sent to the Nine Springs Wastewater Treatment Plant as wastewater for treatment. It is expected that the district's new WPDES permit will require a new phosphorus water quality criterion for Badger Mill Creek of 0.075 mg/L, significantly less than the district's current effluent quality for this parameter. The district has developed six preliminary options to comply with this new criterion: (1) diversion of flow to Badfish Creek; (2) water quality trading; (3) site specific phosphorus criterion for Badger Mill Creek; (4) variance to current water quality criterion; (5) watershed adaptive management; and (6) treatment. Preliminary work will involve the evaluation of these options and pilot testing options that appear viable.

FINANCIAL ANALYSIS

2020 EXPENDITURE ($2020)	TOTAL COST
$310,000	$1,773,000

APPENDIX B: COMPLETED PROJECTS AND RETAINERS

2018 PROJECT COMPLETIONS

ANNUAL CLARIFIER COATING

The district retained MZ Construction, Inc. to coat final clarifiers 12 and 14 in 2018 as part of ongoing efforts to upgrade and extend the life of the district's tanks and mechanisms. The total project cost of $163,300 was paid with reserves from the capital fund.

ANNUAL PAVEMENT IMPROVEMENTS

The district hired Tri-County Paving in 2018 to replace approximately 20,000 square feet of pavement near Gate 1. This road sees a heavy volume of truck traffic, including Metrogro trucks, septage haulers and freight deliveries for the Maintenance Facility. The repaving costs of approximately $62,000 were funded through the use of capital fund reserves.

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, DNR requires owners to prepare and have approved a facilities plan. Staff members determined that with several potential liquid stream projects on the horizon, a single planning effort would best address the needs and provide coordination. Work on the facilities plan began in February 2016 and was accepted by the district's commission for planning purposes on Jan. 25, 2018. The total project cost of $962,000 was funded from the capital reserve fund. 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.

CLARIFIER STRESS TESTING

The 2016 Liquid Processing Facilities Plan investigated a number of improvements to the plant's liquid stream, including the activated sludge system. The plan recommended improvements that would enhance the removal of nutrients in this system but may also require the addition of two final clarifiers. This project involved operating the secondary treatment process under extreme conditions to assess whether these clarifiers would need to be added in the future. The testing was completed in 2018 and will inform future design improvements. The total project cost of approximately $110,000 was paid from cash reserves in the capital fund.

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

The original West Interceptor is one of the 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 inch 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, with final completion in April of 2018. The total project cost of $1.4 million is being financed with a Clean Water Fund loan.

PUMPING STATION 15 REHABILITATION

Rehabilitation of Pumping Station 15 was determined as a priority in the district's collection system facilities plan update (approved by DNR in 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 the project was accepted by the commission in April 2018. The total project cost of $4.2 million is being financed with a Clean Water Fund loan.

LOWER BADGER MILL CREEK INTERCEPTOR – PHASE FOUR

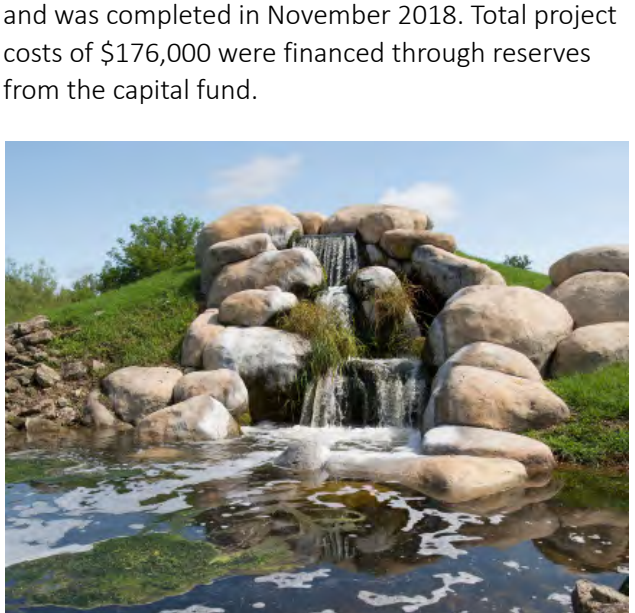
The Lower Badger Mill Creek watershed is located along the district's westerly boundary and includes lands in the Town of Middleton, Town of Verona, City of Madison and City of Verona. Since 1995, the district has been working with the City of Verona and City of Madison on the design of an interceptor that would serve the entire watershed. Construction of the interceptor began in 2006 and 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 Highway PD, was required for expansion of the Epic campus and future development north of Highway PD. The project was substantially completed in the spring of 2018, with the work being accepted by the commission on Nov. 15, 2018. The total project cost of $1.2 million was funded via reserves from the capital fund.

SOUTHEAST INTERCEPTOR RELOCATION – MONONA WATERFRONT DEVELOPMENT

The City of Monona is redeveloping land along Yahara River between West Broadway and Bridge Road. The Chase Bank building at 802 W. Broadway was located over the district's 60 inch sewer in the redevelopment area. The redevelopment plans required that the existing building be demolished and a new building and parking structure be built in the area of the 60 inch sewer. To accommodate these plans, the city and the district coordinated the relocation of the sewer around the new infrastructure. The work was substantially complete by the end of 2017. The district's total payment to the City of Monona of $250,000 was made in the summer of 2018. The total project cost of $270,000 was paid for from reserves in the capital fund.

COLLECTION SYSTEM EVALUATION

The district's collection system evaluation is an important planning document that assesses and forecasts population, employment and wastewater flow trends throughout the district's service area. The Capital Area Regional Planning Commission used the results of the latest U.S. census, community development plans and their knowledge of the district's collection system to make population and flow forecasts for various time increments, up to and including the year 2040. These flow forecasts will be used to determine existing and future capacity requirements throughout the collection system. Work began on the project in February 2017 and was completed in November 2018. Total project costs of $176,000 were financed through reserves from the capital fund.



The district discharges treated wastewater into Badger Mill Creek, shown here.

2019 PROJECT COMPLETIONS/ ANTICIPATED COMPLETIONS

FINAL COMPLETION OR SUBSTANTIAL COMPLETION IN 2019:

NSVI-MORSE POND EXTENSION

This project involves the construction of approximately 3,200 feet of new sanitary sewer to be installed from the existing Nine Springs Valley Interceptor (Midtown Extension) to the southwest corner of Highway PD and Highway M. The new sewer is located along Raymond Road and will provide service for lands in the City of Madison and lands south of Highway PD that will likely be annexed to the City of Verona. The sewer construction is being coordinated with the reconstruction of Highway M from Cross Country Road in the City of Verona to Flagstone Drive in the City of Madison. Construction began in October 2017 and was substantially completed in September 2018. Final acceptance of the project is expected in the second half of 2019. The total estimated project cost of $2.1 will be financed through 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 inch 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, the geometry of the manhole, turbulence in the flow and release of hydrogen sulfide gas, there is a significant amount of corrosion at this location. The district rehabilitated this manhole in 2014 with a protective liner due to the degree of corrosion present. This project continued rehabilitation efforts by lining approximately 600 feet of 27 inch pipe immediately downstream of the manhole and grouting pipe joints between the manhole and Pumping Station 9 to eliminate intrusion of groundwater into the sewer. The rehabilitation work began in October 2018, with final acceptance of the project provided by the commission on April 11, 2019. Total project costs of $275,000, were funded from capital reserves.

PUMPING STATION 10 FORCE MAIN REHABILITATION

The Pumping Station 10 force main was constructed in 1964 and the entire length consists of approximately 11,000 feet of 36 inch diameter prestressed concrete cylinder pipe. Approximately 70 feet of 36 inch ductile iron force main was installed in 2001 at the end of the force main as part of the improvements to Buckeye Road. Portions of the original force main that were removed as part of the road project showed appreciable corrosion of the interior pipe surfaces above the normal water line. Inspection of the non-submerged portions of the prestressed concrete cylinder pipe in 2014 and 2016 showed similar results. This project installed a new liner in approximately 2,000 feet of prestressed concrete cylinder pipe at the downstream end of the force main. Insertion of the liner began in October 2018 and was substantially completed in December 2018. Final acceptance of the project occurred on August 15, 2019. The total project cost of $1.3 million will be funded through the Clean Water Fund program.

MINOR CAPITAL IMPROVEMENTS

This project involved the replacement of approximately 120 lineal feet of 16” piping from the gravity thickening units to the primary settling tanks. In 2016 staff inspected the pipeline using closed circuit television and discovered that the pipe was extremely corroded where it was not flowing full. Construction began in late 2018 and was substantially completed in early 2019. The total estimated project cost of $113,000 will be paid from cash reserves in the capital fund.

WEST INTERCEPTOR – PUMPING STATION 5 TO WEST INTERCEPTOR (GAMMON EXTENSION)

This section of the West Interceptor was constructed in 1931 and consists of approximately 3,560 feet of 18 inch cast iron sewer. It was inspected by closed-circuit television in 2017 and shows evidence of moderate tuberculation along the entire length. Tuberculation is the buildup of deposits on the

inside walls of the pipe due to chemical reactions between the wastewater and the cast iron pipe. The deposits generally form above the normal waterline and decrease the carrying capacity of the sewer by reducing the effective diameter of the pipe and increasing the surface roughness. Tuberculation may also compromise the structural integrity of the pipe if left unchecked. This project will extend the service life of the sewer approximately 50 years by placing a new liner on the interior pipe walls. Insertion of the liner began in April 2019 and was substantially complete by June 2019. The total project cost, estimated at $520,000, will be funded through the Clean Water Fund program.

BADFISH CREEK EFFLUENT FORCE MAIN STANDPIPE

The majority of the treated effluent from the treatment plant is conveyed through a 54-inch pipeline to Badfish Creek. Near the discharge location at Badfish Creek a standpipe is located on the force main to allow air to be expelled from the pipe. On several occasions small volumes of treated effluent have escaped from the standpipe and drained onto a residential property. This project will remove the standpipe in its entirety and replace it with a valve that allows air into or out of the pipeline as required, thereby closing the system and preventing any future releases of effluent to the affected property. Installation of the valve took place in May of 2019 and work was substantially completed in June 2019. The estimated total project cost of $175,000 will be paid from cash reserves in the capital fund.

ANTICIPATED COMPLETIONS IN 2019:

SOUTHWEST INTERCEPTOR – HAYWOOD EXTENSION REPLACEMENT

This section of the Southwest Interceptor along Haywood Drive was constructed in 1936 and consists of approximately 1,450 feet of 24 inch diameter cast iron sewer. The existing sewer was severely corroded and was in need of rehabilitation or replacement. Additionally, this section of sewer provides a critical interconnection between Pumping Station 2 and Pumping Station 8. Wastewater can flow in either direction through the sewer, making it a valuable asset in high flow events or during a power outage which affects either pump station. Rather than rehabilitate the existing sewer, it was decided to provide a new 36 inch diameter sewer between West Shore Drive and N. Wingra Drive to provide greater capacity during these types of events. Construction began in May of 2019 and will be substantially complete in September of 2019. The total project cost, estimated at $1.9 million, will be funded through the Clean Water Fund program.

SHOP ONE SITE IMPROVEMENTS

A portion of the Shop One building was converted into a large meeting room when the new Maintenance Facility was constructed in 2016. The room currently functions as a meeting room for district staff and tour groups but has limitations due to the poor sound quality. In order to use this space for increased uses such as educational programming and to promote the one water concept, improvements are needed. This project will improve the lighting and acoustical properties of this space so that it can be better utilized. The work is being done as a design-build process and was originally scheduled for completion in 2019. A recent inspection of the roofing system has revealed the need to replace it in the fall of 2019. This unplanned work on the roof will likely delay completion of the lighting and acoustical improvements until the spring of 2020. It is expected that the estimated cost of the interior improvements will be $200,000, with funding from capital reserves.

2019 TREATMENT PLANT PIPING IMPROVEMENTS PROJECT

This project involves the replacement of both potable water and hot water piping networks at the treatment plant. Both piping networks were installed in the 1960's and have suffered numerous breaks and leaks over the years. Replacement of the pipes is necessary to ensure that they can reliably support the treatment processes. Work is scheduled to be done in the second half of 2019. The total anticipated project cost of approximately $790,000 will be funded through the Clean Water Fund program.

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 is presently withholding for recently completed projects:

PUMPING STATION 11 AND 12 REHABILITATION

The district withheld 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. A total of $10,000 is for satisfactory performance of the pumps and motors and $10,000 is for satisfactory performance of the adjustable frequency drives.

PUMPING STATION 15 REHABILITATION

The district withheld 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.

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

The district withheld a $10,000 one-year maintenance retainer upon final project closeout. The retainer was released to Michels Pipe Services in June 2018.

LOWER BADGER MILL CREEK INTERCEPTOR – PHASE FOUR

The district withheld a $20,000 one-year maintenance retainer upon final project closeout. The retainer was released to SJ Louis Construction in August 2019.

NSVI-MORSE POND EXTENSION

The district's interceptor was constructed under a contract that is being administered by the Wisconsin Department of Transportation. The district will withhold a maintenance retainer upon final project closeout in accordance with the Wisconsin Department of Transportation's contracting provisions.

PUMPING STATION 10 FORCE MAIN REHABILITATION

The district withheld a $10,000 one-year maintenance retainer upon final project closeout. The retainer will be released to Murphy Pipeline Contractors, Inc. in December 2019, pending satisfactory performance.

SOUTHEAST INTERCEPTOR REHABILITATION UPSTREAM OF PUMP STATION 9

The district withheld a $10,000 one-year maintenance retainer upon final project closeout. The retainer will be released to Visu-Sewer, Inc. in April 2020, pending satisfactory performance.

WEST INTERCEPTOR – PUMPING STATION 5 TO WEST INTERCEPTOR (GAMMON EXTENSION)

The district will withhold a $10,000 one-year maintenance retainer upon final project closeout. The retainer will be released to Visu-Sewer, Inc. one year following project closeout, pending satisfactory performance of the work.

SOUTHWEST INTERCEPTOR – HAYWOOD EXTENSION REPLACEMENT

The district will withhold a $10,000 one-year maintenance retainer upon final project closeout. The retainer will be released to Maddrell Excavating, LLC one year following project closeout, pending satisfactory performance of the work.

APPENDIX C

BUDGET SUMMARIES

2020 OPERATING BUDGET SUMMARY

REVENUES

Revenue Category	2019 Thru June	Estimated 2019 Total	2019 Budget	Proposed 2020 Budget	Percent Change
Sewer Service Charges	$18,529,000	$37,300,000	$37,674,000	$41,333,000	9.71%
Servicing Pumping Stations	234,000	411,000	429,000	520,000	21.21%
Rent	57,000	82,000	83,000	84,000	1.20%
Interest	152,000	322,000	230,000	250,000	8.70%
Annexation and Plan Review Fees	42,000	69,000	60,000	70,000	16.67%
Miscellaneous Income	98,000	272,000	93,000	110,000	18.28%
Septage Disposal Revenue	386,000	760,000	630,000	790,000	25.40%
Pretreatment Monitoring	-	26,000	26,000	26,000	0.00%
Struvite Fertilizer Sales	125,000	260,000	240,000	260,000	8.33%
Cash Reserves	-	-	1,200,000	-	-100.00%
TOTAL REVENUES	$19,623,000	$39,502,000	$40,665,000	$43,443,000	6.83%

EXPENDITURES

Expenditure Category	2019 Thru June	Estimated 2019 Total	2019 Budget	Proposed 2020 Budget	Percent Change
Administration, Engineering, and Planning	$2,465,000	$5,496,000	$5,788,000	$6,189,000	6.93%
User Charge & PreTreatment Program	286,000	707,000	639,000	910,000	42.41%
Wastewater Collection	1,145,000	2,717,000	2,604,000	2,906,000	11.60%
Wastewater Treatment	5,666,000	11,910,000	12,221,000	13,460,000	10.14%
Effluent Diversion	39,000	106,000	122,000	129,000	5.74%
Metrogro Biosolids Reuse Program	607,000	1,798,000	1,687,000	1,806,000	7.05%
Capital Outlay	127,000	456,000	367,000	618,000	68.39%
Servicing Pumping Stations Owned by Others	234,000	411,000	429,000	520,000	21.21%
Contribution to Capital Projects Fund	-	1,200,000	1,200,000	915,000	-23.75%
Contribution to Equipment Replacement Fund	-	450,000	450,000	150,000	-66.67%
Transfer to Debt Service Fund	-	15,158,000	15,158,000	15,840,000	4.50%
TOTAL EXPENDITURES	$10,569,000	$40,409,000	$40,665,000	$43,443,000	6.83%

OPERATING RESERVE BALANCE

Operating Reserves	2019 Thru June	Estimated 2019 Total	2019 Budget	Proposed 2020 Budget	Percent Change
Beginning Balance	$18,690,000	$18,690,000	$18,084,000	$18,233,000	0.82%
Ending Balance	$27,744,000	$18,233,000	$17,334,000	$18,383,000	6.05%

2020 CAPITAL PROJECTS BUDGET

REVENUES

Revenue Source	2019 Thru June	Estimated 2019 Total	2019 Budgeted Amount	2020 Budgeted Amount	Percent Change
LOANS					
CWF Loan - PS 10 Force Main Rehabilitation	-	1,390,000	-	-	NMF
CWF Loan - West Interceptor - PS 5 to Gammon Ext (lining project)	-	506,000	-	-	NMF
CWF Loan - Pumping Station 7 Improvements	-	2,250,000	2,050,000	1,897,000	-7.46%
CWF Loan - Liquid Processing Improvements - Phase 1	-	2,660,000	7,200,000	12,250,000	70.14%
CWF Loan - Northeast Interceptor - Truax Extension Relief	-	4,950,000	4,950,000	4,676,000	-5.54%
CWF Loan - Southwest Interceptor - Haywood Ext Replacement	-	1,900,000	1,384,000	-	-100.00%
CWF Loan - 2019 Treatment Plant Piping Improvements Project	-	761,000	771,000	-	-100.00%
CWF Loan - NSVI Improvements - McKee Road to Dunn's Marsh	-	-	2,090,000	3,000,000	43.54%
CWF Loan - Headworks Flow Metering	-	-	-	2,191,000	NMF
CWF Loan - West Interceptor - Shorewood Relief	-	-	-	5,250,000	NMF
CWF Loan - Operations Building First Floor Remodel	-	-	-	625,000	NMF
CWF Loan - Pumping Station 13 and 14 Rehabilitation	-	-	-	5,900,000	NMF
CWF Loan - Interceptor Rehabilitation - 2020	-	-	-	1,792,000	NMF
CONNECTION CHARGE REVENUES	738,385	2,000,000	1,825,000	2,750,000	50.68%
INTEREST ON INVESTMENTS & MISC. INCOME	92,621	100,000	100,000	111,000	11.00%
CONTRIBUTION FROM OPERATING FUND	-	1,200,000	1,200,000	915,000	-23.75%
TOTAL SOURCES OF FUNDS	**831,007**	**17,717,000**	**21,570,000**	**41,357,000**	**91.73%**

EXPENDITURES

Project	2019 Thru June	Estimated 2019 Total	2019 Budgeted Amount	2020 Budgeted Amount	Percent Change
NINE SPRINGS WASTEWATER TREATMENT PLANT PROJECTS					
Liquid Processing Improvements - Phase 1	395,122	1,517,400	6,260,000	12,295,000	96.41%
Badfish Creek Effluent Force Main Standpipe	-	96,000	-	-	NMF
Annual Process Tank Coating and Repair	2,495	210,000	185,000	191,000	3.24%
Annual Pavement Improvements	-	59,000	59,000	61,000	3.39%
Minor Capital Improvements	45,862	193,000	106,000	109,000	2.83%
Shop One Site Improvements	575	190,000	103,000	-	0.00%
Headworks Flow Metering	22,691	195,000	128,000	2,091,000	1533.59%
Septage Receiving Modifications	-	-	-	5,000	NMF
Headworks Screening	-	-	-	10,000	NMF
Resource Recovery Facility	387	52,000	52,000	258,000	396.15%
Energy Management Master Plan	-	-	-	412,000	
Metrogro Applicators & Equipment	1,830	820,000	979,000	-	-100.00%
Operations Building First Floor Remodel	2,025	74,000	160,000	599,000	274.38%
Miscellaneous Treatment Plant Projects	6,708	77,000	77,000	110,000	42.86%
Engine Generator and Blower Control Panel Replacements	5,195	270,000	270,000	-	-100.00%
2019 Treatment Plant Piping Improvements Project	924	791,000	791,000	-	-100.00%
Final Clarifier 4, 5 and 6 Effluent Launder Trough Replacement	-	-	-	239,000	NMF
15 kV Electrical Service Replacement	-	-	-	95,000	NMF
CMMS Replacement	-	-	-	706,000	NMF
Lagoon Dikes Stabilization	-	-	-	361,000	NMF
Plant HVAC Improvements	-	-	-	129,000	NMF
INTERCEPTORS					
NSVI-Morse Pond Extension	1,015	235,000	-	-	NMF
SEI - Rehab upstream of PS 9 (lining project)	64,110	75,000	-	-	NMF
West Int. - PS 5 to Gammon Extension (lining project)	15,642	492,000	-	-	NMF
Southwest Interceptor - Haywood Ext. Replacement	328,914	1,867,000	1,324,000	-	-100.00%
NSVI Improvements-McKee Road to Dunn's Marsh	2,737	135,000	2,050,000	3,033,000	47.95%
NEI - Truax Extension Relief	100,677	4,625,000	4,625,000	4,666,000	0.89%
West Interceptor - Shorewood Relief	13,591	260,000	582,000	5,073,000	771.65%
Interceptor Rehabilitation - 2020	-	55,000	57,000	2,019,000	3442.11%
Northeast Interceptor Joint Grouting	544	304,000	304,000	-	-100.00%
NEI - Truax Extension Rehab (lining project)	-	-	-	82,000	NMF
PUMPING STATIONS AND FORCE MAINS					
Grass Lake Dike Stabilization	30,353	65,000	-	417,000	NMF
PS 10 Force Main Rehab	48,669	180,000	-	-	NMF
PS 7 Improvements	143,896	1,920,000	1,772,000	1,934,000	9.14%
PS 17 Force Main Relief - Phase 1	11,575	173,000	937,000	2,114,000	125.61%
Automated Power Transfer at Pump Stations 10 and 11	3,889	268,000	268,000	-	-100.00%
PS 13 & PS 14 Rehabilitation	-	390,000	1,394,000	5,788,000	315.21%
PS 4 Rehabilitaiton	-	-	-	415,000	NMF
PS 16 Force Main Rehabilitation	-	-	21,000	21,000	0.00%
Miscellaneous Collection System Improvements	45,663	77,000	77,000	80,000	3.90%
CAPITAL BUDGET EXPENSES					
Capital Budget Expenses	-	52,000	52,000	52,000	0.00%
Plant Asset Management Plan Implementation	(57,182)	317,000	317,000	323,000	1.89%
Collection System Facilities Plan Update	542	70,000	125,000	135,000	8.00%
Badger Mill Creek Phosphorus Compliance	54,584	309,000	310,000	310,000	0.00%
TOTAL EXPENDITURES	**$ 1,293,031**	**$ 16,413,000**	**$ 23,384,000**	**$ 44,133,000**	**88.73%**

CAPITAL PROJECTS RESERVE BALANCE

Capital Projects Reserves	2019 Thru June	Estimated 2019 Total	2019 Budgeted Amount	2020 Budgeted Amount	Percent Change
Beginning Reserve Balance	**$7,567,000**	**$7,567,000**	**$6,731,000**	**$8,871,000**	**31.79%**
Ending Reserve Balance	**$7,104,000**	**$8,871,000**	**$4,917,000**	**$6,095,000**	**23.96%**

2020 DEBT SERVICE BUDGET SUMMARY

REVENUES

Revenue Category	2019 Thru June	Estimated 2019 Total	2019 Budget	Proposed 2020 Budget	Percent Change
Transfer From Operating Fund	$0	$15,158,000	$15,158,000	$15,840,000	4.50%
Interest	101,000	426,000	228,000	437,000	91.67%
TOTAL REVENUES	**$101,000**	**$15,584,000**	**$15,386,000**	**$16,277,000**	**5.79%**

EXPENDITURES

Expenditure Category	2019 Thru June	Estimated 2019 Total	2019 Budget	Proposed 2020 Budget	Percent Change
First half Interest	$1,601,000	$1,601,000	$1,642,000	$1,767,000	7.61%
Principal	9,794,000	9,794,000	9,868,000	10,213,000	3.50%
Second Half Interest	-	1,536,000	1,574,000	1,964,000	24.78%
TOTAL EXPENDITURES	**$11,395,000**	**$12,931,000**	**$13,084,000**	**$13,944,000**	**6.57%**

DEBT SERVICE RESERVE BALANCE

Debt Service Reserves	2019 Thru June	Estimated 2019 Total	2019 Budget	Proposed 2020 Budget	Percent Change
Beginning Balance	$21,481,000	$21,481,000	$21,411,000	$24,134,000	12.72%
Ending Balance	$10,187,000	$24,134,000	$23,713,000	$26,467,000	11.61%

SCHEDULE OF PRINCIPAL AMOUNT OF INDEBTEDNESS

Sewerage System Improvement Bonds	January 2019	January 2020	January 2021
Series 2000 P.S. No. 2 Force Main Replacement - Phase 1	242,534	123,178	-
Series 2001 P.S. No. 2 Force Main Replacement - Phase 2	397,081	268,870	136,553
Series 2003A PS's 1, 2 and 10 Rehabilitation	2,434,222	1,974,109	1,501,003
Series 2003B Tenth Addition	11,782,228	9,553,922	7,263,313
Series 2005 PS's 1, 2 and 10 Rehabilitation	115,317	100,005	84,320
Series 2006 Effluent Equalization Projects and AT's 1-6	791,547	700,507	607,314
Series 2007 West In Ext and PS 13-14 Projects	1,401,142	1,260,702	1,116,674
Series 2008 PS's 6-8 Rehabilitation and NEI Truax Ext Liner	5,101,969	4,643,808	4,174,798
Series 2010A NEI-PS 10 to Lien Rd	5,824,206	5,398,891	4,963,500
Series 2012A Nine Springs Eleventh Addition	38,093,539	35,580,329	33,003,836
Series 2012B Operations Building HVAC Rehab	2,253,432	2,121,547	1,985,705
Series 2013A NEI-SEI to FEI - Replacement Project	6,410,619	6,060,731	5,701,064
Series 2013B Pumping Station No. 18	11,970,845	11,310,192	10,632,078
Series 2013C Process Control System Upgrade	3,694,781	3,490,604	3,281,067
Series 2014A Pumping Station No. 18 Force Main	9,610,007	9,082,463	8,540,591
Series 2015A PS 11 & 12 Rehabilitation	8,862,829	8,396,933	7,920,498
Series 2015B Maintenance Facility Expansion	10,339,000	9,833,060	9,315,678
Series 2016A PS 15 Rehabilitation, PS 12 FM Relocation, Rimroc	6,618,883	6,308,671	5,992,379
Series 2017A West Interceptor-Randall St. to Near PS2	1,312,554	1,253,780	1,193,971
Anticipated Loans			
2019 - 2021 Loans	-	14,417,000	51,833,000
Total Indebtedness	**$ 127,257,000**	**$ 131,879,000**	**$ 159,247,000**

OVERALL BUDGET SUMMARY, NET OF TRANSFERS

Summarized Budget Items	2019 Thru June	Estimated 2019 Total	2019 Budget	Proposed 2020 Budget	Percent Change
Total Revenues	$20,555,000	$56,445,000	$60,063,000	$84,322,000	40.4%
Total Expenditures	23,257,000	52,945,400	60,325,000	84,615,000	40.3%
Beginning Reserve Balance	$47,738,000	$47,738,000	$46,226,000	$51,238,000	10.8%
Ending Reserve Balance	$45,035,000	$51,238,000	$45,964,000	$50,945,000	10.8%

All projected values rounded to the nearest $1000

APPENDIX D

2020 WAGE SCHEDULE FOR HOURLY EMPLOYEES

TABLE 14| 2020 WAGE SCHEDULE FOR HOURLY EMPLOYEES

Pay Grade 5 Progression						
Range and Titles	Step 1	Step 2	Step 3	Step 4	Step 5	Step 5 plus 15% longevity
5: Custodian	$18.35	$18.73	$19.10	$19.48	$20.25	$23.29
8: Sr. Custodian	$19.94	$20.34	$20.74	$21.16	$21.59	$24.83

Pay Grade 8 Progression						
Current Range and Titles	Step 1	Step 2	Step 3	Step 4	Step 5	Step 5 plus 15% longevity
7: Utility Maintenance Worker	$23.80	$24.29	$24.76	$25.27	$25.76	$29.63
10: Sr. Utility Maintenance Worker	$25.87	$26.39	$26.92	$27.45	$28.01	$32.21

Pay Grade 10 Progression						
Current Range and Titles	Step 1	Step 2	Step 3	Step 4	Step 5	Step 5 plus 15% longevity
11: Operator I, MS/SM I, Apprentice I	$28.59	$29.18	$29.80	30.43	$31.06	$35.73
12: Operator II, MS/SM II, Apprentice II	$29.18	$29.80	$30.43	$31.06	$31.70	$36.46
13: Metrogro Mechanic, Journey Mechanic, Journey Electrician, Journey HVAC Tech, Operator III, MS/SM III	$29.80	$30.43	$31.06	$31.70	$32.35	$37.20
14: Senior Journey Mechanic, Senior Journey Electrician, Senior Metrogro Mechanic, Senior Journey HVAC Tech, Operator IV, MS/SM IV	$30.43	$31.06	$31.70	$32.35	$32.98	$37.93
15: Biosolids Program Assistant , Senior Journey Mechanic II, Senior Journey Electrician II, Senior Metrogro Mechanic II, Senior Journey HVAC Tech II, Operator V, MS/SM V	$31.06	$31.70	$32.35	$32.98	$33.64	$38.68

*This wage schedule applies to employees hired after July 1, 2017 and assumes a 3 percent market increase effective January 1, 2020.

APPENDIX E

2020 SALARIED SCHEDULE

TABLE 15| 2020 SCHEDULE FOR SALARIED EMPLOYEES

GRADE	MIN	MID	MAX
22	$72.45	$85.24	$98.02
18	$59.34	$69.81	$80.28
17	$53.94	$63.46	$72.97
16	$49.21	$57.89	$66.58
15	$44.91	$52.84	$60.77
14	$41.00	$48.23	$55.46
13	$37.47	$44.09	$50.70
12	$34.23	$40.28	$46.32
11	$31.26	$36.78	$42.30
10	$28.59	$33.63	$38.68
9	$26.08	$30.68	$35.28
8	$23.80	$28.01	$32.21
7	$21.83	$25.68	$29.53
6	$20.01	$23.55	$27.08
5	$18.35	$21.59	$24.83

*assumes a 3 percent market increase effective January 1, 2020

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. 2nd 349, 177 N.W. 2nd 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 15 percent of the entire county by area and 70 percent of the county population as shown in figure 9. 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, Windsor and the Towns of Dunn, Madison, Pleasant Springs, Verona, Vienna and Westport (Figure 11).

A complete list of district customer communities and their estimated wastewater contributions is shown in Table 16. The largest taxpayers and employers in the county are shown in Tables 17 and 18, respectively. The equalized property tax valuation for the district is shown in Figure 11.

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

FIGURE 9| Dane County and District Data

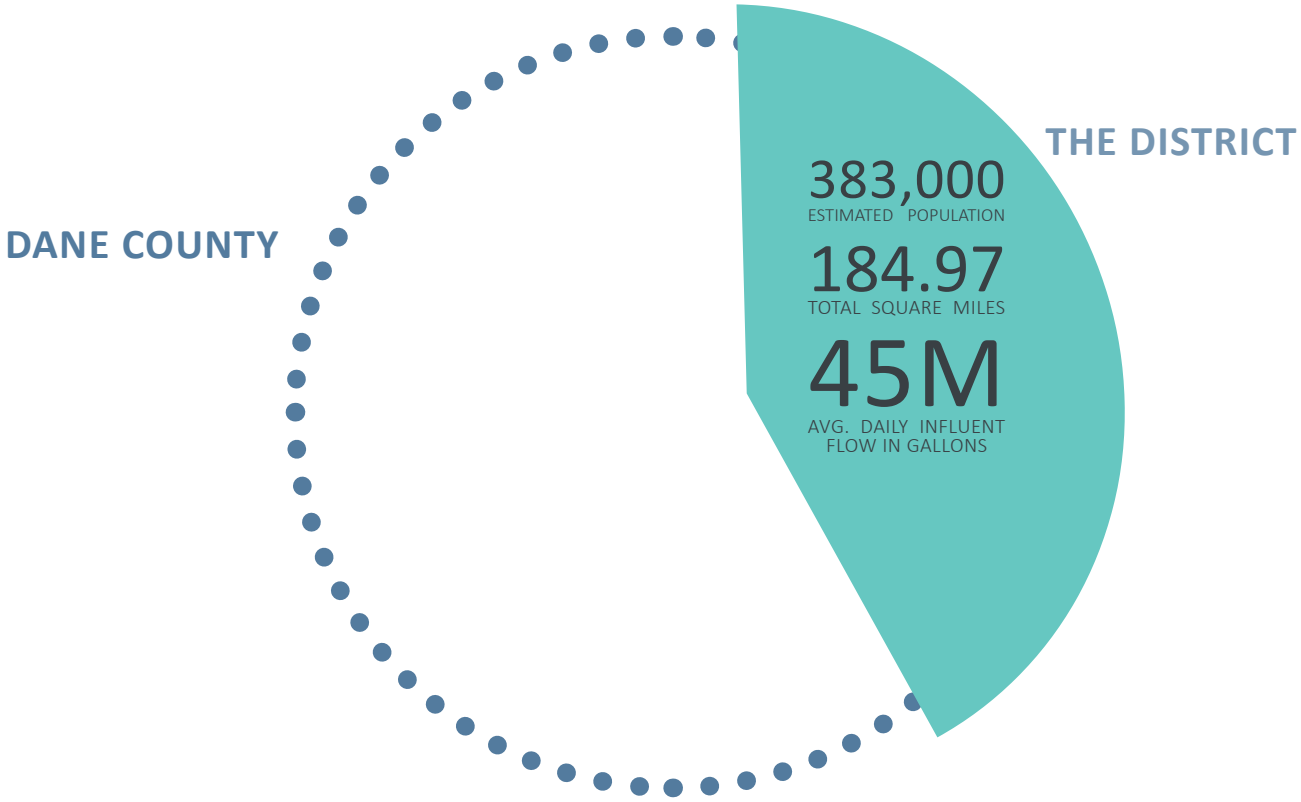


FIGURE 10 | Equalized Property Valuation for the District

TID Out Values in Billions

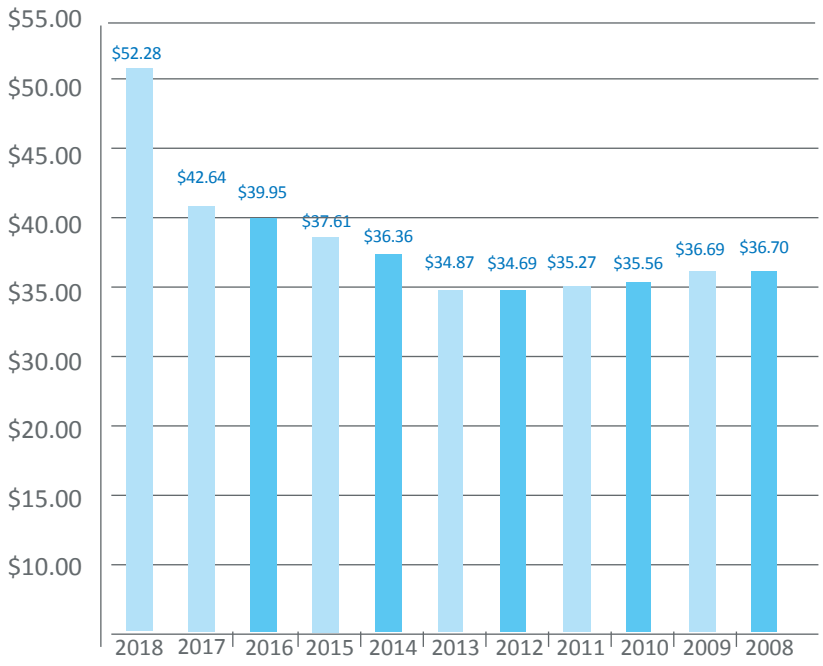


TABLE 16 | Estimated Wastewater Contributions for 2019

Community		Volume (gpd)	CBOD (lbs/day)	Solids (lbs/day)	Nitrogen (lbs/day)	Phosphorus (lbs/day)	Equivalent Meters	Actual Customers
CITIES	Fitchburg	1,850,000	5,100	4,100	800	105	8,625	6,215
	Madison	32,000,000	57,000	53,500	11,000	1,330	88,750	67,700
	Middleton	2,100,000	4,500	3,300	800	100	8,580	5,750
	Monona	1,000,000	1,540	1,300	270	34	4,030	2,970
	Verona	1,150,000	3,050	2,200	500	67	5,945	4,475
VILLAGES	Cottage Grove	665,000	1,150	1,000	215	26	2,535	2,255
	Dane	55,000	144	115	31	3.9	448	405
	DeForest (including ABS)	850,000	3,050	2,500	400	70	4,605	3,730
	Maple Bluff	200,000	190	165	49	6	756	593
	McFarland	720,000	1,175	1,050	250	30	3,675	3,250
	Shorewood Hills	155,000	310	265	60	7.2	1,325	710
	Waunakee	1,700,000	4,900	2,650	705	82	5,680	4,765
	Windsor	475,000	1,200	700	250	40	2,165	1,845
TOWN SANITARY AND UTILITY DISTRICTS	Dunn S.D. No. 1	250,000	60	100	17.5	2.3	191	191
	Dunn S.D. No. 3	75,000	110	110	26	3.2	491	491
	Dunn S.D. No. 4	18,000	17	16	4	0.48	68	68
	Dunn- Lake Kegonsa	135,000	275	285	55	7	675	567
	Madison	620,000	1,340	1,220	250	44	1,906	999
	Pleasant Springs No. 1	65,000	100	108	24.5	3	512	505
	Verona, Town of	597	0.87	1.04	0.21	0.03	3	3
	Verona U.D. No. 1	22,000	43	44	9.5	1.2	127	115
	Town of Vienna	100	0.15	0.17	0.04	0	1	1
	Vienna U.D. No. 1	76,000	130	160	22	3.3	105	47
	Vienna U.D. No. 2	38,000	60	70	14	1.9	205	205
	Westport- Cherokee Golf	4,000	8	6	1.1	0.18	8	1
	Westport Utility District	520,000	605	545	133	16.3	1,890	1,625
Interceptor Infiltration		**1,804,000**						
Daily Nine Springs Loadings		46,547,697	86,058	75,510	15,887	1,984	143,301	109,481

TABLE 17 | Dane County Principal Taxpayers (Budget Year 2018)

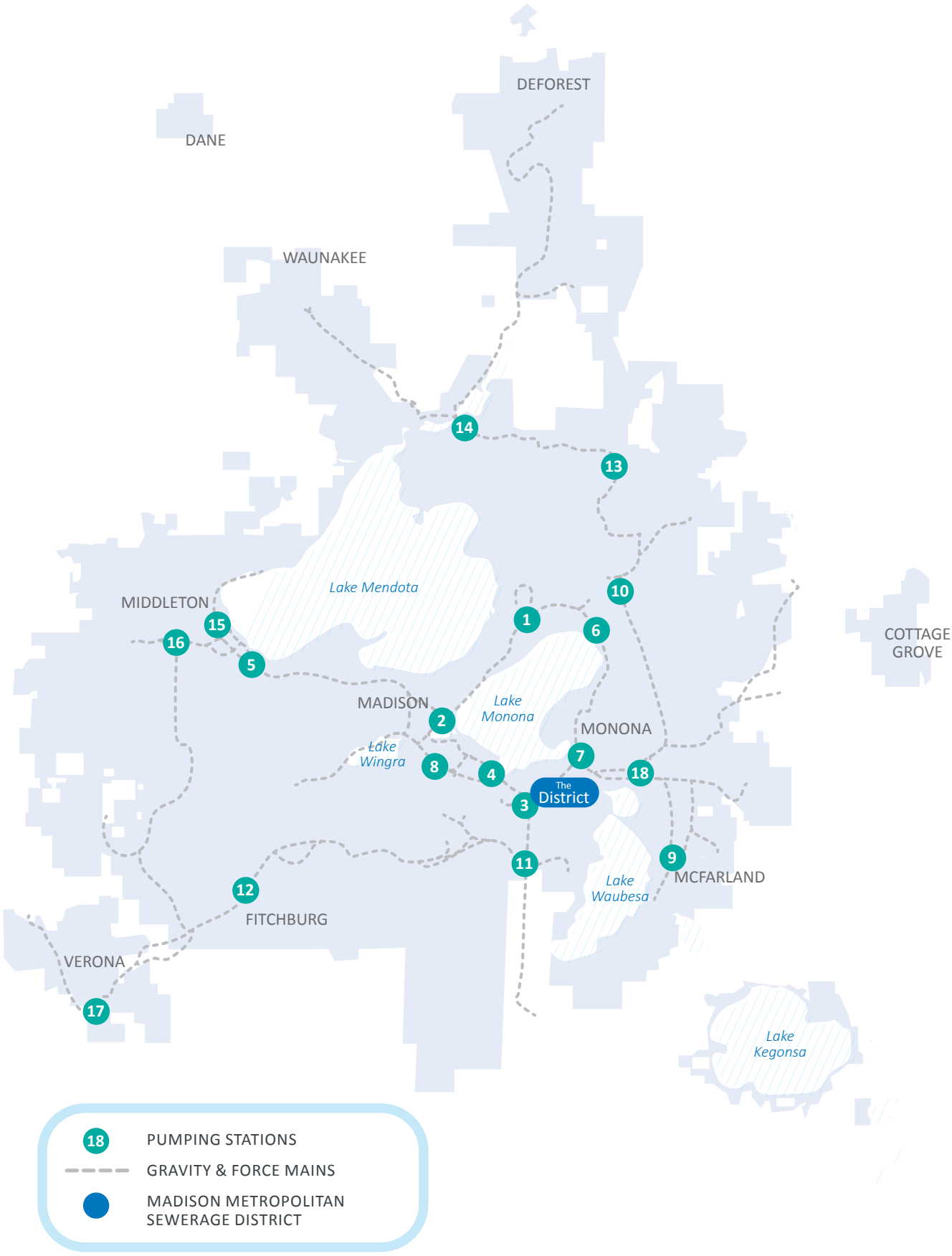
TAXPAYER	TYPE OF BUSINESS	2016 EQUALIZED ASSESSED VALUE	PERCENTAGE OF TOTAL EQUALIZED ASSESSED VALUATION
Epic Systems Corp.	Medical Software	1,106,925.763	1.39%
Madison Joint Venture	Shopping Centers	179,695,600	0.23%
American Family Insurance	Insurance	146,437,800	0.18%
Greenway Office Center, LLC	Property Management	127,026,514	0.16%
Cornerstone New Fountain Holdings	Biotechnology	106,898,943	0.13%
Promega Corporation	Research	105,855,405	0.13%
Subzero Wolf	Research & Technology Park	101,739,568	0.13%
Core Campus Madison LLC	Property Development	97,320,000	0.12%
Covance Laboratories, Inc.	Insurance	74,955,000	0.09%
CMFG Life Insurance Co	Property Development	51,377,500	0.06%
	TOTALS	**$2,098,232,093**	**2.62%**

TABLE 18 | Dane County Largest Employers

[1] *Source: Comprehensive Annual Financial Reports - MATC*

EMPLOYER	TYPE OF ORGANIZATION	EMPLOYEES
University of Wisconsin-Madison	University/College	21,752
State of Wisconsin	State Government	16,450
Epic Systems	Software Services	9,400
UW Hospital and Clinics	Healthcare	6,000
American Family Insurance	Insurance	4,473
City of Madison	Minucipal Government & Services	3,639
Madison Metropolitan School District	Education	3,592
The District	Education	3,567
UnityPoint Health- Meriter	Hospital, clinics & home care services	3,500
Dane County	Municipal Government & Services	2,888

FIGURE 11| Collection System Overview Map



APPENDIX G

SUMMARY OF ORGANIZATIONAL CHANGES

SUMMARY OF ORGANIZATIONAL CHANGES

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

ADMINISTRATION

This department has been eliminated.

DISTRICT LEADERSHIP AND SUPPORT

The budget manager (and staff) and assistant chief engineer (and staff) have moved into the district leadership and support department.

ECOSYSTEM SERVICES

No strategic level changes.

ENGINEERING

No strategic level changes.

PLANNING AND STRATEGY

The information systems manager (and staff) and records administrator have moved into the planning and strategy department.

OPERATIONS AND MAINTENANCE

Four positions are requested in the 2020 proposed budget: operator (two positions to achieve a two person team coverage of plant operations at all time), process and project engineer (responsible for process engineering and project engineering), and locating technician (responsible for locating district force mains and abandon facilities). Position justification reports for these new positions are included in Appendix I.

APPENDIX H

FIVE-YEAR VEHICLE REPLACEMENT SCHEDULE

TABLE 19 | Five Year Vehicle Replacement Schedule 2020-2024

The district fleet management plan details the procedure to evaluate existing vehicles for replacement. A fleet replacement fund using a 5-year vehicle replacement schedule is used to smooth funding requirements. See below for the 5-year schedule.

5-Year Vehicle Replacement Schedule		
Year	**Vehicle**	**Est. Cost**
2020	Engineering Pickup-Four Wheel Drive	$35,000
	B&G Pickup-Four Wheel Drive	$35,000
	Admin Pool Vehicle	$25,000
	Bobcat Toolcat	$50,000
	Metrogro Service Truck	$50,000
	2020 Fleet Fund Contribution	**$195,000**
2021	Admin Pool Vehicle	$25,000
	Lab Sampling Cargo Van	$30,000
	MS/SM Pickup-Four Wheel Drive	$40,000
	Mechanical Pickup-Two Wheel Drive	$30,000
	Metrogro Pickup-Four Wheel Drive	$40,000
	2021 Anticipated Fleet Fund Contribution	**$180,000***
2022	Electrical Pickup-Two Wheel Drive	$30,000
	Engineering Pickup-Four Wheel Drive	$30,000
	MS/SM Service Truck	$50,000
	Mechanical Service Truck	$80,000
	2022 Anticipated Fleet Fund Contribution	**$180,000***
2023	Admin Pool Van	$25,000
	Operator's Pickup-Four Wheel Drive	$25,000
	Electrical Cargo Van	$30,000
	Electrical Cargo Van	$30,000
	Maintenance Pool Vehicle	$25,000
	2023 Anticipated Fleet Fund Contribution	**$150,000***
2024	MS/SM Cargo Van	$30,000
	Mechanical Service Truck	$80,000
	2024 Anticipated Fleet Fund Contribution	**$100,000**

*Budget balancing of fund contribution.

APPENDIX I

NEW POSITIONS JUSTIFICATION

In 2020, four positions are proposed in the budget. The following organization chart represents the district's hierarchy with the proposed positions included.

SEWER MAINTENANCE – LOCATING TECHNICIAN

New Work Justification and Implementation Plan
Prepared by: Eric Dundee, Director of Wastewater Operations and Reliability

1. What new work is necessary to conduct effective district operations?

This person would be responsible for the district's new work related to utility locating. The position would serve as the primary contact and technician to complete all collection system utility locating for district force mains and abandoned facilities. In general, this person will complete daily work including review of Digger's Hotline utility locating tickets, coordination with contractors for utility locating and completing utility locating services at specific locations. An additional duty will be providing support for sewer maintenance and monitoring services as needed.

2. What are the drivers (needs) for this work?

The district has had recent utility locating issues with force mains and abandoned lines which have resulted in higher risk for a utility strike. To address these issues, district staff worked with Digger's Hotline to create new layers for district utilities for easier identification of higher risk locating requests. The implementation of the new layers gives the district the opportunity to be solely responsible to complete the utility locating services for any of the layers. The gravity mains are easier to locate due to aboveground manholes. Locating for these will remain with a utility locating service provider. The higher risk assets (force mains) for strike will be completed by district staff. Overall, this position will be responsible to locate these assets and reduce the risk of damage to the collection system.

3. What critical results must be achieved?

The district collection system assets must be accurately located to avoid damage and subsequent threats to public health and the environment. This position would be primarily responsible for reducing the risks for this by locating district force mains and abandoned facilities. In support of other sewer maintenance and monitoring services work duties, this person will assist in maintaining the collection system and accurate records for customer billing.

4. What are the success factors for the individual(s) who will perform this work?

This person will need to have a strong knowledge of the collection system and its physical location throughout the district service area. They will need to be able to locate underground facilities in a time sensitive manner per the requirements of Digger's Hotline. Their ability to use multiple forms of information (GIS, MMSD mapbook and record drawings) to accurately mark utilities is essential. The person will have to evaluate utility locating work load and prioritize locating as needed. They will also need strong communication skills to communicate effectively with contractors and others who are requesting utility locations.

5. What are options for performing this work effectively?

An option would be to contract force main and abandoned line locating services to an external firm. However, this will not create efficiency within the sewer maintenance/monitoring services work group or reduce the risk in threats to collection system line strikes.

6. If new resources are not available, how will this work be performed?

If the requested position is not authorized in the 2020 budget, the district would be required to contract services with an external firm to mark the utilities. This would require existing staff to coordinate with and meet the locating company on site to ultimately mark the facilities. Increased costs related to having a contracted service provider and no gain in available work hours do not provide an advantage to this option.

7. What is your recommendation for moving forward?

This would be a full-time position that would be budgeted to start in January of 2020. The position would be in the operations and maintenance department and specifically in the sewer maintenance/monitoring services work group. The position would be the primary position for locating district utilities (force mains and abandoned lines) and also serve as a back-up for sewer maintenance and monitoring services duties.

TREATMENT PLANT OPERATORS

New Work Justification and Implementation Plan
Prepared by: Eric Dundee, Director of Wastewater Operations and Reliability

1. What new work is necessary to conduct effective district operations?

Coverage of new operator works hours is required to improve operator safety and security. The proposed position(s) would increase the overall number of treatment plant operators to provide two person coverage of plant operations oversight and maintenance 24-hours, seven days a week and provide additional support for lower-skilled maintenance needs while on shift.

2. What are the drivers for the need for this new work at this time?

There are two major drivers for the need at this time. First, an increase in operator safety is requested. Currently, a single operator is on staff alone for four hours each work day Monday through Friday and all 24 hours on the weekends. To meet a higher safety standard and decrease potential security risks warrants an increase in second operator coverage. Second, the implementation of an operation and maintenance reliability centered maintenance framework increases the value of having a wider range of staff available to complete maintenance work. The increase in staff hours within the operator position provides the most flexibility and most return on investment. The operator position can not only provide regular oversight of treatment plant process but also complete plant facility maintenance tasks, minor mechanical maintenance tasks and be the support staff needed when emergency call-ins are needed.

3. What critical results must be achieved?

On a continual basis results should include improved plant functionality including overall plant cleanliness, increased preventative maintenance, better identification of equipment needs (work orders), and possible faster response times for plant emergencies. A direct result would also include less unplanned work for maintenance staff making the maintenance group more efficient.

4. What are the success factors for the individual(s) who will perform this work?

The success factors for the individuals will be the same as existing operators. The person will need a background in water treatment, be detail oriented and have strong communication skills.

5. What are options for performing this work effectively?

There are two alternatives to the addition of operators.

A. Use existing staff to cover additional hours (approximately 2,700 hours (two FTE positions).

- No additional FTEs required.
- Additional hours would increase overtime commitment needed by all operators to cover shifts.This would increase the labor costs by approximately $50,000 versus adding two new operators.
- Does not allow for paid time off of existing staff.
- Would increase staff turnover based on undesirable labor requirements.

B. Do not implement two-person operator coverage at all times.

- Labor costs remain similar to present day.
- No additional operator support hours for maintenance activities does not support the district's goal of reliability centered maintenance unless additional positions were proposed in maintenance work groups. The same maintenance activities will still need to be completed but will be at a higher staffing cost (overtime hours) and decrease the efficiency of the maintenance department.
- Work alone hours continue the existing safety risk of only one staff member onsite. Operators complete work in potentially dangerous environments and have an undesirable consequence of no other staff at the treatment plant if there was an accident. Operator's safety during off hours does not match the district's safety standard of working in teams of two for maintenance activities.

6. If new resources are not available, how will this work be performed?

If the requested position(s) is not authorized in the 2020 budget, the district would not pursue the proposed two-person operator staff coverage and the reliability centered maintenance initiative would have to be reevaluated for its potential effectiveness.

7. What is your recommendation for moving forward?

- Authorize the addition of two full-time permanent operator positions in the 2020 budget.
- Begin recruitment immediately following budget approval for hiring in January 2020.
- Complete six-week operator training in March 2020.
- Implement two-person coverage of operator scheduling in April 2020 and begin reliability centered maintenance operator work.

OPERATIONS – PROCESS AND PROJECT ENGINEER

New Work Justification and Implementation Plan
Prepared by: Eric Dundee, Director of Wastewater Operations and Reliability

1. What new work is necessary to conduct effective district operations?

This person would immediately fill the need for additional capacity for day-to-day plant process treatment oversight. This work is essential to support operators and maintain the waste treatment process. Additional work that would be new work is this person would also be a project engineer for operations and maintenance department CIP and operating budget projects related to long term treatment plant process improvements. These work duties would include prioritizing and managing plant improvement projects for both CIP and operating budgets, and studying trends and flows related to the treatment plant and optimizing how the treatment process works. The estimated percentage of time between processing engineering and project engineering is an 80 percent to 20 percent split.

2. What are the drivers for the need for this new work at this time?

The district has always had process engineers on staff but the recent retirement of the assistant operations engineer and the increased amount of yearly small plant projects has created a need in operational capacity. The most important driver for this positon is to lower risk of plant failures and maintain operational oversight of the treatment plant process to meet regulatory permit requirements. The expertise lost with the recent retirement cannot be replaced with existing staff and waiting years for staff to gain expertise would leave the plant too vulnerable to problems. The retired position performed both process control and process engineering work. The position has been filled with a process control person, leaving process engineering needs unmet. The second driver for this need is that maintaining the aging plant infrastructure requires more plant project work. This work requires expertise of the plant process and project management for improvement work. The position will increase operational capacity and reduce risk of treatment plant failures due to project delays. Without this position, duties will fall on the operations manager, limiting that person's ability to manage and plan beyond day-to-day demands.

3. What critical results must be achieved?

The position would continuously perform duties related to providing support for plant treatment process oversight. This position will also support development and maintaining project tracking for O&M lead projects. This includes developing project business cases, prioritizing projects for budgeting, tracking project timing and critical overlaps of projects and closing out projects.

4. What are the success factors for the individual(s) who will perform this work?

This person will need to have or develop a strong knowledge of the treatment plant including its assets and processes. They will need to be able to mix working independently making the best decision for the treatment plant process along with being a strong collaborator while working with multiple departments to strategize, prioritize and complete work. This position would also need strong verbal and written presentation skills to discuss, develop and present projects for the CIP and operating budget. They will need engineering project management skills.

5. What are options for performing this work effectively?

One option would be to reprioritize and delay existing work and projects to maintain proper oversight of the treatment plant process. Projects and work to be considered for delay or

discontinuation would be the energy master plan, research, new regulatory permit pilot testing and small plant improvement projects to address aging infrastructure. This option would create a serious risk of failure to the treatment process based on less plant oversight and less plant rehabilitation and maintenance projects being completed. Without completing or delaying the above projects, the district will not be able to maintain a regulated compliant reliable system or be fiscally responsible with replacement of infrastructure. This option sacrifices longer term planning and reliability for short term savings and prioritization of day-to-day work.

Another option would be to contract all plant project development and management services not currently handled by engineering or other internal staff to an external firm(s). However, this will take time to manage the external firm(s) and come at a much greater total cost to the district.

6. If new resources are not available, how will this work be performed?

If the requested position is not authorized in the 2020 budget, duties and work detailed previously will be completed on an ad hoc basis by numerous individuals or not at all. Approximately half of the two existing operations engineers' and operations manager's time will be spent on daily and long term plant performance oversight. Without this position, longer-term planning and reliability work will be deprioritized to maintain current plant operations.

7. What is your recommendation for moving forward?

This would be a full-time position for 2020. The position would be in the operations and maintenance department and specifically in the operations work group. The position would be the primary contact and share responsibilities for treatment plant oversight. This person will also serve within the on call operations and on call supervisor rotation.

APPENDIX J: 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

FEI - Far East Interceptor

FOG - Fats, Oils and Grease

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

DISTRICT DEFINITIONS

adaptive management - Watershed approach developed to comply with stringent phosphorus limits.

additions - 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., district) expands its boundaries to include a specific geographic area.

asset management - Comprehensive management of parts and physical infrastructure to provide needed levels of service with tolerable risk at an acceptable lifecycle cost.

billing parameters - District billing parameters include: carbonaceous biochemical oxygen demand (CBOD), total suspended solids (TSS), total phosphorus (TP), total Kjehldahl 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; the district has nine appointed commissioners.

connection charges - Charges related to connecting with district 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. The district 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 the district.

force main - The discharge pipeline of a pumping station.

conveyance facility connection charge (CFCC) - CFCC represents the user's "fair share" of collection system investments the district has made to install interceptor sewers and pumping 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 - The district'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 the district 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 26 communities in the Madison area.

nutrient removal - The removal of phosphorus and nitrogen from wastewater. The district 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 the district'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, pumping 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 the district'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).

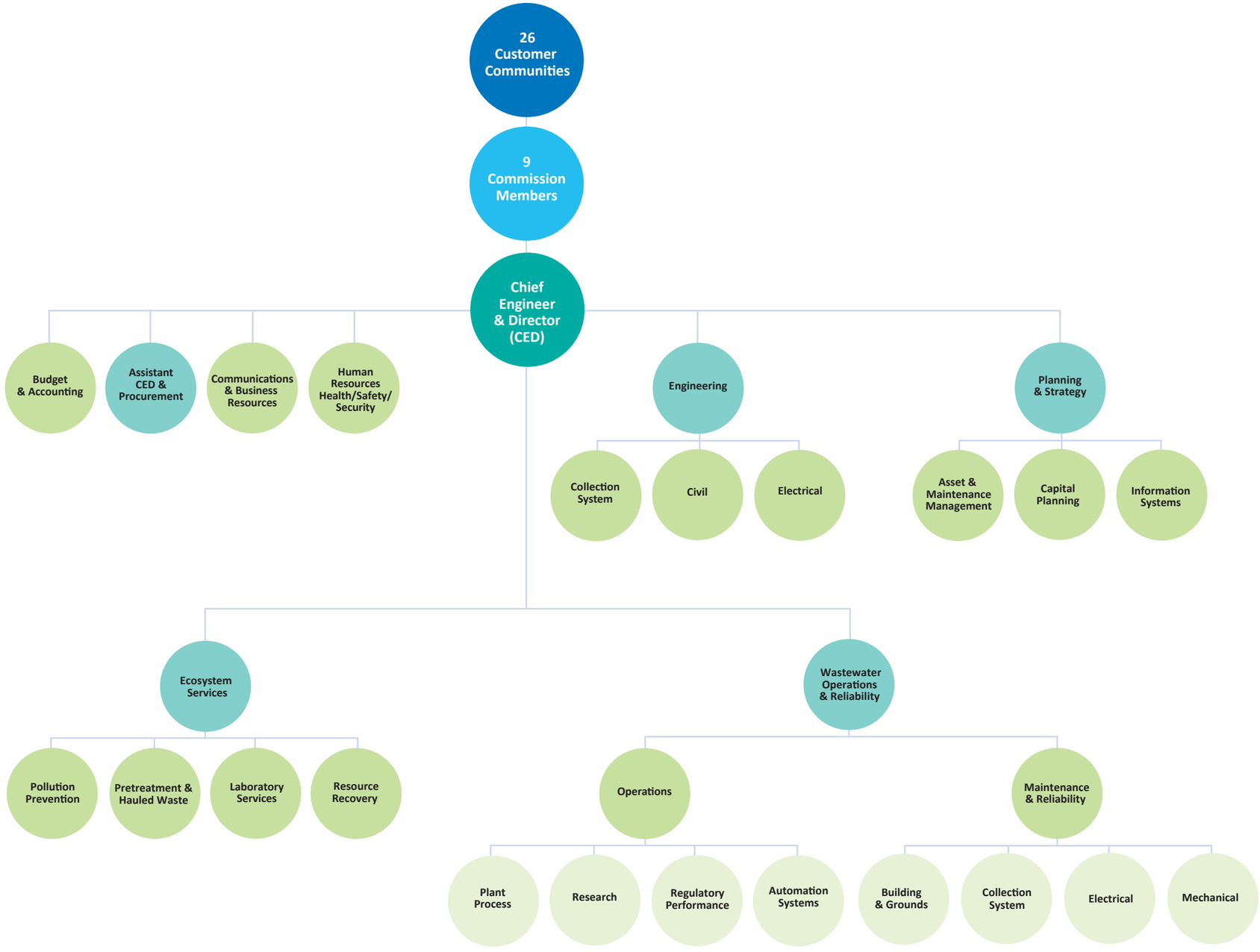
televising - A method using video camera(s) to assess the condition of a sewer line in real time. It can reveal blockages from debris, roots or grease; show cracks, breaks or deterioration of a pipe. It allows detailed diagnosis without the need for excavation, saving time and money.

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 total cost of 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).

APPENDIX K: ORGANIZATIONAL CHART



OUR MISSION:
To protect public health and the environment.

OUR VISION:
Enriching life through clean water and resource recovery.

OUR IDEALS:
Equitable, reliable and cooperative.

FIVE PILLARS				
ENVIRONMENT	COMMUNITY	EMPLOYEES	EFFECTIVENESS	INFRASTRUCTURE
KEY RESULTS AREAS				
We see opportunities in wastewater to recover valuable resources. *Goal: Increase recovery of resources while meeting permit requirements.*	**We see solutions in the community to engage others in meeting future challenges.** *Goal: Improve partnerships to build and increase public support.*	**We see success in a healthy, resilient workforce to promote a culture of positive engagement.** *Goal: Achieve a culture of positive engagement.*	**We see greater success in the use of best business practices.** *Goal: Adopt best business practices to increase district efficiency and effectiveness.*	**We see value in sustainable infrastructure to support a vibrant regional community.** *Goal: Achieve expected community level of services at the lowest total cost of ownership.*
PRIORITIES (committed)				
Yahara WINS Struvite harvesting	GFOA Award Pollution prevention Community engagement	Safety Inclusion & diversity Succession planning Internal communication Competitive pay and benefits	Plant operations and maintenance Procurement Laboratory services IT governance and strategic plan Records management & cloud services	Liquid processing facility improvements Interceptor and pumping station rehabilitation Force main inspections Capital improvement planning Collection system facilities plan
STRATEGIES (cautious)				
Energy master plan Badger Mill Creek phosphorus compliance Chloride reduction Biosolids management	Overall communication efforts around vision One Water Inflow and infiltration reduction Equity	Leadership development Campus security Employee engagement	Asset management & investment Reliability centered maintenance Strategic financial planning Collection system reliability Budget and accounting	New asset management and financial systems Network resiliency & security
INFLUENCING FACTORS (learning)				
Industrial pretreatment programs Contaminants of emerging concern (PFAS) Water reuse Nutrient life cycle	Sewer Use Ordinance enforcement Changes to user charges and billing Environmental justice	Demand for skilled labor & STEM jobs	Land use patterns Market volatility Equipment/supplies/construction	Operational continuity Lagoon property management Agricultural property management

Return to TOC

www.madsewer.org

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