20 Operating Budget & 23 Capital Improvements Plan

PROPOSED September 15, 2022

Cover photo: Local youth enjoy stand-up paddleboards on Lake Wingra.

GFOA AWARD

The Government Finance Officers Association of the United States and Canada (GFOA) presented a Distinguished Budget Presentation Award to Madison Metropolitan Sewerage District for its annual budget for the fiscal year beginning January 1, 2022. In order to receive this award, a governmental unit must publish a budget document that meets program criteria as a policy document, as an operations guide, as a financial plan and as a communications device. This award is valid for one year only. We believe our current budget continues to conform to program requirements and we are submitting it to GFOA to determine its eligibility for another award.

MADISON METROPOLITAN SEWERAGE DISTRICT COMMISSION

The District is governed by nine Commissioners serving staggered terms.

President
Thomas Hovel

Secretary
Brad Murphy

Commissioner
Kenneth Clark

Commissioner
Grant Foster

Vice President
Ezra Meyer

Commissioner
Beth Bookland

Commissioner
Sara Eskrich

Commissioner
Thomas Wilson

There is currently one vacancy on the Commission.

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A young child enjoys playing in the clean water of a local Madison-area lake.

INTRODUCTION TO THE DISTRICT BUDGET

BUDGET MESSAGE

Commissioners,

As the region's wastewater utility, our only option is to be excellent and efficient in what we do. We are charged with the responsible management of wastewater for more than 407,000 homes, apartments and businesses. We are committed to protecting public health and the environment. We must be a steward of our shared landscape and vital water resources. To do all this, we must be strategic and clear-eyed in our work and how we do it.

And I am excited to say that we have never been more focused on how we will execute our responsibilities to the region than we are today.

Over the last year, with the help of the Commission, we have rewritten the District's strategic plan, which was approved in August 2022. You can read more about the process and new plan starting on page 8, but in short, our new plan positions us for success, now and into the future. It does this by focusing our time and resources on those areas and activities that best serve the organization's purpose. It also prioritizes our work in new ways to ensure we meet critical needs, address significant challenges and opportunities, and provide for the District's ongoing, long-term financial needs.

These tenets are realized and reflected in this budget through focus items, which are significant work efforts already in progress or planned for 2023. The complete list of focus items can be found starting on page 5, but I'd like to highlight a few here.

Climate mitigation plan: Recognizing that the District is one of the most significant energy users in the county, we will draft a Climate Mitigation Plan in 2023. This work will codify a plan to reduce our impact on the changing climate and builds on the Energy Management Master Plan that was approved in early 2022.

Diversity, equity and inclusion (DEI): Like many organizations, the District is finding its path forward with DEI, both internally and externally, to ensure we take meaningful, actionable steps to support our workforce and the communities we serve. We are creating a new Organizational Development Specialist position for 2023 that will support DEI and hiring a consultant to guide our efforts to align with the District's strategic direction.

Employee engagement: All organizations are feeling the effects of a job market that has been turned upside-down by COVID, changing lifestyle preferences, greater demand for workers and more, including the District. Recognizing the need to support, retain and celebrate our exemplary workforce, the District is doubling down on its employee engagement work in 2023, which the new Organizational Development Specialist will support.

Infrastructure reliability: The District owns, operates and maintainsover a billions dollars worth of infrastructure and assets to safely and reliably manage wastewater. Over the last few years, the District has engaged in the initial stages of implementing reliability-centered maintenance (RCM), which supports our infrastructure by moving from reactive maintenance to proactive maintenance. Two important investments of time and resources in 2023 and beyond are the addition of two planners to help better manage infrastructure maintenance and the replacement of the District's Computerized Maintenance Management System (CMMS), which allows us to manage, track and derive data from our maintenance efforts.

Another highlight of our 2023 budget isn't found in the work we've planned for next year but in our approach to budgeting. This budget reflects our continued effort to finance a larger percentage of capital projects with cash instead of incurring debt. Financing with cash instead of debt reduces long-term project costs and provides more flexibility for emergencies and contingencies.

Building a budget in uncertain economic times is no easy feat. Like other organizations and agencies, we've made cuts and tough choices. But our new strategic plan and 2023 focus items have provided the guidance needed to make wise financial decisions for the District.

It is an exciting time for the District. We have never been more focused on what's real and important to our work, our owner communities and the public we serve and on upholding our mission to protect public health and the environment.

Thank you for your support,

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

BUDGET HIGHLIGHTS

To fulfill our mission to protect public health and the environment, the District develops an annual budget. This budget supports the District's long-term strategic plan and includes short-term focus items of immediate importance. Both the strategic plan and focus items are aligned with significant cost drivers, including increasing regulatory requirements, aging infrastructure, and growth in the District's service area.

2023 DISTRICT FOCUS ITEMS

Focus items are not projects in the traditional sense. Instead, they are more general and fluid than projects. A given focus item may be supported by one or more projects or by day-to-day work.

Focus items are not outside the strategic plan; they are parts of the strategic plan. We have organized our work strategically to ensure high performance in our identified performance areas to fulfill our strategic purpose and meet owner expectations, which are described starting on page xx. Focus items must be consistent with that structure.

Table 1, page 5, organizes focus items into layers, which represent what level of the should pay critical attention to each item.

Following are the criteria for each level:

Commission:

- Needs active Commission direction; support through setting policy, providing resources, or making a politically challenging decision; or is an area that requires Commission discussion and exploration.
- Is an area the Commission believes needs more focus and attention. It identifies a gap or opportunity.

Executive Team:

- Requires adaptation.
- Involves significant organizational resources, especially staffing.
- Management-level work that needs Chief Engineer & Director (CED) and E-Team monitor-ing to succeed; i.e., is at a relatively high risk of failure or drifting.

Department:

- Commission and/or CED guidance already received.
- Involves significant departmental resources, especially staffing.
- Needs close director or Department of Leadership & Support monitoring to succeed.

The Commission and staff members worked together to develop guidance during strategic planning discussions.

TABLE 1 | District Focus Items

COMMISSION-LEVEL FOCUS

Focus Item	Performance Area	Responsible Department(s)	2023 Deliverable(s)
I&I Program Development	Infrastructure Reliability	Engineering	Move from communicating and planning the I/I reduction program into initial stages of implementation.
Climate Mitigation Plan	Public Trust	Strategy/DLS	Draft climate mitigation plan for Commission review and approval.
Commission Organizational Performance & Structure	Public Trust	DLS	Establish performance monitoring needs and reporting processes. Update policy book.
Equity	Public Trust	DLS/CED	Conduct a study session to fully explore Commission interests on equity.
PFAS Sampling and Monitoring	Public Trust	Ecosystem Services	Provide Commission with an update and get their guidance on next steps.
Service Charges and Rate Structure	Public Trust & Financial Sustainability	Strategy	Complete review with community workgroup and get Commission guidance on next steps.
Badger Mill Creek Phosphorous Compliance	Regulatory Compliance	Ecosystem Services	District staff recommend and Commission chose final compliance option.

CED/EXECUTIVE TEAM-LEVEL FOCUS

Focus Item	Performance Area	Responsible Department(s)	2023 Deliverable(s)
RCM Improvements	Infrastructure Reliability	O&M	Two positions for full-time planning, implement workgroup task scheduling with key performance indicators (KPIs).
WAM v. 1.9 Replacement	Infrastructure Reliability	Strategy	Select replacement option (Oracle vs. other providers). Establish full project team. Secure consulting support as determined by the option.

TABLE 1 | **District Focus Items** (continued)

CED/EXECUTIVE TEAM-LEVEL FOCUS

Focus Item	Performance Area(s)	Responsible Department(s)	2023 Deliverable(s)
Diversity, Equity and Inclusion (DEI)	Public Trust & Workforce Development	E-Team/HR	Hire Organizational Development Specialist. Hire consultant. Update DEI plan to align with strategic direction of the District.
Executive Team Leadership and Oversight	Strategy Execution	CED/E-Team	Refresh the E-Team purpose. Establish the District's project oversight approach.
Employee Engagement	Workforce Development	HR	Hire Organizational Development Specialist, administer survey, interpret results, develop action plans.
Emergency Management/ Business Continuity/Disaster Recovery	Infrastructure Reliability & Public Trust	E-Team	Conduct E-Team discussions to define each of these topics, assign responsible staff/departments, and outline future work.

DEPARTMENT-LEVEL FOCUS

Focus Item	Performance Area(s)	Responsible Department(s)	2023 Deliverable(s)
Budget and Accounting Process Improvements	Financial Sustainability	Budget & Accounting	Complete engagement with financial consultants and develop timeline to implement changes.
Nine Springs Capital Project Infrastructure Plan	Financial Sustainability	O&M/Strategy	Develop alternatives for future campus infrastructure plans to be presented to the Commission and incorporated in future CIPs.
Biosolids Efficiency Improvements	Infrastructure Reliability	O&M	Based on the infrastructure plan, develop CIP business case for biosolids loading improvements.
Campus Security	Infrastructure Reliability	Safety/HR	Add cameras to campus and pump stations as needed, explore additional fobs/lock changes.

TABLE 1 | **District Focus Items** (continued)

DEPARTMENT-LEVEL FOCUS (CONT)

Focus Item	Performance Area(s)	Responsible Department(s)	2023 Deliverable(s)
Collection System Facilities Plan	Infrastructure Reliability	Strategy	Complete rough draft of plan by end of 2023. Continue pipe condition assessment, other workload permitting.
Heat & Power Improvements	Infrastructure Reliability	Engineering/O&M	Complete solar expansion on maintenance facility.
Liquid Processing Improvements *(total project)*	Infrastructure Reliability	O&M/Engineering	Implementing the alternatives analysis and design of Phase 2 of the Liquid Processing Improvements project throughout 2023.
Other Major CIP Project Implementations *(several projects monitored separately)*	Infrastructure Reliability	Engineering	Design and construction of several CIP projects throughout 2023 to improve collection system and plant capacity and reliability, such as PS17 Force Main; West Interceptor-Shorewood; Northeast Interceptor-Waunakee; Lower Badger Mill Creek Interceptor; Plant Electrical Equipment Replace-ment; PS 6 to PS 10 Connector).
Nine Springs & MGE Service Plan *(includes back-up generator, possible solar and gas distribution)*	Infrastructure Reliability	O&M/Engineering	Continuation of discussions and planning with MGE for plant backup generator and Renewable Energy Rider program.
Biosolids Class A Product Research/Evaluation	Regulatory Compliance	Ecosystem Services	Provide research plan to Commission and begin implementing plan to answer key product questions and provide updates as necessary.
Biosolids Global Data Management	Regulatory Compliance	Ecosystem Services	Plan and hire a consultant to create a new biosolids database.
Chloride Variance Pollution Minimization Plan	Regulatory Compliance	Ecosystem Services	Update on progress under current pollution minimization plan.

UPDATED DISTRICT STRATEGIC PLAN

In Spring 2021, the Chief Engineer & Director and Commission began discussions on the need to update the District's Strategic Pillars, an early organizational planning document that outlined a variety of District programs, plans and initiatives at various stages of implementation. But as the CED and a handful of staff began digging into how to best update the pillars document, we decided a new approach to strategic planning was required. We needed something that followed best practices in strategic planning for organizations like the District. We needed a plan that provided clear direction and guardrails to guide decision-making. We needed a plan consistent with the District's statutory powers and obligations, particularly its obligations to owner communities. And most importantly, we needed a plan that positioned the District for success, now and into the future.

With a large task at hand, we formed a strategic planning subteam to move this change forward.

PLAN STRUCTURE

Through intensive research, reading and discussion, the subteam landed on two universal tenets to frame the District's approach to strategic planning:

> Effective organizations have a strategy that specifies why the organization exists, what it must be good at, how it will detect under-performance, and how it can influence performance.
>
> Effective organizations recognize they can't do everything at once and need a process and structure for prioritizing and executing work.

From these tenets, a new framework for strategic planning was vetted that includes the following core parts, which are further defined in this document: strategic purpose, owner expectations and performance areas. The structure of the strategic plan provides broad direction to guide District work on an ongoing basis.

> Strategic purpose: Our purpose succinctly describes why the District exists — to provide wastewater management — and who it serves — its owner communities. Articulating this purpose helps direct attention and resources to what is most important.
>
> Owner expectations: These outline the Commission's understanding of how communities expect us to approach our work and what aspects are most critical to communities.
>
> Performance areas: Performance areas are those activities the District must excel at to fulfill its strategic purpose and meet owner expectations. They are high-level and broad categories of effort. Performance areas are a management tool to support executive-level monitoring and work prioritization.

Figure 1, page 9, provides a visual representation of the District's Strategic Plan.

These three components rarely change but will be reviewed periodically to ensure they continue to provide needed structure.

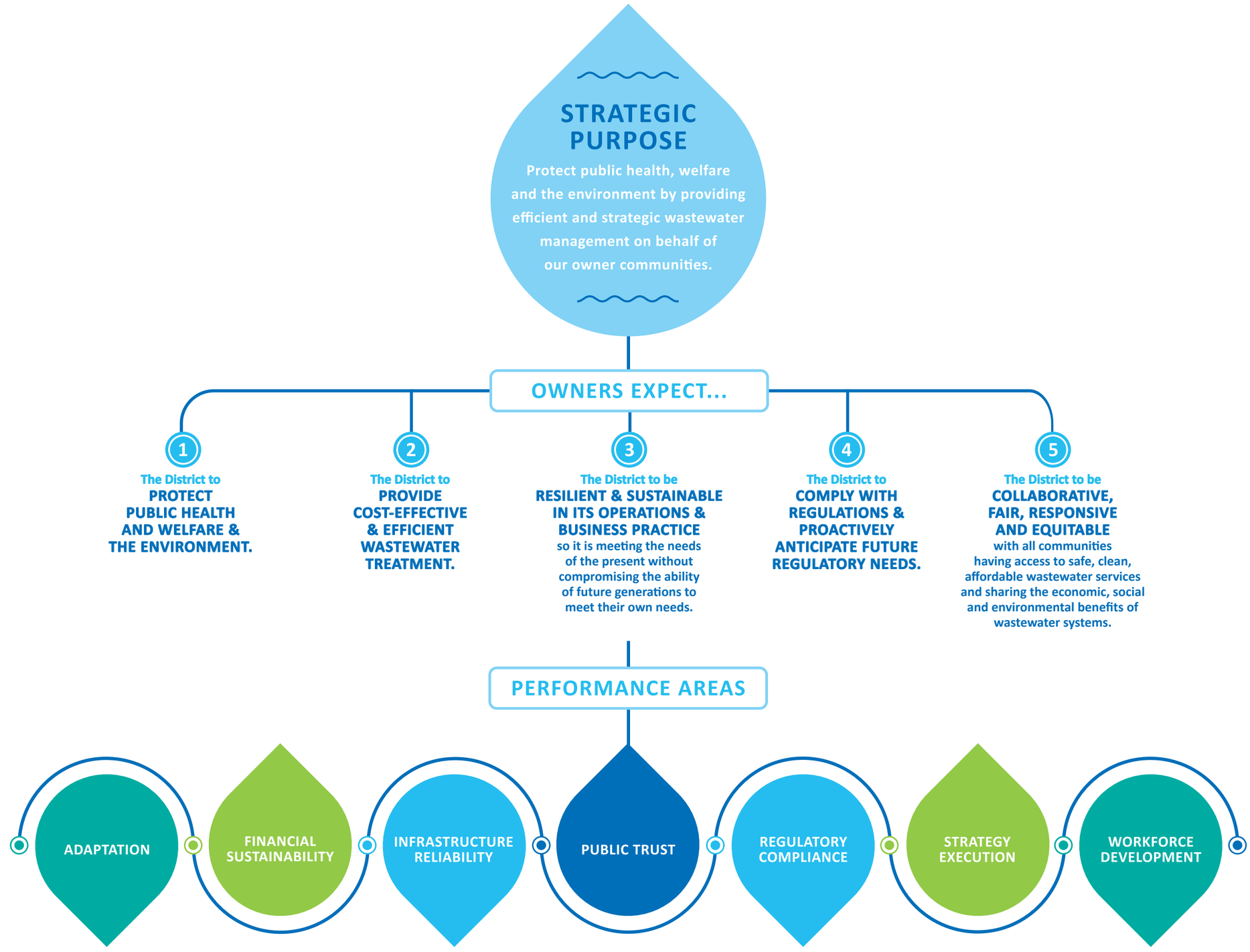
In addition, effective organizations develop ways to monitor performance to identify problem areas and opportunities for improvement. Such performance indicators are used at all levels of the organization. An appendix to this strategic plan includes several candidates for high-level indicators. These require further refinement but show the District's course for performance monitoring.

Find the District's strategic plan online at madsewer.org/strategic-plan

MOVING THE PLAN FORWARD

In late winter 2022, the Executive Team met in four retreat-style meetings to draft the District's purpose and performance areas. In May and June 2022, the Commission held a series of study sessions to endorse the new strategic plan structure; review and refine the purpose and performance areas; and establish owner expectations. The results of this collaborative and iterative process are formalized in this strategic plan.

FIGURE 1 | **District Strategic Plan**



BUDGET PROCESS

The annual budgeting process aims to ensure that the District has adequate resources to deliver its planned services in the upcoming year and in future years. The process answers the following questions:

- What are the estimated expenses for operating the District's facilities and programs next year?
- What are the estimated costs for construction work over the next six years?
- 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?
- How much money will the District need to borrow to finance construction work?
- How much money does the District need to cover debt service costs and 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 used to finance construction projects. Service charge revenue is the primary source of funds.

The **capital projects fund budget** addresses the construction of new or replacement facilities. Larger projects are typically funded with Clean Water Fund loans 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. Other 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. To comply with Clean Water Fund Loan program requirements, the District ensures a sufficient balance each October 1 to pay the follow year's principal and interest payments.

Figure 2, page 11, shows the District's 2023 budget calendar by month and activity.

BUDGET AMENDMENT PROCEDURES

Amendments to the proposed or approved operating, capital projects and debt service budgets are initiated by 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 2** below.

TABLE 2 | 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.

FIGURE 2 | Milestones for Developing the 2023 Budget

JULY 2022

DISTRICT

Throughout month

Departments identify critical needs and budget forecasts

DISTRICT

July 14

District staff present draft Capital Improvements Plan, which informs the budget, to Commission

COMMISSION

July 29

Commission reviews and accepts draft Capital Improvements Plan

AUGUST 2022

DISTRICT

Throughout month

Department staff develop the proposed budget

SEPTEMBER 2022

DISTRICT

September 14

Proposed budget summary is published and notice given of the upcoming budget hearing as required by Wisconsin Statutes Section 65.90

COMMISSION

September 15

Chief Engineer and Director presents proposed budget to Commission

DISTRICT

September 16

Notification of District's proposed budget and budget hearing mailed to owner communities

COMMISSION

September 29

Public hearing and Commission discussion on proposed budget

OCTOBER 2022

DISTRICT

October 6

Deadline to receive written comments from the public

COMMISSION

October 13

Commission deliberates budget

COMMISSION

October 27

Commission adopts budget and service charge and septage disposal rates

NOVEMBER 2022

DISTRICT

November 6

Notify customers and septage haulers of new rates and estimated charges

BUDGET POLICIES AND PRACTICES

Several overarching policies and practices form the District's approach to budgeting for services:

- 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 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 operating costs. New facilities are financed with a mix of cash reserves and loans. Loans are obtained from the Clean Water Fund Loan Program and are repaid over a 20-year period.
- Detailed long-range planning helps to ensure stable rates and charges. The District's Capital Improvements Plan 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.

BUDGET POLICY GUIDANCE

Policies guide the preparation of the annual budget for each fund.

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 balance sufficient to absorb unanticipated expenditures without disruptive service charge increases, with a strict minimum of $3 million.

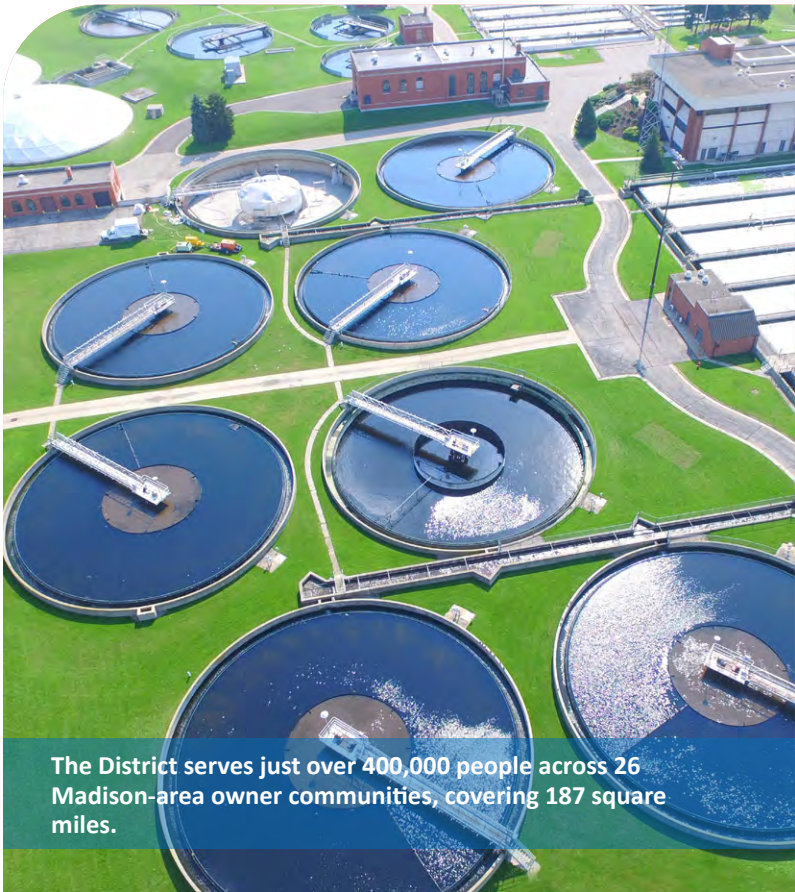
The debt service fund budget policies:

- Maintain a balance sufficient to absorb unanticipated additional debt service obligations without disruptive service charge increases and to comply with balance requirements of the Clean Water Fund Loan Program.

The connection between the operating and debt service funds is the transfer of service charge revenues to the debt service fund. The connection between the debt service fund and the capital projects fund is an indirect one. Loan proceeds are used to fund projects in the capital projects fund.

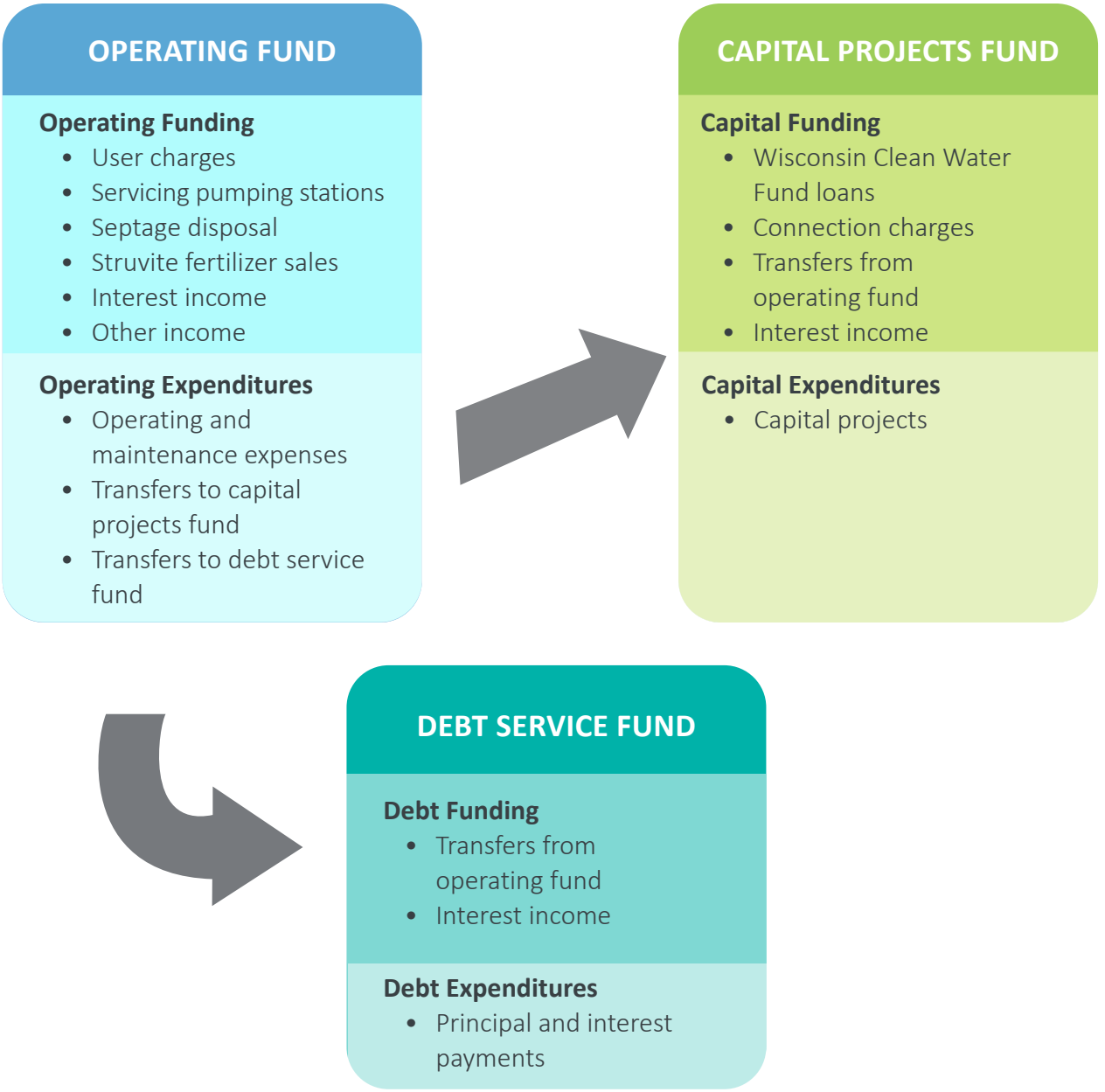
Figure 3, page 13, summarizes the fund structure for the operating, capital projects and debt service budgets.

Figure 4, page 14 and **Table 3, page 15,** provides a combined summary of revenues and expenditures for 2021 through 2023.



The District serves just over 400,000 people across 26 Madison-area owner communities, covering 187 square miles.

FIGURE 3 | **Fund Structure for Budgets**



BUDGETARY BASIS OF ACCOUNTING

Revenues and expenses are recorded on a full accrual basis in accordance with generally accepted accounting principles. Revenues are budgeted on a cash basis. Capital outlay is budgeted as expenses in the year incurred, but capitalized and depreciated for financial reporting purposes. Capital project expenses are budgeted according to what is projected to be completed for that particular year.

DEFINITIONS

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

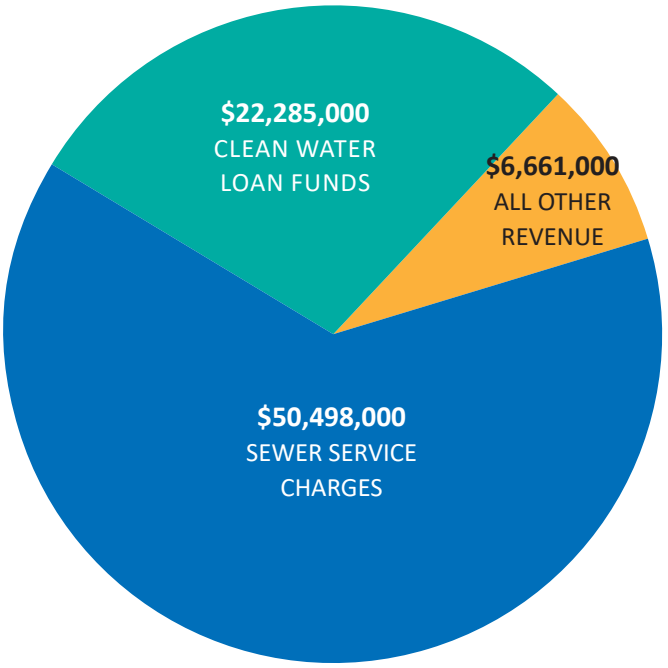
Enterprise fund: The District prepares its financial statements on an enterprise fund basis. Generally accepted accounting principles require state and local governments to use the enterprise fund to account for "business-type activities"– activities similar to those found in the private sector. Business-type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

Balanced budget: The District is required to adopt a balanced budget each year. A balanced budget is one in which anticipated revenues equal anticipated 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 | **Combined Summary of Revenues & Expenditures**

COMBINED REVENUES: $79,444,000



COMBINED EXPENDITURES: $80,676,000

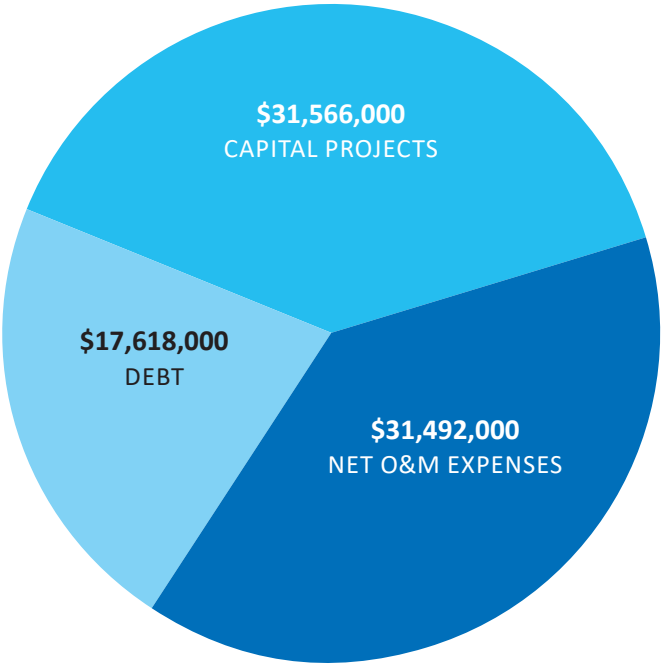


TABLE 3 | **Combined Summary of Revenues & Expenditures**

	2021 Actual	2022 Estimated	2022 Budget	Proposed 2023 Budget	Change from 2022 Adopted Budget	% Change
REVENUE CATEGORY						
OPERATIONS AND MAINTENANCE						
Sewer Service Charges	$45,152,000	$45,600,000	$46,376,500	$50,498,000	$4,121,500	8.89%
Septage Disposal Revenue	967,000	735,000	785,000	809,000	24,000	3.06%
Servicing Pumping Stations	514,000	483,000	475,000	454,000	(21,000)	-4.42%
Struvite Fertilizer Sales	212,000	196,000	210,000	215,000	5,000	2.38%
All Other Operating Income	(115,000)	355,000	366,500	333,000	(33,500)	-9.14%
Cash Reserves	-	-	4,620,000	-	(4,620,000)	-100.00%
TOTAL OPERATIONS AND MAINTENANCE REVENUES	**$46,730,000**	**$47,369,000**	**$52,833,000**	**$52,309,000**	**($524,000)**	**-0.99%**
CAPITAL PROJECTS						
Clean Water Fund Loans	$13,053,000	$19,072,000	$19,065,000	$22,285,000	$3,220,000	16.89%
Interceptor and Treatment Plant Connection Charges	3,814,000	4,000,000	3,600,000	4,550,000	950,000	26.39%
Interest on Investments	4,000	6,000	28,000	150,000	122,000	435.71%
Contribution from Operating Fund	1,486,000	3,501,000	3,501,000	4,791,000	(3,501,000)	-100.00%
TOTAL CAPITAL PROJECTS REVENUES	**$18,357,000**	**$26,579,000**	**$26,194,000**	**$31,776,000**	**$791,000**	**3.02%**
DEBT SERVICE						
Transfer from Operating Fund	$16,552,000	$16,297,000	$16,297,000	$16,026,000	($271,000)	-1.66%
Interest on Investments	9,000	49,000	143,000	150,000	7,000	4.90%
TOTAL DEBT SERVICE REVENUES	**$16,561,000**	**$16,346,000**	**$16,440,000**	**$16,176,000**	**($264,000)**	**-1.61%**
TOTAL REVENUES *(net of transfers and reserves)*	**$63,610,000**	**$70,496,000**	**$71,049,000**	**$79,444,000**	**$8,395,000**	**11.82%**
EXPENSE CATEGORY						
OPERATIONS AND MAINTENANCE						
Administration, Engineering, and Planning	$5,894,000	$6,624,000	$6,855,000	$8,045,000	$1,190,000	17.36%
User Charge & Pretreatment Program	600,000	975,000	1,237,000	1,288,000	51,000	4.12%
Wastewater Collection	3,136,000	3,215,000	3,140,000	3,233,000	93,000	2.96%
Wastewater Treatment	12,393,000	14,111,000	14,218,000	14,962,000	744,000	5.23%
Effluent Diversion	121,000	186,000	170,000	181,000	11,000	6.47%
Metrogro Biosolids Reuse Program	2,028,000	1,980,000	1,874,000	2,114,000	240,000	12.81%
Capital Outlay	974,000	1,042,000	501,000	1,215,000	714,000	142.51%
Servicing Pumping Stations Owned by Others	514,000	483,000	420,000	454,000	34,000	8.10%
Contribution to Operating Fund Reserve	-	-	-	-	-	NMF
Contribution to Capital Projects Fund	1,486,000	8,121,000	8,121,000	4,791,000	(3,300,000)	-41.00%
Contribution to Equipment Replacement Fund	150,000	-	-	-	-	NMF
Transfer to Debt Service Fund	16,552,000	16,297,000	16,297,000	16,026,000	(271,000)	-1.66%
TOTAL OPERATIONS AND MAINTENANCE EXPENDITURES	**$43,848,000**	**$53,034,000**	**$52,833,000**	**$52,309,000**	**($524,000)**	**0.99%**
CAPITAL PROJECTS						
Nine Springs Wastewater Treatment Plant Projects	$7,478,000	$3,803,000	$5,001,000	$6,131,000	$1,131,000	22.60%
Interceptors	5,843,000	4,848,000	9,028,000	10,415,000	1,387,000	15.36%
Pumping Stations and Force Mains	9,520,000	7,692,000	7,239,000	14,536,000	7,297,000	100.80%
Capital Budget Expenses	161,000	297,000	517,000	484,000	(33,000)	-6.38%
TOTAL CAPITAL PROJECTS EXPENDITURES	**$23,002,000**	**$16,640,000**	**$21,785,000**	**$31,566,000**	**$9,781,000**	**44.90%**
DEBT SERVICE						
Principal Payments	$10,659,000	$12,281,000	$13,250,000	$13,949,000	$699,000	5.28%
Interest Payments	3,111,000	3,435,000	3,419,000	3,669,000	250,000	7.31%
TOTAL DEBT SERVICE EXPENDITURES	$13,770,000	$15,716,000	$16,669,000	$17,618,000	$949,000	5.69%
TOTAL EXPENDITURES *(net of transfers and reserves)*	**$62,432,000**	**$60,972,000**	**$66,869,000**	**$80,676,000**	**$13,807,000**	**20.65%**

Return to T.O.C.

SECTION TWO
2023 Operating Budget Summary

Children play on the beach at a scenic lake in the Madison area.

OPERATING BUDGET OVERVIEW AND SUMMARY

The operating budget is the annual financing plan that accounts for revenues and expenses used to support daily operations and maintenance of all District facilities.

Table 4, page 18, summarizes the District's operating budget, including expenditures, revenues and operating reserves for the years 2021 through 2023.

Figure 5, page 19, summarizes the revenues and expenditure categories for the proposed 2023 operating budget.

2022 REVENUE REVIEW

As the District completes the 2022 budget year, revenues are estimated to be $563,000 less than budgeted, largely because of lower-than-budgeted loadings.

2022 EXPENDITURE REVIEW

The District anticipates expenditures for 2022 of $48,414,000, higher than budgeted for by $201,000 largely due to supply chain and inflation costs.

2023 OPERATING EXPENDITURE INCREASES

Significant non-personnel expenditure increases of $2.8 million include:

- Contribution to capital projects fund
- IT equipment replacement
- Electricity, gas, and chemicals charges
- Contracted services

Significant personnel expenditure increases of approximately $1.2 million include:

- 5% market adjustment for all employees
- Performance increases for all employees
- Addition of six full-time positions including two maintenance planner positions, one organizational development specialist position, and three project engineer positions. (The engineering positions were approved by the Commission in 2022, but were not budgeted for until 2023.)
- Health insurance premium increase

FLEET MANAGEMENT RESERVE

The 2023 budget includes a $250,000 contribution to the reserve created by the Commission. Appendix E, page 123, shows the proposed five-year vehicle replacement schedule.

OPERATING FUND BALANCE

The projected operating fund balance at the end of 2022 of $24 million includes an equipment replacement fund balance of $4 million and unrestricted operating reserves of $20 million or 257 days of operating expenses. The projected balance meets the District's end-of-year minimum balance of 180 days of operating expenses and is above the maximum of 210 days. The amount over 210 days will be transferred to capital expenses, per Commission policy, at year-end.

IMPACTS OF CAPITAL INVESTMENTS ON THE OPERATING BUDGET

Funding District capital investments is a major component of the District's operating budget Although most capital projects are financed with Clean Water Fund program loans, repayments are ultimately funded through service charges revenues.

In addition, service charges revenues support cash-funded capital projects. The operating budget includes transfers to the debt service fund for debt service repayment, and to the capital projects fund for cash-funded projects.

The District updates its six-year Capital Improvements Plan (CIP) each year. The plan forecasts the transfer amounts needed to meet debt service obligations, maintain financial resiliency in the capital program and manage use of debt for capital projects. The 2023 budget includes transfers of $16 million from the operating fund to the debt service fund and $4.7 million to the capital projects fund. Combined, these amounts are about 40% of the operating budget. The District also funds some smaller capital investments in the capital outlay line item of the operating budget. The proposed 2023 operating budget includes $1.2 million of capital outlay items, or 2% of total operating expenditures. Capital outlay items were budgeted at $501,000 in 2022.

TABLE 4 | **2023 Operating Budget**

	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	2023 Budget	% Change
REVENUE CATEGORY						
Sewer Service Charges	$45,152,000	$22,893,000	$45,600,000	$46,376,500	$50,498,000	8.89%
Servicing Pumping Stations	514,000	259,000	483,000	475,000	454,000	-4.42%
Rent	84,000	63,000	89,000	88,000	90,000	2.27%
Interest	6,000	27,000	41,000	61,000	29,000	-52.46%
Annexation and Plan Review Fees	74,000	46,000	77,000	70,000	70,000	0.00%
Miscellaneous Income	(309,000)	47,000	120,000	120,000	106,000	-11.67%
Septage Disposal Revenue	967,000	289,000	735,000	785,000	809,000	3.06%
Pretreatment Monitoring	30,000	-	28,000	27,500	38,000	38.18%
Struvite Fertilizer Sales	212,000	73,000	196,000	210,000	215,000	2.38%
Cash Reserves	-	-	-	4,620,000	-	-100.00%
TOTAL REVENUES	**$46,730,000**	**$23,697,000**	**$47,369,000**	**$52,833,000**	**$52,309,000**	**-0.99%**
EXPENSE CATEGORY						
Administration, Engineering and Planning	$5,894,000	$3,157,000	$6,624,000	$6,855,000	$8,045,000	17.36%
User Charge & Pretreatment Program	600,000	184,000	975,000	1,237,000	1,288,000	4.12%
Wastewater Collection	3,136,000	1,392,000	3,215,000	3,140,000	3,233,000	2.96%
Wastewater Treatment	12,393,000	6,815,000	14,111,000	14,218,000	14,962,000	5.23%
Effluent Diversion	121,000	87,000	186,000	170,000	181,000	6.47%
Metrogro Biosolids Reuse Program	2,028,000	679,000	1,980,000	1,874,000	2,114,000	12.81%
Capital Outlay	974,000	749,000	1,042,000	501,000	1,215,000	142.51%
Servicing Pumping Stations Owned by Others	514,000	259,000	483,000	420,000	454,000	8.10%
Contribution to Operating Fund Reserve	-	-	-	-	-	NMF
Contribution to Capital Projects Fund	1,486,000	-	8,121,000	8,121,000	4,791,000	-41.00%
Contribution to Equipment Replacement Fund	150,000	-	-	-	-	NMF
Transfer to Debt Service Fund	16,552,000	-	16,297,000	16,297,000	16,026,000	-1.66%
TOTAL EXPENDITURES	**$43,848,000**	**$13,322,000**	**$53,034,000**	**$52,833,000**	**$52,309,000**	**-0.99%**
OPERATING FUND BALANCE						
Beginning Balance	$21,141,000	$24,173,000	$24,173,000	$23,320,000	$18,508,000	-20.63%
Total Revenues Less Cash Reserves Used	46,730,000	23,697,000	47,369,000	48,213,000	52,309,000	8.50%
Total Expenditures Less Contributions to Emergency Reserve Fund	43,698,000	13,322,000	53,034,000	52,833,000	52,309,000	-0.99%
ENDING BALANCE	**$24,173,000**	**$34,548,000**	**$18,508,000**	**$18,700,000**	**$18,508,000**	**-1.03%**

NMF = No Meaningful Figure

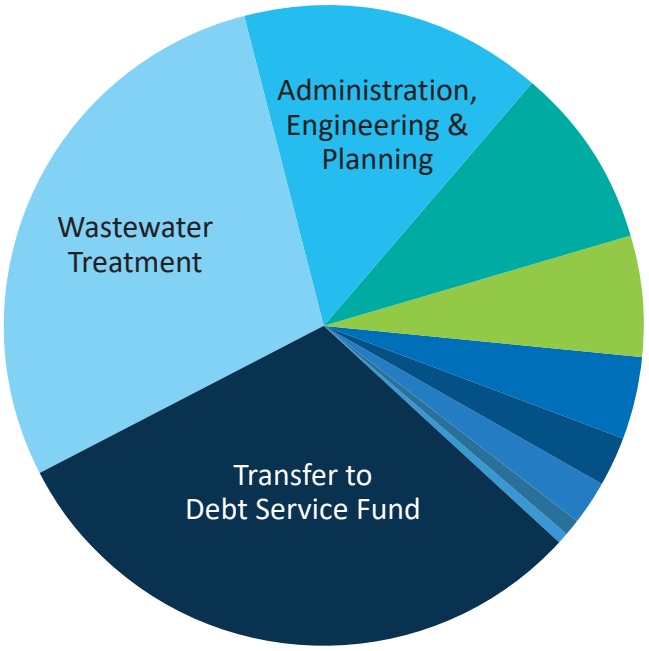
FIGURE 5 | **2023 Operating Budget**

2023 OPERATING REVENUES

Sewer Service Charges	$50,498,000	96.5%
Septage Disposal Revenue	$809,000	1.5%
Servicing Pumping Stations	$454,000	1.0%
Other	$333,000	0.5%
Struvite Fertilizer Sales	$215,000	0.5%

Total Operating Revenue:
$52,309,000

2023 OPERATING EXPENDITURES



Total Operating Expenditures: **$52,309,000**

Transfer to Debt Service Fund	$16,026,000	31.0%
Wastewater Treatment	$14,962,000	29.0%
Administration, Engineering & Planning	$8,045,000	15.0%
Contribution to Capital Projects Fund	$4,791,000	9.0%
Wastewater Collection	$3,233,000	6.0%
Metrogro Biosolids Reuse Programs	$2,114,000	4.0%
User Charge & Pretreatment Program	$1,288,000	2.5%
Capital Outlay	$1,215,000	2.0%
Servicing Pumping Stations Owned by Others	$454,000	1.0%
Effluent Diversion	$181,000	0.5%
Contribution - Equipment Replacement Fund	$0	0%

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2023 SERVICE CHARGE RATES

The District's service charge rates depend on the budget and the predicted loadings for the coming year. The budget determines the 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)/Predicted 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 and expected changes in wastewater discharge from high strength users.

Rates are determined for each parameter. The District, therefore, has seven rates that are used to determine billings to our owner communities.

It is important to note that the District bills owner 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 then 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 on the District's website.

Find the District's Sewer Use Ordinance at madsewer.org/suo.

Director of ecosystem services Martye Griffin (right) takes notes at an owner community meeting.

REVENUE CATEGORIES

SEWER SERVICE CHARGES
These charges are the primary revenue source for the District and are paid by owner communities for wastewater and treatment services they receive. Charges are paid according to the volume and strength of the wastewater discharged to the District. The District serves five cities, eight villages and 12 towns as of August 1, 2022.

SERVICING PUMPING STATIONS
Covers charges to operate and maintain 47 pumping stations owned by the communities. The station owner and the number of stations served as of Aug. 1, 2022, are shown in Figure 6, page 22.

RENT
Revenue from District-owned property that includes houses, farm buildings and acreage, and land for an electrical substation.

INTEREST
Interest earned on the District's cash reserves.

ANNEXATION & PLAN REVIEW FEES
Owner communities pay annexation fees when new lands are added to the District's area of service; and for sewer plan review fees for modifications or additions to their sewer systems.

MISCELLANEOUS INCOME
Smaller sources of revenue including sale of scrap materials and providing laboratory services.

SEPTAGE DISPOSAL INCOME
Income received for waste delivered to the Nine Springs Wastewater Treatment Plant. The largest source of waste delivered is from homes and businesses on septic systems.

PRETREATMENT MONITORING
Businesses pay the District for issuing industrial discharge permits. Currently 19 businesses have these permits issued by the District.

STRUVITE FERTILIZER SALES
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
The District maintains cash reserve balances in the operating and capital projects funds.

EXPENDITURE CATEGORIES

ADMINISTRATION, ENGINEERING AND PLANNING
Expenditures for the Ecosystem Services, Engineering, Leadership and Support, Operations and Maintenance, and Strategy departments.

USER CHARGE & PRETREATMENT PROGRAM
Implementation of state and federal permit requirements for industrial users; pollution prevention and source control; and wastewater flow and loadings data sampling and analysis for customer billing.

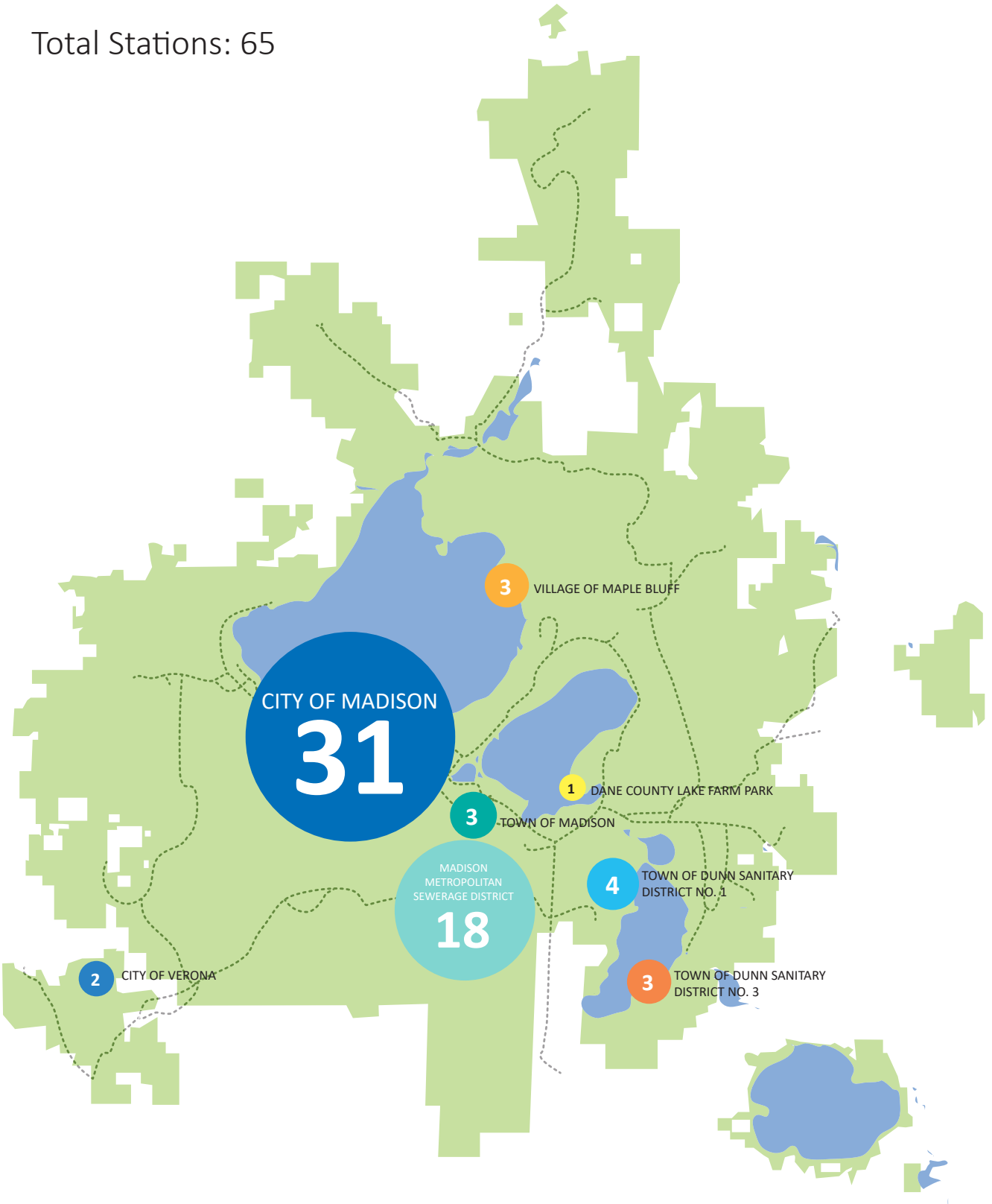
WASTEWATER COLLECTION
Operations and maintenance of the District's gravity sewers, pumping stations and raw wastewater force mains. The District operates and maintains 98 miles of gravity sewer, 18 pumping stations and 32 miles of raw wastewater force mains.

WASTEWATER TREATMENT
Operations and maintenance of the Nine Springs Wastewater Treatment Plant. This plant treats about 36 million gallons of wastewater per day from our owner communities.

EFFLUENT DIVERSION
Operations and maintenance of the District's 15 miles of force mains that discharge treated effluent to Badfish and Badger Mill creeks. This also includes monitoring to determine the impact on receiving streams.

FIGURE 6 | **District-Serviced Pumping Stations by Location**

Total Stations: 65



METROGRO BIOSOLIDS REUSE PROGRAM
Expenditures to recycle biosolids to agricultural land.

CAPITAL OUTLAY
Asset purchases such as vehicles and equipment.

SERVICE PUMPING STATIONS OWNED BY OTHERS
Expenditures to operate and maintain local pumping stations owned by other cities and Districts. The District currently operates and maintains 47 pumping stations.

CONTRIBUTION TO CAPITAL PROJECTS FUND
Transfer of operating funds to the capital projects fund.

CONTRIBUTION TO EQUIPMENT REPLACEMENT RESERVE
Additions to the equipment replacement reserve required by the State of Wisconsin Clean Water Fund program.

TRANSFER TO DEBT SERVICE
Transfer from operating fund to pay the annual debt service on the District's long-term debt.

Mechanic Chad Liddicoat works on a biosolids applicator in the Metrogro fleet.

PERSONNEL

Table 5 shows changes in the District's overall staffing from 2021 to 2023.The table includes three Project Engineer positions in the Engineering Department that the Commission approved in 2022. In addition, two new Maintenance Planner positions are proposed for the Operations & Maintenance department and one Organizational Development Specialist for HR in 2023.

Appendix H, page 131, provides a visual representation of the District's hierarchy.

TABLE 5 | **Full-Time Equivalent Positions**

DEPARTMENT	2021 FTE COUNT	2022 FTE COUNT	2023 PROPOSED	CHANGES FOR 2023
District Leadership and Support	15.5	16.5	17.5	The change reflects the addition of an Organizational Development Specialist in 2023. See Appendix F, page 124, for the position justification.
Ecosystem Services	18	14	14	No change
Engineering	8.5	9	12	This change reflects fully funding 3 new Project Engineer positions in 2023 that the Commission approved in 2022.
Operations and Maintenance	57	65	67	The change reflects the addition of two Maintenance Planner positions in 2023. See Appendix F, page 124, for the position justification.
Strategy	15	15	15	No change
TOTALS	**114**	**119.5**	**125.5**	

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SECTION THREE
2023 Capital Improvements Plan & Budget

A woman holds a child as they stand on the shoreline of Lake Wingra in Madison.

INTRODUCTION

The District's Capital Improvements Plan (CIP) is updated each year prior to the development of the annual budget. The CIP contributes to District planning and budgeting in the following ways:

- Identifies capital projects that are needed to keep the District's assets in good working order and meet capacity needs.
- Analyzes and describes projects in detail in individual business cases, including needs, alternatives, costs and timeframes for planning, design and construction.
- Identifies potential large spending requirements for future years and incorporates them into financial planning as needed.
- Estimates costs for six years using the best information available.
- Arranges project timelines to balance urgency, resources and coordination requirements.
- Prepares a financing plan to balance the use of debt, financial resiliency and impacts on service charges.
- Proposes an annual capital budget for the succeeding year.

For projects toward the end of the six-year time frame, costs and schedules are generally less developed. Details of projects in the first one to three years are more precisely known. Many of the early period projects are underway, and their costs have been committed to by contract. Annual CIP updates allow the District to have more precise spending and work plans in the short term and prepare for potential large work and financial issues over the longer term.

Information on specific projects in the CIP can be found in the project summaries in Appendix A, page 63. These project summaries describe the scope, need, cost and schedule for each project. More detailed descriptions of each project are included in business cases.

A brief discussion of recently completed projects can be found in Appendix B, page 106, along with the status of maintenance retainers for recently completed or soon-to-be-completed projects.

PROJECT COST ESTIMATES

Local, state, national and global economies have seen a rapid rise in the cost of various goods and services in the past year. The effects of inflation have hit the construction industry especially hard, and the costs to construct capital improvements are very uncertain at present. An additional difficulty is that supply chains for raw materials and equipment used on these projects have been severely disrupted and are leading to long lead times and project delays.

The District's traditional approach in project cost estimating for the CIP is to inflate costs at the rate of 3% annually. This has generally yielded good results.

Modern engineering practices and updated infrastructure like that at Pumping Station 15 in the City of Middleton support continuous operations for the District.

Due to the current economic climate, the 2023 CIP uses the following annual rates:

- 6% for 2023
- 5% for 2024
- 5% for 2025
- 4% for 2026
- 3% in 2027 and 2028

As an additional measure, another contingency factor has been applied to project costs for those projects that are scheduled for construction in 2022 and/or 2023. This contingency factor, referred to as an economic climate contingency (ECC) by District staff, is independent of inflation and other contingencies that are routinely used for capital planning and estimating. The ECCs applied to District projects in 2022 and 2023 vary, but in general, they are a minimum of 10% for collection system projects and 20% for projects at the treatment plant. The higher ECC for treatment plant projects reflects the fact that these projects typically have more complex electrical and control equipment, the costs of which have been found to be especially vulnerable to inflation.

SUMMARY OF 2023 EXPENDITURES

Capital expenditures for 2023 focus on the rehabilitation and replacement of existing assets at the treatment plant and provide system capacity in the conveyance system. Some of the major construction activities and equipment purchases in 2023 include the following:

- Rehabilitating HVAC systems in four process buildings at the treatment plant.
- Raising and reinforcing the berms in the District lagoons east of South Towne Drive.
- Continuing work on the replacement of the District's maintenance, financial and human resources systems.
- Rehabilitating the flow splitter structure downstream of the Headworks Facility.
- Providing additional capacity for the West Intercepting System between Shorewood Boulevard and Marshall Court in the Village of Shorewood and from University Bay Drive to Walnut Street in the City of Madison.
- Installing Phase 5 of the Lower Badger Mill Creek Interceptor between County Highway PD and Shady Oak Lane in the City of Verona.
- Providing additional capacity for the Waunakee Extension to the Northeast Interceptor west of State Highway 113 in the Town of Westport and the Village of Waunakee.
- Rehabilitating Pumping Station 4 in the City of Madison.
- Increasing the firm capacity of Pumping Station 17 in the City of Verona.
- Installing a relief force main for Pumping Station 17 in the City of Verona and Town of Verona.

Smaller construction projects in 2023 include the following:

- Expansion of the solar power system at the Maintenance Facility.
- Pavement rehabilitation at the treatment plant and other miscellaneous projects at the treatment plant and the collection system as identified in the business case documents for these projects.

Besides construction, several large projects will be in the design phase in 2023. Construction of the first phase of the Liquid Processing Improvements was completed in early 2022. Design of the second phase of projects will begin in late 2022 and continue throughout 2023. These projects include replacement of the air piping in the East Primary Influent Channel, replacement of piping and equipment in the aeration tanks and modifications to allow for treatment at lower levels of dissolved oxygen, and replacement of blower and switchgear equipment.

Another large project getting underway in 2023 will be the replacement of the equipment for the incoming electrical service to the treatment plant from the local power utility. This equipment is responsible for transforming the incoming voltage for use by downstream plant equipment at lower voltages and for isolating and protecting that equipment.

In the collection system, design work in 2023 is expected to continue for the last phase of the Lower

Badger Mill Creek Interceptor. Phase 5 will be under construction in 2023 up to Shady Oak Lane in the Town of Verona. Phase 6 construction in 2024 will complete the interceptor up to Midtown Road. Other design work in the collection system in 2023 is expected to include a project to install a connector line between Pumping Station 6 and Pumping Station 10. The feasibility of this project is being explored in detail in 2022 and the design will carry forward into 2023 if the results are favorable.

Finally, design work will begin in 2023 on a multi-year plan to provide emergency power generation at all District pumping stations. The District currently has facilities or plans in place for portable generation at 5 of its 18 pumping stations. Under this plan, the remaining stations will be equipped with portable generators in a series of annual installations between 2025 and 2030.

Significant planning work will also occur in 2023, with substantial completion of the Collection System Facilities Plan expected before the end of that year. This document will be used to identify, justify and prioritize collection system projects for inclusion in future CIPs. It is also anticipated that a space needs study will be completed in 2023 for various District properties. This study, to be completed by a consultant, will perform an inventory of all properties owned by the District, identify those assets with the greatest needs, and deliver a plan that allows the District to optimize the best use of those assets. Examples of initiatives or areas to be studied include siting of a future biosolids processing facility, location for a new septage receiving facility, location for possible tertiary treatment for chlorides, location of a new resource recovery facility, site improvements and renovations to the Shop One Building, and site security issues. Planning work will also continue in 2023 on efforts to comply with the new phosphorus water quality standards for the discharge of treated effluent to Badger Mill Creek. The new standards, which lower the allowable phosphorus concentration in the waterway, were included in the District's discharge permit which was reissued in May 2020 and require compliance by September 2028. Currently, the four most viable options to achieve compliance are diverting all effluent to Badfish Creek, water quality trading, watershed adaptive management, and treatment. Planning work in 2023 will involve a study to determine the feasibility of these alternatives.

The Shop One building is a space on campus for stimulating water connections. The next iteration of this building is to support outreach, to deepen water stewardship in the area.

CONFORMANCE WITH ADOPTED PLANS AND PROGRAMS

The 2023 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 plan recommends that the District continue to treat all wastewater from its service area at the Nine Springs Wastewater Treatment Plant and return a portion of the effluent to Badger Mill Creek. As such, none of the projects in the CIP assume that a satellite treatment facility will be located anywhere in the District's service area in the foreseeable future. This is a key assumption to note as the projects to add capacity in the Pumping Station 17 basin move into detailed design and construction in the next two to three years.

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, currently scheduled for substantial completion in 2023.

SOLIDS HANDLING FACILITIES PLAN

This Solids Handling Facilities Plan formed the basis for work constructed during the Eleventh Addition to the plant. This addition, completed in 2014, provided a comprehensive update to the treatment plant's solids handling processes. This work should allow the plant to meet solids loadings for the next 20 years. As such, solids handling is not a primary focus of the 2023 CIP.

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. This facilities plan was substantially completed in 2017 and included multiple projects that will address the plant's liquid processing needs. 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 10 to 15 years. The first phase of the project was bid in 2019 and was completed in the second half of 2021. Projects to be included in the second and third phases of the Liquid Processing Improvements are included in the 2023 CIP, with the timing and phasing of these projects determined based on project need, staff workload and the District's financial situation.

ENERGY MANAGEMENT MASTER PLAN

Brown and Caldwell and Strand Associates performed an energy study in 2014. This plan built on that study by taking a comprehensive look at how the District is currently using energy and creating a roadmap for how to manage energy in the future. The study, conducted by Carollo Engineers, emphasized how to select projects and optimize energy use as critical pieces of equipment are replaced in the coming years, such as the gas-driven electrical generators and the associated hot water system. The study was completed in the fall of 2021 and recommends further study and/or facilities planning for heat and power improvements, biosolids processing and miscellaneous energy enhancements at the treatment plant in the coming years.

ASSET MANAGEMENT PROGRAM

The CIP is informed by the District's asset management program. Asset management contributes to capital planning by evaluating the condition and criticality of District assets, implementing proper maintenance processes to extend asset life and providing data on asset repair and replacement needs. The District's program began in 2011, received an updated framework in 2016, and received an updated plant asset management plan in 2019. The next steps in the program include further improving maintenance practices, improving asset data and implementing a new computerized maintenance management system to provide better information for planning.

2023 CAPITAL PROJECTS BUDGET OVERVIEW AND SUMMARY

This section discusses the District's 2023 capital budget. The capital budget sets spending limits on a per-project basis and total annual spending basis. Spending on individual projects is limited to the authorized total project cost. Individual project spending can and does vary by year if the total cost is not exceeded over the life of the project. Spending on all capital projects combined in the budget year is limited to the total amount authorized. The annual total budget limit is set for the current year only. Future year spending totals in the CIP are estimates.

The tables in this section list proposed total project cost authorizations, annual expenditures by project and loan proceeds. Financial matters, including fund balances and the use of debt, are discussed in the section on capital finance.

TOTAL PROJECT COSTS SUMMARY

Table CIP-1A, page 32, lists total project costs. In accordance with Commission Policy ATT-2 on the development of the capital budget, each year the Chief Engineer and Director is required to submit to the Commission a list of total project costs for all previously approved projects and all projects new to the proposed budget. This table also includes total costs for those projects that are included in the six-year Capital Improvements Plan. For each project, the total project cost of the current budget year is compared to that of the preceding year. A similar table will be provided as part of the annual capital budget.

Table CIP-1B, page 33, provides a breakdown of total project costs for projects that were authorized in previous CIPs but were subsequently combined, or bundled, into a single consolidated project for bidding and construction purposes. This table is provided for informational purposes per Commission policy, although only the total cost of the consolidated project is used for cost control purposes.

ANNUAL BUDGETS AND EXPENDITURES SUMMARY

Table CIP-2, page 34, lists annual expenditures by project. Table CIP-3, page 35, shows total annual budgets for 2021-2023, with actual and estimated spending for 2021 and 2022, respectively. For 2021, actual expenditures were $23.0 million, which was well below the budgeted amount of $39.9 million. The underspending of approximately $17 million in 2021 was due primarily to the following projects:

- Deferred start to replacement of District's computerized maintenance management system ($1.3 million below budget).
- Less spending on Liquid Processing Improvements – Phase 1 in 2021 due to a higher rate of construction in 2020 than was anticipated in the 2021 budget. This has the effect of actual expenditures being above the budget estimate in 2020 and below the estimate in 2021 ($4.2 million below budget).
- Less spending on NSVI replacement sewer in 2021 due to a higher rate of construction in 2020 than was anticipated in the 2021 budget. This has the effect of actual expenditures being above the budget estimate in 2020 and below the estimate in 2021 ($1.7 million below budget).
- Favorable bid for Phase 1 of West Interceptor – Shorewood Relief project ($4.0 million below budget).
- Slower pace of construction for Pumping Stations 13 and 14 Rehabilitation project than was anticipated in the 2021 budget ($3.0 million below budget).

These five projects alone account for roughly 85% of the 2021 underspending amount.

Expenditures for 2022 are estimated to be $16.6 million. This is below the budgeted value of $21.8 million by $5.1 million. The underspending for 2022 is due to the postponement of the rehabilitation project for the Northeast Interceptor (Truax Extension) near the Dane County Regional Airport. Approximately $6.0 million was included in the 2022 Capital Projects Budget to install a liner in this interceptor in 2022. The District has elected to postpone this project until 2025 so that higher priority projects can be implemented.

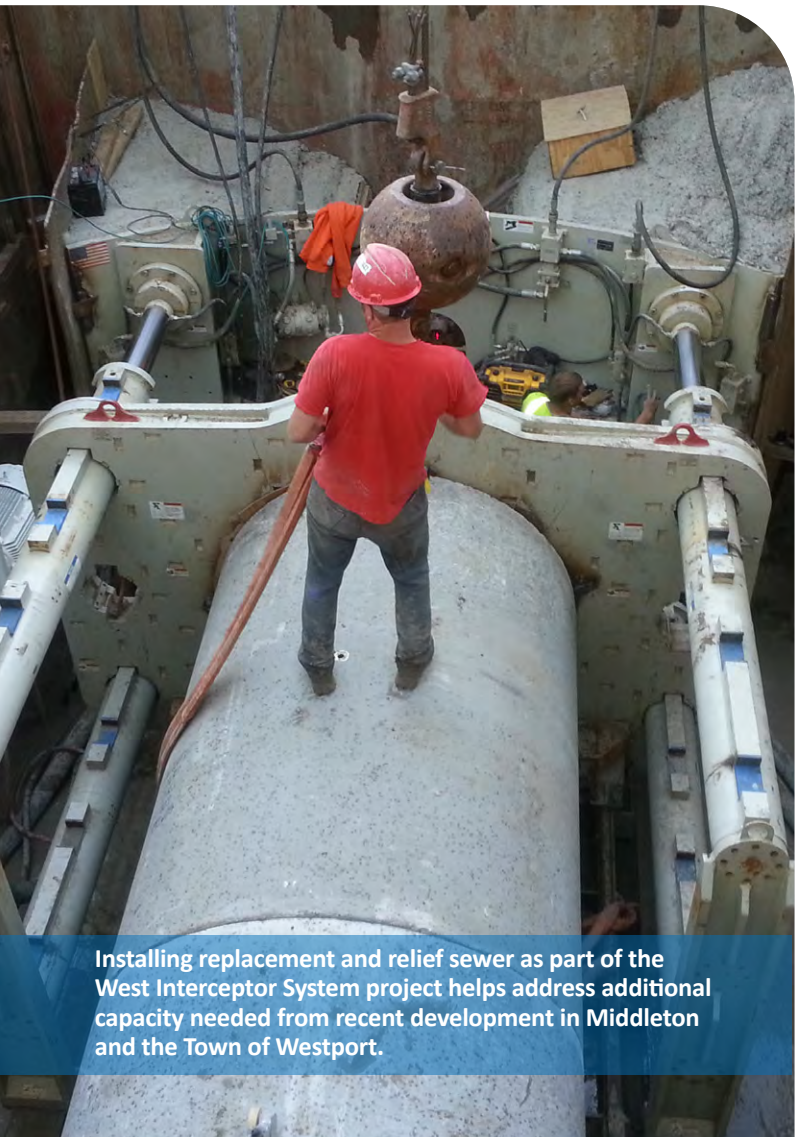
LOAN REVENUES SUMMARY

Table CIP-4, page 35, provides a summary of loan revenues by project(s). Preceding year values are actual disbursements received from the State of Wisconsin's Clean Water Fund for projects under construction or recently completed. Current year and

subsequent year values are estimates based on the District's financing needs.

As shown in the table, the District received $13.1 million in loan proceeds from the Clean Water Fund in 2021. It should be noted that $6.2 million in loan revenue was received in January of 2022 for the West Interceptor – Shorewood Relief and Nine Springs Valley Interceptor projects, although all the associated expenditures were incurred well before this date. The District had anticipated receiving this loan revenue in the fall of 2021, but processing of the loan application and closing of the loan with the Department of Natural Resources took longer than normal. Thus, the $6.2 million in loan revenue for these projects is shown in Table CIP-4 in 2022 instead of 2021.

Delays to loan revenue such as this may occur more frequently in the coming years with the increased funding to the Clean Water Fund program and the associated lending requirements that have resulted from the federal Bipartisan Infrastructure Law and the Build America, Buy America Act. Additional discussion of debt is included in the capital finance section.



Installing replacement and relief sewer as part of the West Interceptor System project helps address additional capacity needed from recent development in Middleton and the Town of Westport.

2023 PROJECT FUNDING

As discussed in the finance section, capital projects are funded from the District's capital projects fund. This fund receives revenue from the following sources: as loan proceeds from the Clean Water Fund; from connection charges collected from new users of the conveyance system and treatment plant; as cash transfers from the operating fund; and from interest investments. In recent years the District has financed approximately 90% of its capital expenditures with loans from the Clean Water Fund. Financing decisions are made on a per-project basis, considering loan eligibility and project size, in addition to overall financing strategy. In 2023, cash revenues net of loan proceeds will be used for $8.8 million, or 28%, of total expenditures. The following notable construction projects will be paid from revenue sources other than loan proceeds in 2023:

- Maintenance, Financial and HR Systems ($689,000)
- West Interceptor-Shorewood Relief – Phase 3 ($5,346,000)
- Lower Badger Mill Creek Interceptor – Phase 5 ($1,283,000)
- Various capital budget expenses ($405,000)

Cash in the capital projects fund will also be used to pay for planning and design work for the following projects:

- Liquid Processing Improvements – Phase 2 ($2,491,000)
- Nine Springs Wastewater Treatment Plant Electric Service Equipment Replacement ($175,000)
- Lagoon Dikes Improvements ($565,000)
- Flow Splitter Improvements ($551,000)
- Pumping Station 6 to Pumping Station 10 Connector ($440,000)

These planning and design costs will initially be paid from cash in the fund and all or a portion of them may later be reimbursed through loans from the Clean Water Fund in subsequent years if/when construction commences.

TABLE CIP-1A | **Total Project Cost Authorizations**

Subprojects shown in separate table as noted		Has Subprojects	Authorization in 2022 Plan	Proposed Authorization in 2023 Plan	Change in Authorization	
TREATMENT PLANT			**$138,610,000**	**$172,594,000**	**$33,984,000**	**25%**
A01	Liquid Processing Improvements - Phase 2		-	-	-	n/a
A01.1	East Primary Influent Channel Air Piping Replacement		793,000	1,390,000	597,000	75%
A01.2	Low Dissolved Oxygen (Partial Plant)		3,171,000	3,850,000	679,000	21%
A01.3	Low Dissolved Oxygen (Full Plant)		18,015,000	21,563,000	3,548,000	20%
A01.4	West Blowers and Switchgear Replacement		12,540,000	10,100,000	(2,440,000)	-19%
A01.5	East Blowers and Switchgear Replacement		-	11,230,000		n/a
A02	2021 Treatment Plant HVAC Improvement Project		1,523,000	1,960,000	437,000	29%
A03	NSWWTP Electrical Service Equipment Replacement		3,098,000	4,739,000	1,641,000	53%
A04	Treatment Plant Energy Projects		-	-	-	n/a
A04.1	Heat and Power Improvements		40,405,000	50,914,000	10,509,000	26%
A04.2	Miscellaneous Energy Projects		7,154,000	10,422,000	3,268,000	46%
A05	Lagoon Dikes Improvements		2,046,000	4,148,000	2,102,000	103%
A06	Maintenance, Financial and HR Systems		5,660,000	6,007,000	347,000	6%
A07	Metrogro Applicators & Equipment		4,405,000	4,494,000	89,000	2%
A08	Flow Splitter Improvements		2,252,000	2,500,000	248,000	11%
A09	Treatment Plant HVAC Improvements- Group 1 Projects		2,844,000	3,310,000	466,000	16%
A10	Liquid Processing Improvements- Phase 3		-	-		n/a
A10.1	Headworks Screening		4,246,000	5,012,000	766,000	18%
A10.2	Grit Processing Improvements		2,393,000	2,585,000	192,000	8%
A11	Septage Receiving Modifications		3,832,000	4,005,000	173,000	5%
A12	Miscellaneous Treatment Plant Projects		124,000	119,000	(5,000)	-4%
A13	Minor Capital Improvements		115,000	122,000	7,000	6%
A14	Annual Pavement Improvements		65,000	70,000	5,000	8%
N/A	Energy Management Master Plan		624,000	624,000	-	0%
	Engine Generator and Blower Control Panel Replacements		677,000	677,000	-	0%
	Final Clarifier 4, 5 and 6 Effluent Launder Trough Replacement		370,000	370,000	-	0%
	Headworks Flow Metering		2,291,000	2,291,000	-	0%
	Liquid Processing Improvements- Phase 1	*	16,818,000	16,818,000	-	0%
	Operations Building First Floor Remodel		2,050,000	2,175,000	125,000	6%
	Resource Recovery Facility		899,000	899,000	-	0%
	Shop One Site Improvements		200,000	200,000	-	0%
INTERCEPTORS			**$76,192,000**	**$84,270,000**	**$8,078,000**	**11%**
B01	West Interceptor-Shorewood Relief Projects		-	-		n/a
B01.1	West Interceptor-Shorewood Relief (Phase 2)		1,754,000	1,754,000	-	0%
B01.2	West Interceptor-Shorewood Relief (Phase 3)		4,676,000	5,481,000	805,000	17%
B02	Lower Badger Mill Creek Interceptor		-	-	-	n/a
B02.1	Lower Badger Mill Creek Interceptor - Phase 5		1,196,000	1,382,000	186,000	16%
B02.2	Lower Badger Mill Creek Interceptor - Phase 6		3,082,000	3,566,000	484,000	16%
B03	Pumping Station 6 to Pumping Station 10 Connector		7,100,000	9,882,000	2,782,000	39%
B04	NEI-Waunakee Extension Capacity Improvements (Phase 1)		7,948,000	9,548,000	1,600,000	20%
B05	NEI-Truax Extension Rehab		6,025,000	7,769,000	1,744,000	29%
B06	NEI - FEI to SEI Rehab		2,129,000	2,277,000	148,000	7%
B07	SEI Rehab - Pumping Station 9 to SEI-Dutch Mill Extension		1,796,000	2,718,000	922,000	51%
B08	NSVI Capacity Improvements- Phase 1		13,251,000	12,500,000	(751,000)	-6%
B09	West Interceptor Rehab- Babcock Hall to Dayton Street		1,249,000	1,350,000	101,000	8%
B10	District Flow Monitoring Stations		1,182,000	1,239,000	57,000	5%
N/A	NEI- Truax Extension Relief		9,646,000	9,646,000	-	0%
	Northeast Interceptor Joint Grouting MH10-101 to MH10-106		307,000	307,000	-	0%
	Northeast Interceptor Joint Grouting MH10-112 to MH10-106		304,000	304,000	-	0%
	NSVI Improvements-McKee Road to Dunn's Marsh		4,754,000	4,754,000	-	0%
	NSVI-Morse Pond Extension		2,300,000	2,300,000	-	0%
	West Interceptor- Shorewood Relief (Phase 1)		4,915,000	4,915,000	-	0%
	Interceptor Rehabilitation- 2020	*	2,078,000	2,078,000	-	0%
	Repair to West Interceptor Extension on Allen Boulevard		500,000	500,000	-	0%

TABLE CIP-1A | **Total Project Cost Authorizations** (continued)

		Has Subprojects	Authorization in 2022 Plan	Proposed Authorization in 2023 Plan	Change in Authorization	
PUMPING STATIONS AND FORCE MAINS			**$45,289,000**	**$61,773,000**	**$16,484,000**	**36%**
C01	Grass Lake Dike Stabilization		905,000	905,000	-	0%
C02	Pumping Station 4 Rehabilitation		5,481,000	7,069,000	1,588,000	29%
C03	Pumping Station 17 Firm Capacity Improvements		5,224,000	6,790,000	1,566,000	30%
C04	Pumping Station 17 Force Main Relief - Phase 2		4,961,000	10,500,000	5,539,000	112%
C05	Emergency Power Generation at District Pumping Stations		8,429,000	9,271,000	842,000	10%
C06	Miscellaneous Collection System Improvements		90,000	103,000	13,000	14%
C07	Force Main Condition Assessment		3,534,000	3,684,000	150,000	4%
C08	Pumping Station 16 Projects		-	-	-	n/a
C08.1	Pumping Station 16 Rehabilitation		-	6,370,000	-	n/a
C08.2	Pumping Station 16 Force Main Rehabilitation		1,652,000	2,068,000	416,000	25%
N/A	Automated Power Transfer at Pumping Stations 10 and 11		268,000	268,000	-	0%
	Pumping Station 13 & Pumping Station 14 Rehabilitation	*	10,755,000	10,755,000	-	0%
	Pumping Station 17 Force Main Relief- Phase 1		3,490,000	3,490,000	-	0%
	Pumping Station 7 Force Main Emergency Repair		500,000	500,000	-	0%
CAPITAL BUDGET EXPENSES			**$20,310,000**	**$14,071,000**	**($6,239,000)**	**-31%**
D01	Capital Budget Expenses		52,000	53,000	1,000	2%
D02	Collection System Facilities Plan Update		230,000	335,000	105,000	46%
D03	Badger Mill Creek Phosphorus Compliance		19,345,000	13,000,000	(6,345,000)	-33%
D04	Plan for District Properties		360,000	360,000	-	0%
N/A	Plant Asset Management Plan Implementation		323,000	323,000	-	0%
GRAND TOTAL			**$280,401,000**	**$332,708,000**	**$52,307,000**	**19%**

TABLE CIP-1B | **Total Estimated Subproject Costs for Bundled Projects**

	2022	Estimated 2023	Change	
INTERCEPTOR REHABILITATION - 2020	**$2,078,000**	**$2,078,000**	**$ -**	**0%**
NEI Relief Sewer and E. Johnson Street Relief Sewer Rehab	470,000	470,000	-	0%
West Interceptor - Spring Street Relief (lining project)	1,608,000	1,608,000	-	0%
LIQUID PROCESSING IMPROVEMENTS - PHASE 1	**$16,818,000**	**$16,818,000**	**-**	**0%**
54 Inch Primary Influent Rehabilitation	662,000	662,000	-	0%
East Blower Controls	727,000	727,000	-	0%
East-West Plant Flow Metering	1,848,000	1,848,000	-	0%
Plant Peak Capacity Improvements	4,695,000	4,695,000	-	0%
Plant Unit Substation Improvements	3,940,000	3,940,000	-	0%
Primary Tanks 1 and 2 Rehabilitation	1,055,000	1,055,000	-	0%
Process Control System Upgrade- Phase Two	1,112,000	1,112,000	-	0%
UV Disinfection System Replacement	2,779,000	2,779,000	-	0%
PUMPING STATION 13 & PUMPING STATION 14 REHABILITATION	**$10,755,000**	**$10,755,000**	**-**	**0%**
Pumping Station 13 Rehabilitation	5,480,000	5,480,000	-	0%
Pumping Station 14 Rehabilitation	5,275,000	5,275,000	-	0%

TABLE CIP-2 | **2021-2023 Expenditures by Project**

		2021 Actual	2022 Through June	2023 Estimated	2023 Anticipated
TREATMENT PLANT		**$7,478,000**	**$358,000**	**$3,803,000**	**$6,131,000**
A01	Liquid Processing Improvements- Phase 2	-	7,000	-	-
A01.1	East Primary Influent Channel Air Piping Replacement	-	-	5,000	142,000
A01.2	Low Dissolved Oxygen (Partial Plant)	-	-	5,000	207,000
A01.3	Low Dissolved Oxygen (Full Plant)	-	-	-	498,000
A01.4	West Blowers and Switchgear Replacement	-	-	5,000	822,000
A01.5	East Blowers and Switchgear Replacement	-	-	5,000	822,000
A02	2021 Treatment Plant HVAC Improvement Project	38,000	47,000	884,000	1,011,000
A03	NSWWTP Electrical Service Equipment Replacement	-	9,000	160,000	175,000
A04	Treatment Plant Energy Projects	-	-	-	-
A04.1	Heat and Power Improvements	-	-	-	-
A04.2	Miscellaneous Energy Projects	-	-		233,000
A05	Lagoon Dikes Improvements	190,000	10,000	295,000	565,000
A06	Maintenance, Financial and HR Systems	1,000	-	659,000	689,000
A07	Metrogro Applicators & Equipment	818,000	6,000	700,000	106,000
A08	Flow Splitter Improvements	-	-	45,000	551,000
A10	Liquid Processing Improvements- Phase 3	-	-	-	-
A10.1	Headworks Screening	-	-	-	-
A11	Septage Receiving Modifications	-	-	-	-
A12	Miscellaneous Treatment Plant Projects	8,000	-	120,000	119,000
A13	Minor Capital Improvements	88,000	7,000	115,000	122,000
A14	Annual Pavement Improvements	-	-	-	70,000
N/A	Energy Management Master Plan	151,000	11,000	15,000	-
	Engine Generator and Blower Control Panel Replacements	145,000	52,000	485,000	-
	Final Clarifier 4, 5 and 6 Effluent Launder Trough Replacement	235,000	53,000	115,000	-
	Headworks Flow Metering	638,000	1,000	-	-
	Liquid Processing Improvements- Phase 1	3,471,000	30,000	30,000	-
	Operations Building First Floor Remodel	1,435,000	123,000	160,000	-
	Resource Recovery Facility	261,000	-	-	-
INTERCEPTORS		**$5,843,000**	**$956,000**	**$4,848,000**	**$10,415,000**
B01	West Interceptor- Shorewood Relief Projects	-	-	-	-
B01.1	West Interceptor- Shorewood Relief (Phase 2)	75,000	30,000	1,630,000	-
B01.2	West Interceptor- Shorewood Relief (Phase 3)	-	7,000	99,000	5,346,000
B02	Lower Badger Mill Creek Interceptor	-	-	-	-
B02.1	Lower Badger Mill Creek Interceptor - Phase 5	-	7,000	99,000	1,283,000
B02.2	Lower Badger Mill Creek Interceptor - Phase 6	-	6,000	110,000	127,000
B03	Pump Station 6 to Pump Station 10 Connector	-	6,000	190,000	440,000
B04	NEI- Waunakee Extension Capacity Improvements (Phase 1)	-	17,000	993,000	2,819,000
B05	NEI-Truax Extension Rehab	3,000	-	-	-
B06	NEI - FEI to SEI Rehab	-	-	-	-
B07	SEI Rehab - PS 9 to SEI-Dutch Mill Extension	-	-	-	-
N/A	Interceptor Rehabilitation- 2020	3,000	-	-	-
	NEI- Truax Extension Relief	4,000	-	-	-
	Northeast Interceptor Joint Grouting MH10-101 to MH10-106	29,000	166,000	242,000	-
	Northeast Interceptor Joint Grouting MH10-112 to MH10-106	9,000	-	-	-
	NSVI Improvements-McKee Road to Dunn's Marsh	2,686,000	6,000	250,000	
	NSVI-Morse Pond Extension	-	35,000	35,000	-
	Repair to West Interceptor Extension on Allen Boulevard	-	21,000	100,000	400,000
	West Interceptor - Shorewood Relief (Phase 1)	3,034,000	655,000	1,100,000	-

TABLE CIP-2 | **2021-2023 Expenditures by Project** (continued)

		2021 Actual	2022 Through June	2023 Estimated	2023 Anticipated
PUMPING STATIONS AND FORCE MAINS		**$9,520,000**	**$1,976,000**	**$7,692,000**	**$14,536,000**
C01	Grass Lake Dike Stabilization	17,000	40,000	625,000	-
C02	Pumping Station (PS) 4 Rehabilitation	217,000	87,000	888,000	3,237,000
C03	PS 17 Firm Capacity Improvements	41,000	136,000	641,000	2,372,000
C04	PS 17 Force Main Relief- Phase 2	18,000	102,000	1,538,000	8,818,000
C05	Emergency Power Generation at District Pumping Stations	-	-	5,000	5,000
C06	Miscellaneous Collection System Improvements	22,000	1,000	90,000	103,000
C08	Pumping Station 16 Projects	-	-	-	-
C08.2	PS 16 Force Main Rehabilitation	1,000	-	-	-
N/A	Automated Power Transfer at Pumping Stations 10 and 11	8,000	-	-	-
	PS 13 & PS 14 Rehabilitation	6,319,000	1,484,000	3,600,000	-
	PS 17 Force Main Relief- Phase 1	2,599,000	125,000	305,000	-
	Pumping Station 7 Force Main Emergency Repair	279,000	-	-	-
CAPITAL BUDGET EXPENSES		**$161,000**	**$32,000**	**$297,000**	**$484,000**
D01	Capital Budget Expenses	-	-	50,000	53,000
D02	Collection System Facilities Plan Update	36,000	2,000	20,000	143,000
D03	Badger Mill Creek Phosphorus Compliance	13,000	17,000		106,000
D04	Plan for District Properties	-	-	172,000	182,000
N/A	Plant Asset Management Plan Implementation	112,000	13,000	55,000	-
GRAND TOTAL		**$23,003,000**	**$3,321,00**	**$16,640,000**	**$31,566,000**

TABLE CIP-3 | **Annual Budget & Expenditures**

	Adopted Capital Budget		2023 Proposed CIP	
	2021	**2022**	**2023**	**2022-2023 CHANGE**
Budgets	$39,869,000	$21,783,000	$31,566,000	45%
Expenditures (Actual 2021; Estimated 2022)	$23,003,000	$16,640,000		
Underspending	*$16,866,000*	*$5,143,000*		

TABLE CIP-4 | **Clean Water Fund Loan Proceeds**

	2021 Actual	2022 Estimated	2023 Anticipated
LPI - Phase 1/Pumping Station 7 Improvements/Headworks Flow Metering	7,488,000	748,000	-
NEI-Waunakee Extension Relief	-	-	3,774,000
NEI-Truax Ext Relief/SWI-Haywood Ext Replacement	205,000	-	-
Pumping Station 4 Rehabilitation	-	-	4,257,000
Pumping Station 17 Force Main - Phase 2	-	-	10,270,000
2021 Treatment Plant HVAC Improvement Project	-	929,000	991,000
Pumping Station 13&14 Rehab/Ops Bldg Remodel/2019 Plant Piping/Int Rehab	5,360,000	8,795,000	-
WI-Shorewood Relief (Phase 1)/NSVI-McKee Rd to Dunn's Marsh	-	8,600,000	-
Pumping Station 17 Firm Capacity Improvements	-	-	2,993,000
GRAND TOTAL	**$13,053,000**	**$19,072,000**	**$22,285,000**

SIX-YEAR CAPITAL PROJECTS SUMMARY

This section discusses planned projects for the six years of the CIP. Financing issues for the six-year period are discussed in the capital finance section.

The District's CIP includes projections for projects that are either underway and will continue into 2023, 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 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 CIP-5, page 40, is included to show the anticipated annual inflation-adjusted costs that are expected for each project. These tables show approximately $233 million worth of expenditures over the six years from 2023 to 2028.

Table CIP-6, page 42, presents the anticipated schedule for each project by phase within the six-year planning window. For each project, the predominant phase of the project is shown for a given year. Where two phases of a project are likely to occur in the same year, both phases are indicated.

PROJECT SUMMARIES AND BUSINESS CASES

Summary descriptions for each of the proposed projects are included in Appendix A, page 63. 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:

A - Nine Springs Wastewater Treatment Plant

B - Interceptor Projects

C - Pumping Stations and Force Main Projects

D - Capital Budget Expenses

It should also be noted that some projects contain a numerical suffix to indicate that it is related to, or dependent upon, some other project and may be part of a larger constructed project in the future(i.e., Project ID A01.1).

Additional project information for most projects is contained in comprehensive business cases. Since some projects are closely connected or contingent upon other projects, more than one project may be included in a single business case. 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. It should be noted that projects that have entered the construction phase are not included in the project summaries in Appendix A and do not have an updated business case.

The remainder of this section provides a summary of the most notable projects that are included in each category in the 2023 CIP.

TREATMENT PLANT

With the completion of the Liquid Processing Improvements – Phase 1 project in the second half of 2021, the focus will now shift to the remaining projects that were developed in the 2016 Liquid Processing Facilities Plan. Replacement of the west blowers and switchgear equipment will begin in 2022. Unlike the 2022 CIP which proposed replacing

Mechanics Matt Barrett and Brian Suchomel conduct repairs on West Blower 1. Blowers pump compressed air through diffusers in the aeration tanks to ensure a continual supply of dissolved oxygen for microbes.

the three west blowers in a phased approach over many years, the 2023 CIP calls for replacing all three blowers between 2024 and 2026 due to the deteriorating condition and critical nature of this equipment. A project to replace the east blowers and related switchgear equipment is planned upon completion of the west blowers project. This project was not in the 2022 CIP, and while the equipment continues to perform reasonably well, it is operating beyond its useful life.

Another project from the 2016 Liquid Processing Facilities Plan that will begin in the second half of 2022 is the introduction of a low-dissolved oxygen process to secondary treatment. The facilities plan recommended a process called nitrite shunt that would use less energy and lower nutrients. While bench-scale testing of the nitrite shunt process did not yield satisfactory results, it did suggest that using low-dissolved oxygen for secondary treatment could have significant energy savings. The low-dissolved oxygen process will be implemented at full scale in one of the four treatment plants in 2024 and operated to assess its effectiveness through 2026. If successful, the process will be expanded to all plants in 2028.

Another notable project that will begin in 2023 is a project to replace the switchgear equipment at the treatment plant that receives electrical power from the local utility. This equipment steps down the incoming voltage from the utility so that it can be used by downstream equipment. This switchgear is inspected regularly, and it is in decent working condition. However, it is nearing the end of its useful life by industry standards, and replacement parts are difficult to obtain. Since this equipment is vital to supplying the electrical needs of all plant equipment, District staff are recommending that it be replaced at this time.

Finally, of particular note is a change to the project schedule for two major projects that were recommended in the 2020 Energy Management Master Plan and 2020 Biosolids Management Study. The 2022 CIP proposed that the District begin a facility planning process in 2022-2023 to further study how the District should use its biogas going forward and how best to address its aging assets that treat the biogas. Construction was tentatively scheduled to begin in 2026. Due to staff availability and other priority projects, the Heat and Power Improvements project is being pushed back three years, with facility planning and construction postponed until 2025-2026 and 2029, respectively. The 2023 CIP also continues to support the District's commitment to the land application of biosolids. While the 2020 Biosolids Management Study recommended that the District investigate a possible future transition from a liquid product that is land applied to a dried cake product, that transition will take many years to execute, if pursued, and it is beyond the six-year planning horizon of this document. In the interim, the District will continue to make improvements to its current land application program through the purchase of two new applicators in 2024 and 2025. Other operational continuity improvements are likely to be included in the 2024 CIP.

INTERCEPTORS

The 2023 CIP provides a major investment in increasing the capacity of the collection system in response to growth in the District's service area and increasing rates of inflow and infiltration. Dane County remains one of the fastest-growing counties in Wisconsin. As a result, the following capacity improvements are planned:

- West Interceptor – Shorewood Relief: New relief and replacement sewers will be constructed in the City of Madison and the Village of Shorewood along University Avenue between Whitney Way and Walnut Street in three separate phases. The additional capacity is required to serve projected development in the City of Middleton and the Town of Westport. Phase 1 construction was completed in early 2022. Phases 2 and 3 are scheduled for construction in 2022 and 2023, respectively.
- Northeast Interceptor – Waunakee Extension (Phase 1): Approximately 9,000 feet of new relief or replacement sewer will be installed in 2023 and 2024 to serve future development in the villages of Waunakee and Dane and the Town of Westport.
- Lower Badger Mill Creek Interceptor (Phases 5 & 6): These are the final phases of the interceptor, to be installed in 2023 and 2024. Upon completion, all or a portion of wastewater flows north of Midtown Road will be diverted to Pumping Station 17 in the City of Verona.

- Nine Springs Valley Interceptor Capacity Improvements (Phase 1): This is the first phase of major capacity improvements that are needed for this intercepting system between Pumping Station 11 and Pumping Station 12. It is expected that construction will be divided into at least four phases over a 15-year to 20-year period, with the first phase scheduled for construction in 2027 and 2028.

The 2023 CIP also contains several rehabilitation projects for District interceptors. Several of these projects have been delayed one or more years from previous plans, and several of them are now proposed in 2025. These rehabilitation projects will become the focus of the interceptor category once the majority of the previously mentioned capacity improvement projects are completed.

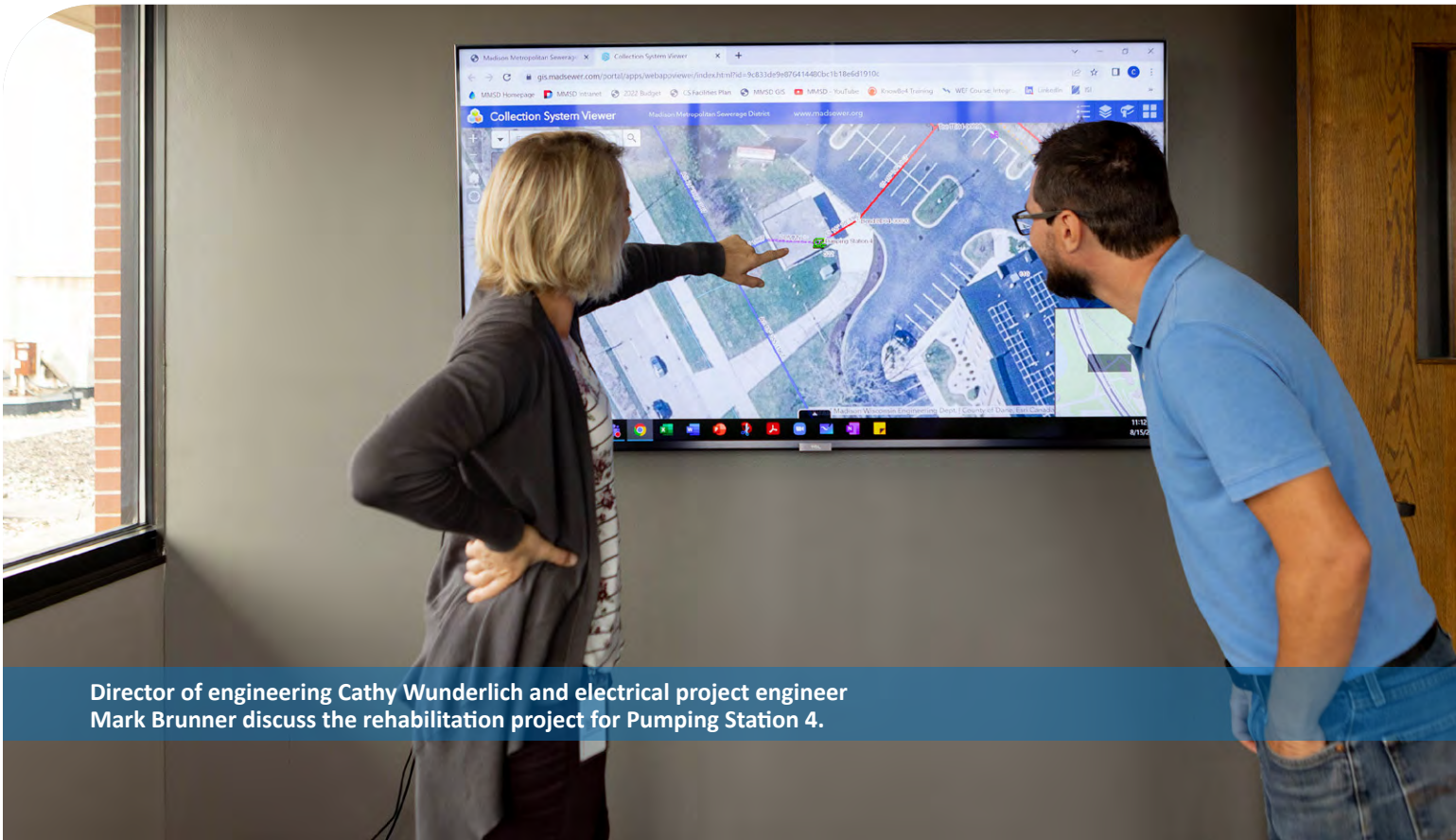
PUMPING STATIONS AND FORCE MAINS

The District has been systematically rehabilitating its pumping stations over the last 20 years as part of its capital improvements program. These rehabilitations have generally included full replacement of the major mechanical, electrical, control and HVAC systems. Pumping Stations 13 and 14 are currently being rehabilitated and are scheduled to be completed in the second half of 2022. A full rehabilitation project is also planned for Pumping Station 4 in 2023 and 2024.

The scope of improvements to Pumping Station 17 is also being evaluated and analyzed in 2022. The station's most immediate needs relate to firm capacity due to high rates of growth in the Lower Badger Mill Creek basin, especially north of Midtown Road in the City of Madison. Most of the station equipment is in reasonably good working condition at this time and can be expected to provide reliable service for 10 to 15 more years. The station is not easily expandable, however, and floodplain issues suggest that a new pumping station may be needed in the longer term for this basin. The 2023 CIP includes costs to provide short-term capacity improvements and to replace some critical electrical and HVAC systems such that the station can operate reliably for the next 10 to 15 years. As such, the 2023 CIP does not reflect any costs for a new pumping station.

This category also includes the completion of a relief force main for Pumping Station 17 in 2023. The Phase 1 work was coordinated with a City of Verona public works project completed in the summer of 2021. When complete, the force main will have the capacity needed to serve flows in the upper portions of the Lower Badger Mill Creek basin, which are scheduled to be diverted to Pumping Station 17 in 2024.

New projects in this category have been included to address the continuity of pumping station operations



Director of engineering Cathy Wunderlich and electrical project engineer Mark Brunner discuss the rehabilitation project for Pumping Station 4.

and force main conditions. Only two District pumping stations currently have standby generators that can ensure that the stations continue to operate during a loss of electrical power. Generators have been installed at Pumping Stations 13 and 14 as part of the construction that is in progress. The 2023 CIP outlines a plan to install standby generators at most of the remaining District stations between 2025 and 2030. The plan also includes an annual allowance, starting in 2024, to perform annual inspections of the District's higher-risk force mains.

The outfall at Badger Mill Creek.

CAPITAL PROJECTS BUDGET EXPENSES

The final category of expenditures in Table CIP-4 is capital budget expenses (letter D). These expenses typically include expenses related to planning and studies assessed against the capital fund that would be difficult to capitalize on a specific asset.

The largest anticipated expenses in this category over the next six years pertain to the work necessary to comply with the new phosphorus requirements for District effluent that is discharged to Badger Mill Creek.

These new requirements were included in the District's discharge permit that was reissued in May 2020 and called for full compliance in 2028. The District originally developed six alternatives to achieve compliance, but it has narrowed the list to four options at this time:

1. Divert all treated effluent to Badfish Creek and discontinue discharge to Badger Mill Creek;
2. Water quality trading;
3. Watershed adaptive management; and
4. Treatment.

The District's discharge permit requires that a final compliance alternatives plan be submitted to WDNR in 2023, and costs are included in the 2023 CIP for that purpose. The 2023 CIP also includes an allowance of $12.5 million for this project in 2027 if tertiary treatment facilities need to be constructed at the treatment plant. The use of capital funds is being included in the CIP as a conservative assumption for financial planning until a final decision for compliance is reached.

Other items in this category include an annual allowance for general planning expenses for use in developing the Capital Improvements Plan, substantial completion of the Collection System Facilities Plan Update in 2023, and a space needs study for all District-owned properties.

TABLE CIP-5 | **Six-Year Spending Forecast**

Project No.	Project Title	2023	2024	2025	2026	2027	2028
Treatment Plant		**$6,131,000**	**$15,709,000**	**$13,049,000**	**$11,039,000**	**$20,632,000**	**$19,277,000**
A01	Liquid Processing Improvements- Phase 2	-	-	-	-	-	-
A01.1	East Primary Influent Channel Air Piping Replacement	142,000	1,242,000	-	-	-	-
A01.2	Low Dissolved Oxygen (Partial Plant)	207,000	3,038,000	216,000	359,000	-	-
A01.3	Low Dissolved Oxygen (Full Plant)	498,000	-	-	766,000	10,165,000	9,967,000
A01.4	West Blowers and Switchgear Replacement	822,000	2,143,000	4,786,000	2,340,000	-	-
A01.5	East Blowers and Switchgear Replacement	822,000	-	-	936,000	5,502,000	3,965,000
A02	2021 Treatment Plant HVAC Improvement Project	1,011,000	-	-	-	-	-
A03	NSWWTP Electrical Service Equipment Replacement	175,000	184,000	2,069,000	2,151,000	-	-
A04	Treatment Plant Energy Projects	-	-	-	-	-	-
A04.1	Heat and Power Improvements	-	-	888,000	924,000	2,091,000	2,153,000
A04.2	Miscellaneous Energy Projects	233,000	378,000	-	-	-	284,000
A05	Lagoon Dikes Improvements	565,000	3,075,000	-	-	-	-
A06	Maintenance, Financial and HR Systems	689,000	1,672,000	1,182,000	1,377,000	426,000	-
A07	Metrogro Applicators & Equipment	106,000	835,000	993,000	122,000	-	-
A08	Flow Splitter Improvements	551,000	1,842,000	-	-	-	-
A09	Treatment Plant HVAC Improvements - Group 1 Projects	-	1,051,000	2,259,000	-	-	-
A10	Liquid Processing Improvements - Phase 3	-	-	-	-	-	-
A10.1	Headworks Screening	-	-	-	-	238,000	2,463,000
A10.2	Grit Processing Improvements	-	-	-	-	-	168,000
A11	Septage Receiving Modifications	-	11,000	327,000	1,805,000	1,859,000	-
A12	Miscellaneous Treatment Plant Projects	119,000	111,000	117,000	122,000	125,000	129,000
A13	Minor Capital Improvements	122,000	128,000	134,000	140,000	144,000	148,000
A14	Annual Pavement Improvements	70,000	-	77,000	-	83,000	-
Interceptors		**$10,415,000**	**$15,358,000**	**$17,582,000**	**$9,991,000**	**$12,456,000**	**$12,830,000**
B01	West Interceptor-Shorewood Relief Projects	-	-	-	-	-	-
B01.2	West Interceptor-Shorewood Relief (Phase 3)	5,346,000	-	-	-	-	-
B02	Lower Badger Mill Creek Interceptor	-	-	-	-	-	-
B02.1	Lower Badger Mill Creek Interceptor - Phase 5	1,283,000	-	-	-	-	-
B02.2	Lower Badger Mill Creek Interceptor - Phase 6	127,000	3,328,000	-	-	-	-
B03	Pumping Station 6 to Pumping Station 10 Connector	440,000	4,513,000	4,739,000	-	-	-
B04	NEI-Waunakee Extension Capacity Improvements (Phase 1)	2,819,000	5,736,000	-	-	-	-
B05	NEI-Truax Extension Rehab	-	1,525,000	6,241,000	-	-	-
B06	NEI-FEI to SEI Rehab	-	50,000	2,226,000	-	-	-
B07	SEI Rehab - PS 9 to SEI-Dutch Mill Extension	-	106,000	2,612,000	-	-	-
B08	NSVI Capacity Improvements- Phase 1	-	95,000	386,000	401,000	5,696,000	5,867,000
B09	West Interceptor Rehab- Babcock Hall to Dayton Street	-	6,000	1,344,000	-	-	-
B10	District Flow Monitoring Stations	-	-	35,000	1,203,000	-	-
	Collection System Projects 2026	-	-	-	6,077,000	-	-
	Collection System Projects 2027	-	-	-	-	4,382,000	-
	Collection System Projects 2028	-	-	-	-	-	4,513,000
	Lining Projects 2026	-	-	-	2,309,000	-	-
	Lining Projects 2027	-	-	-	-	2,379,000	-
	Lining Projects 2028	-	-	-	-	-	2,450,000
	Repair to West Interceptor Extension on Allen Boulevard	400,000	-	-	-	-	-

TABLE CIP-5 | **Six-Year Spending Forecast** (continued)

Project No.	Project Title	2023	2024	2025	2026	2027	2028
Pumping Stations and Force Mains		**$14,536,000**	**$7,269,000**	**$6,539,000**	**$11,584,000**	**$8,257,000**	**$7,062,000**
C02	Pumping Station 4 Rehabilitation	3,237,000	2,725,000	-	-	-	-
C03	Pumping Station 17 Firm Capacity Improvements	2,372,000	3,735,000	-	-	-	-
C04	Pumping Station 17 Force Main Relief - Phase 2	8,818,000	-	-	-	-	-
C05	Emergency Power Generation at District Pumping Stations	5,000	128,000	1,876,000	2,054,000	1,634,000	1,135,000
C06	Miscellaneous Collection System Improvements	103,000	108,000	113,000	118,000	121,000	125,000
C07	Force Main Condition Assessment	-	557,000	584,000	608,000	626,000	645,000
C08	Pumping Station 16 Projects	-	-	-	-	-	-
C08.1	Pumping Station 16 Rehabilitation	-	-	590,000	3,421,000	2,353,000	-
C08.2	Pumping Station 16 Force Main Rehabilitation	-	17,000	88,000	1,963,000	-	-
N/A	Pumping Station Projects 2025	-	-	3,288,000	-	-	-
	Pumping Station Projects 2026	-	-	-	3,420,000	-	-
	Pumping Station Projects 2027	-	-	-	-	3,522,000	-
	Pumping Station Projects 2028	-	-	-	-	-	5,158,000
Capital Budget Expenses		**$484,000**	**$83,000**	**$292,000**	**$61,000**	**$12,581,000**	**$64,000**
D01	Capital Budget Expenses	53,000	56,000	58,000	61,000	63,000	64,000
D02	Collection System Facilities Plan Update	143,000	28,000	-	-	-	-
D03	Badger Mill Creek Phosphorus Compliance	106,000	-	234,000	-	12,519,000	-
D04	Plan for District Properties	182,000	-	-	-	-	-
Grand Total		**$31,566,000**	**$38,419,000**	**$37,463,000**	**$32,674,000**	**$53,926,000**	**$39,233,000**

Collection System Services team members Derek Steinhorst and Ethan Poser temporarily address infiltration leaks from Goose Lake near Badger Mill Creek during a low water period. More significant system updates are needed to minimize further water intake.

TABLE CIP-6 | **Six-Year Capital Projects Phases**

Project No.	Project Title	2023	2024	2025	2026	2027	2028
Treatment Plant							
A01	Liquid Processing Improvements- Phase 2						
A01.1	East Primary Influent Channel Air Piping Replacement	D	C				
A01.2	Low Dissolved Oxygen (Partial Plant)	D	C/O	O	O		
A01.3	Low Dissolved Oxygen (Full Plant)	D			D	D/C	C
A01.4	West Blowers and Switchgear Replacement	D	C	C	C		
A01.5	East Blowers and Switchgear Replacement	D			C	C	C
A02	2021 Treatment Plant HVAC Improvement Project	C					
A03	NSWWTP Electrical Service Equipment Replacement	P/D	D	C	C		
A04	Treatment Plant Energy Projects						
A04.1	Heat and Power Improvements			P	P	D	D
A04.2	Miscellaneous Energy Projects	C	D/C				P
A05	Lagoon Dikes Improvements	D/C	C				
A06	Maintenance, Financial and HR Systems	P/D	C	C	C	C	
A07	Metrogro Applicators & Equipment	E	E	E	E		
A08	Flow Splitter Improvements	D/C	C				
A09	Treatment Plant HVAC Improvements - Group 1 Projects		D/C	C			
A10	Liquid Processing Improvements - Phase 3						
A10.1	Headworks Screening					P	D
A10.2	Grit Processing Improvements						P/D
A11	Septage Receiving Modifications		P	P/D	C	C	
A12	Miscellaneous Treatment Plant Projects	A	A	A	A	A	A
A13	Minor Capital Improvements	A	A	A	A	A	A
A14	Annual Pavement Improvements	C		C		C	

A = Annual	C = Construction	C/O = Construction and Operation	D = Design	D/C = Design and Construction	E = Equipment Purchase
O = Operation	P= Planning	PD = Planning & Design	S- Study	S/T = Study & Testing	T= Testing

TABLE CIP-6 | **Six-Year Capital Projects Phases** (continued)

Project No.	Project Title	2023	2024	2025	2026	2027	2028
Interceptors							
B01	West Interceptor-Shorewood Relief Projects						
B01.2	West Interceptor-Shorewood Relief (Phase 3)	C					
B02	Lower Badger Mill Creek Interceptor						
B02.1	Lower Badger Mill Creek Interceptor - Phase 5	C					
B02.2	Lower Badger Mill Creek Interceptor - Phase 6	D	C				
B03	Pumping Station 6 to Pumping Station 10 Connector	D	C	C			
B04	NEI- Waunakee Extension Capacity Improvements (Phase 1)	D/C	C				
B05	NEI-Truax Extension Rehab		D/C	C			
B06	NEI-FEI to SEI Rehab		D	C			
B07	SEI Rehab - PS 9 to SEI-Dutch Mill Extension		D	C			
B08	NSVI Capacity Improvements - Phase 1		P	D	D	C	C
B09	West Interceptor Rehab- Babcock Hall to Dayton Street		P	D/C			
B10	District Flow Monitoring Stations			D	C		
	Collection System Projects 2026				C		
	Collection System Projects 2027					C	
	Collection System Projects 2028						C
	Lining Projects 2026				C		
	Lining Projects 2027					C	
	Lining Projects 2028						C
	Repair to West Interceptor Extension on Allen Boulevard	C					
Pumping Stations and Force Mains							
C02	PS 4 Rehabilitation	C	C				
C03	PS 17 Firm Capacity Improvements	C	C				
C04	PS 17 Force Main Relief - Phase 2	C					
C05	Emergency Power Generation at District Pumping Stations	P/D	D	D/C	D/C	C	C
C06	Miscellaneous Collection System Improvements	A	A	A	A	A	A
C07	Force Main Condition Assessment		A	A	A	A	A
C08	Pumping Station 16 Projects						
C08.1	PS 16 Rehabilitation			D	C	C	
C08.2	PS 16 Force Main Rehabilitation		P	D	C		
N/A	Pumping Station Projects 2025			C			
	Pumping Station Projects 2026				C		
	Pumping Station Projects 2027					C	
	Pumping Station Projects 2028						C
Capital Budget Expenses							
D01	Capital Budget Expenses	A	A	A	A	A	A
D02	Collection System Facilities Plan Update	P	P				
D03	Badger Mill Creek Phosphorus Compliance	P		D		C	
D04	Plan for District Properties	P					

FIGURE 7 | **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 August 17, 2022, the District has borrowed $279 million from this program for the following projects:

FIGURE 8 | **Wisconsin Clean Water Fund Loan Program - Anticipated Debt**

The District anticipates it will require funding for future projects, with funding for many 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 less than 2% in the past year. Use of the loan program helps ensure that adequate capital reserves are on hand to address any unforeseen capital costs.

Return to T.O.C.

SECTION FOUR
2023 Capital Finance

A woman and child laugh and play in one of the area's many quality lakes.

INTRODUCTION

The previous sections described the annual capital budget and the six-year project plan, including project costs and schedules. This section addresses how this work is to be financed.

The District finances its capital improvements program through a combination of cash and borrowing. Borrowing is done through the state's Clean Water Fund loan program, which provides subsidized, below-market interest rates in support of the state's wastewater infrastructure.

The financing plan seeks to maintain financial reserves, limit use of debt, and maintain steady annual increases in service charges. These goals are in tension and must be balanced under overall Commission direction.

Financing under this Capital Improvements Plan differs from the 2022 plan in two respects. First, the 2022 plan included significant projected costs related to implementation of the Energy Management Master Plan, which calls for numerous heat and power updates throughout the Nine Springs Wastewater Treatment Plant. Under this updated 2023 plan, much of those costs are deferred beyond the six-year capital improvements plan period, as planning work for the called-for heat and power upgrades continues. Second, the District has increased projected costs to account for higher rates of inflation and contingencies related to current economic conditions.

This plan continues three overall trends from 2022. The amount of service charges revenues used directly for capital expenses gradually rises to reduce reliance on debt below what would otherwise occur. Nonetheless, total use of debt also rises due to overall increased capital needs. Lastly, year-over-year increases in service charges are projected to remain between 8% and 9% per year.

POLICY CONTROLS

District capital financing is controlled by several Commission policies (available at **www.madsewer.org/commission** and select Commission Policy Book). These include:

- Outcomes Policy O – 2C "Charges for service are justified, adequate, equitable and predictable;"
- Executive limitations Policy EL – 2C, regarding financial planning/budgeting;
- EL – 2D (5) regarding adequacy of available funds;
- EL – 2G regarding adequacy of rates to fund capital improvements; and
- Commission policy book attached policy ATT-2, specifically the sections on:
  - Capital projects budget and debt service budget;
  - Debt financing;
  - Fund reserves;
  - Fund structure; and
  - Strategic financial planning.

This CIP is consistent with the above policies.

FINANCING TOOLS

The District's capital program is financed with three tools:

1. Disbursements from the state's Clean Water Fund loan program.
2. Revenue from District connection charges (charged for extension of service to new areas).
3. Revenue from District service charges (paid quarterly by municipalities).

Clean Water Fund loan interest rates are lower than commercial loans because of a state interest rate subsidy. Rates in the past two years have been at or under 2%, though rates are projected to increase, mirroring market rate increases. Clean Water Fund loans have a 20-year term.

Clean Water Fund loan proceeds are deposited in the capital projects fund. Loan proceeds are often received a year or more after spending begins on a project. This is because initial planning and design

expenses are not eligible for reimbursement until a construction contract for the project has been bid and awarded. These delays are one reason to maintain an adequate reserves in the capital projects fund.

Principal and interest payments are made from a separate debt service fund. Money for these payments comes from District service charges, transferred from the operating fund to the debt service fund. Clean Water Fund program terms require the District to maintain specified reserves in the debt service fund.

Connection charge revenue is paid by municipalities (or directly by developers) on a one-time basis when service is made available to new areas. Connection charges are based on the cost of the conveyance facilities serving a given area and a proportion of the costs of assets at the Nine Springs Wastewater Treatment Plant. Connection charges are meant to recover the infrastructure costs of expanding the system and providing capacity. Ongoing repair and replacement of the system are supported by service charges. Connection charges are deposited directly in the capital projects fund.

Connection charge revenue varies significantly by year depending on the pace and location of development in the region. In preparing the capital financing plan, staff estimate future connection charges based on historical patterns, known rate changes and best judgement about economic conditions. The unpredictability of connection charge revenue is a second reason to maintain adequate reserves in the capital projects fund. (Estimated connection charges in this CIP reflect the phase in of higher treatment plant connection charge rates, authorized by the Commission in 2017.)

Connection charge revenues contribute roughly 40% of the cash financing for the capital program over the six-year planning horizon, with the remaining 60% from service charges. (Service charges also cover all debt service payments.) Service charge revenues are initially deposited in the operating fund and then transferred to the capital projects fund as part of the District's annual budget.

Use of Clean Water Fund loans remains the largest financing tool for the capital program, financing approximately 80% of capital expenditures in 2023,

Collection systems engineer Jen Hurlebaus monitors operations at one of our 18 pumping stations. Rehabilitated pumping stations increase capacity, improve efficiency and ensure reliability for communities.

declining to approximately 60% in 2028, the last year of this Capital Improvements Plan. This reduction in the debt financing ratio is intended to increase the financial resiliency of the District over time, while also reducing interest payments over time. The remainder of expenditures are financed with cash, including from connection charges and service charges.

CAPITAL FINANCING PLAN

The financing plan covers the CIP planning period, 2023–2028. In addition to borrowing levels, the plan proposes annual transfers from the operating fund to the capital projects fund and to the debt service fund. These amounts are anticipated. However, the transfer amounts for the first year of the plan will be fixed in the District's annual budget in the fall. Borrowing amounts will vary from anticipated, reflecting changes in project costs, loan eligibility and staff decisions to not borrow for smaller projects when feasible.

CAPITAL PROJECTS FUND BALANCE

The capital projects fund balance is an important factor in the capital financing plan. The balance provides resiliency against fluctuations in connection charge revenues and against delays in loan proceeds. It also covers the costs of the planning and design phases of loan-funded projects until loan proceeds are received. Furthermore, the balance allows the District to take on unplanned capital expenditures, like emergency repairs. To provide this resiliency, the balance must grow with the size of the capital program. The District seeks to maintain a capital projects fund reserve at least as large as annual cash spending, averaged over several years.

To achieve needed balances, the plan increases the amount transferred from the operating fund to the capital projects fund, over the course of the six-year plan. As shown in **Table CIP-7, below**, the reserve target increases from $10 million to just under $17 million over the period, reflecting increased expenditures. To meet this target, the plan increases transfers from $3.5 million in 2022 to just under $11 million by the end of the period.

DEBT SERVICE FUND BALANCE

Payments for principal and interest obligations come from the debt service fund. As with the capital projects fund, the balance provides resiliency against financial fluctuations.

TABLE CIP-7 | Capital Projects Fund Cash Flow Summary

	2022	2023	2024	2025	2026	2027	2028
Opening Balance	**$6,718,000**	**$16,657,000**	**$16,800,000**	**$14,953,000**	**$22,336,000**	**$20,601,000**	**$19,630,000**
Revenues							
Clean Water Fund Loans	19,072,000	22,285,000	23,567,000	30,833,000	15,243,000	36,263,000	20,818,000
Connection Charges	4,000,000	4,550,000	5,100,000	5,625,000	6,175,000	6,375,000	6,550,000
Interest Revenues	6,000	83,000	84,000	75,000	112,000	206,000	196,000
Transfers From Operating Fund	3,501,000	4,791,000	7,821,000	8,312,000	9,410,000	10,111,000	10,936,000
Total Revenues	*26,579,000*	*31,709,000*	*36,572,000*	*44,845,000*	*30,940,000*	*52,955,000*	*38,500,000*
Expenditures							
Treatment Plant	3,803,000	6,131,000	15,709,000	13,049,000	11,039,000	20,632,000	19,277,000
Interceptors	4,848,000	10,415,000	15,358,000	17,582,000	9,991,000	12,456,000	12,830,000
Pumping Stations and Force Mains	7,692,000	14,536,000	7,269,000	6,539,000	11,584,000	8,257,000	7,062,000
Capital Budget Expenses	297,000	484,000	83,000	292,000	61,000	12,581,000	64,000
Total Expenditures	*16,640,000*	*31,566,000*	*38,419,000*	*37,462,000*	*32,675,000*	*53,926,000*	*39,233,000*
Closing Balance	**$16,657,000**	**$16,800,000**	**$14,953,000**	**$22,336,000**	**$20,601,000**	**$19,630,000**	**$18,897,000**
Reserve Target	*11,576,000*	*10,254,000*	*12,049,000*	*14,144,000*	*15,035,000*	*17,618,000*	*16,874,000*
Closing Balance Net of Reserve	*$5,081,000*	*$6,546,000*	*$2,904,000*	*$8,192,000*	*$5,566,000*	*$2,012,000*	*$2,023,000*

However, where the capital projects fund's balance is useful mainly for year-to-year variations, the debt service fund's balance is for longer-term variations. In particular, the fund balance provides resiliency against potential large capital costs three or more years in the future. "Large" means costs on the order of $25 million or more, like those for major new regulatory requirements. The debt service fund balance allows the District to take on new debt for such requirements without having to immediately make large increases in service charge revenue. The District tries to increase the balance when such a potential requirement begins to seem likely.

In addition, the Clean Water Fund loan program requires the District to have sufficient funds on hand to pay debt service requirements for the following calendar year. This minimum requirement assures ability to pay but provides no resiliency against potential future projects.

The current financing plan accounts for currently known potential large costs, notably the Energy Management Master Plan, phosphorous requirements for the Lower Badger Mill Creek and potential changes to the District's biosolids program. Although the greatest energy and biosolids costs appear at the end of the planning period, the CIP accounts for them in reserves planning. As shown in **Table CIP-8 below,** the Clean Water Fund reserve requirement increases from $16 million to $24 million over the period. Transfers from the operating fund to the debt service fund increase from $16 million to $23 million. The balance net of the reserve requirement declines from $13 million in 2023 to $3 million in 2028. This reflects the growth in the District's reserve requirement, which is in turn driven by an increase in the District's debt funded portion of the capital project portfolio over the planning period.

(Note: The debt service fund balances are adequate to pay the required principal and interest payments on existing and anticipated Clean Water Fund loans. The planned balance at the end of 2023 meets the District's policy requirement to maintain a balance sufficient to avoid levying a property tax to satisfy its debt service obligations.)

BORROWING

Borrowing allows the District to smooth its revenue needs over time. Rather than significantly increase service charges to accommodate large new capital projects, borrowing spreads the costs over the term of the loan. The price of this smoothing is the interest payments required.

As shown in **Table CIP-9, page 51**, total outstanding principal would rise from $150 million to $204 million over the planning period. The District does not have a self-imposed debt limit. Debt levels are instead planned in conjunction with the other goals of managing service charge increases and maintaining financial resiliency. Furthermore, the District's ability to obtain future Clean Water Fund program loans is not limited by current debt levels.

The District does have one external limit on debt. State statute limits District debt to 5% of the equalized property valuation of the District. Currently, that valuation is approximately $52 billion. The District's

TABLE CIP-8 | **Debt Service Fund Cash Flow Summary**

	2022	2023	2024	2025	2026	2027	2028
Opening Balance	**$29,924,000**	**$30,073,000**	**$28,631,000**	**$27,931,000**	**$27,103,000**	**$26,700,000**	**$26,321,000**
Revenues							
Transfer from Operating Fund	16,297,000	16,026,000	15,239,000	17,089,000	18,477,000	20,506,000	22,576,000
Interest Earnings	49,000	150,000	143,000	140,000	136,000	267,000	263,000
Total Revenues	*$16,346,000*	*$16,176,000*	*$15,382,000*	*$17,229,000*	*$18,613,000*	*$20,773,000*	$22,839,000
Debt Service Payments	16,197,000	17,618,000	16,082,000	18,057,000	19,016,000	21,152,000	22,266,000
Closing Balance	**$30,073,000**	**$28,631,000**	**$27,931,000**	**$27,103,000**	**$26,700,000**	**$26,321,000**	**$26,894,000**
Reserve Requirement	*17,618,000*	*16,082,000*	*18,057,000*	*19,016,000*	*21,152,000*	*22,266,000*	*23,451,000*
Closing Balance Net of Reserve	*$12,455,000*	*$12,549,000*	*$9,874,000*	*$8,087,000*	*$5,548,000*	*$4,055,000*	*$3,443,000*

debt limit is 5% of that, or approximately $2.6 billion. Forecast debt level in 2028 is $204 million, or 8% of the statutory limit.

A reason to limit debt is to limit annual interest payments. Under the plan, payments would rise from $3.7 million to $5 million. If, hypothetically, the District had no debt, service charge revenue would be lowered by the amount of interest payments. On a percentage basis, interest payments are 7.3% of all service charge revenue in 2023 and would decline to 6.5% in 2028. The slight decrease in interest payments as a percent of service charge revenue over the planning period reflects the decrease in capital expenditures financed with debt.

The percentage of capital expenditures financed with debt will be 80% in 2023, declining to 56% in 2028. (Percentages are three-year moving averages, to smooth annual variation that results from loan and spending timing differences.) This reduction in the debt financing ratio is intended to increase the financial resiliency of the District over time, while also reducing interest payments over time. It should be noted that the District cannot borrow 100% of its capital expenses, because of Clean Water Fund program eligibility limits. For example, projects to expand the collection system are generally not eligible for a program loan.

Tables CIP-11 and CIP-12, both on page 52, report the debt service budget for 2022 and forecast debt service expenditures.

TABLE CIP-9 | **Use of Debt in Capital Program**

	2023	2024	2025	2026	2027	2028
Percent of Capital Expenditures Financed with Debt (3 year moving average)	80%	82%	71%	63%	65%	56%
End of Year Outstanding Principal Obligations	$150,324,000	$161,763,000	$178,973,000	$179,687,000	$199,712,000	$203,238,000
Interest Paid	$3,669,000	$3,954,000	$4,434,000	$4,487,000	$4,914,000	$4,974,000

Accountant Jasmine Fill works with a septage hauler.

SERVICE CHARGES

Supporting the financing plan will require additional transfers from the operating fund and thus increases in service charge revenues. Table CIP-10 shows the amount transferred from the operating fund to each of the other funds per year. The total amount transferred rises from $21 million to $34 million over the period. The rate of increase is stable, being between $1.2 million and $2.9 million per year. While most funds transferred are in support of the debt service fund, increasing transfers to the capital projects fund over the planning period support the reduction in the percentage of capital expenditures financed with debt noted above.

Table CIP-10 below also shows a forecast of service charge needs for the operating budget, the non-capital side of District spending. Although the operating budget is not planned on a multi-year basis, the overall trend in growth is relatively stable. It is driven by inflationary factors and anticipated increases in staffing levels. The amounts shown reflect an assumed steady growth rate that is slightly higher than recent years to err on the side of caution in forecasting.

Adding planned capital program transfers to that trend, forecasted year-over-year increases in total District service charges remain at or just under 9% per year over the period. This steady rate of increase reflects projected growth in capital expenditures over the planning period, as described in the Six-Year Capital Projects Summary portion of this document.

TABLE CIP-10 | Service Charges Support for the Capital Program

	2023	2024	2025	2026	2027	2028
Transfer to Capital Projects Fund	$4,791,000	$7,821,000	$8,312,000	$9,410,000	$10,111,000	$10,936,000
Transfer to Debt Service Fund	16,026,000	15,239,000	17,089,000	18,477,000	20,506,000	22,576,000
Total Support for Capital Program	*20,817,000*	*23,060,000*	*25,401,000*	*27,887,000*	*30,617,000*	*33,512,000*
Increase from Prior Year	*1,019,000*	*2,243,000*	*2,341,000*	*2,486,000*	*2,730,000*	*2,895,000*
Operating Budget Service Charge Needs (trend)	29,682,000	31,666,000	34,010,000	36,517,000	39,200,000	42,071,000
Total Service Charge Increase from Prior Year	*$4,127,000*	*$4,227,000*	*$4,684,000*	*$4,993,000*	*$5,413,000*	*$5,766,000*
Total Percentage Increase from Prior Year	*8.9%*	*8.4%*	*8.6%*	*8.4%*	*8.4%*	*8.3%*

TABLE CIP-11 | Debt Service Budget

	Budget Year		2023 Proposed CIP	
	2021	2022	2023	2022-2023 CHANGE
Anticipated in Budget	$14,141,000	$16,669,000	$17,618,000	6%
Expenditures (Actual 2021; Estimated 2022)	13,034,000	16,197,000		
Difference	*$(1,107,000)*	*$(472,000)*		

TABLE CIP-12 | Forecasted Debt Service Expenditures

Five-Year Intervals	Principal	Interest	Total
2023-2027	$70,467,000	$21,458,000	$91,925,000
2028-2032	95,179,000	26,522,000	121,701,000
2033-2037	81,475,000	20,133,000	101,608,000
2038-2042	$76,206,000	$11,434,000	$87,640,000

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SECTION FIVE
Department Information

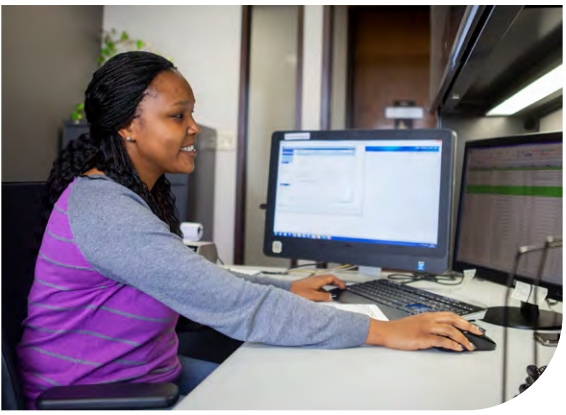
A cyclist rides on the Capital City Trail, which passes by Nine Springs Wastewater Treatment Plant and Wildlife Observation Area.

The success of the District is the results of the combined efforts of many talented people. Whether such benefits are provided by a multimillion-dollar capital project, an adaptive solution to a regulatory challenge, new technology, or other efforts, they require people working together effectively. To fulfill its strategic plan, the District organizes its work into functional departments. These support efficient organization of tasks, budgeting, staff support, and accountability.

This section includes brief descriptions of each department, a list of District 2023 budget focus items with department assignments, and metrics that serve to monitor the health of District as a whole and our key performance area.

DISTRICT DEPARTMENTS

The District is made up of five departments: District Leadership and Support, Ecosystem Services, Engineering, Operations and Maintenance, and Strategy. Departments often work collaboratively to achieve District goals, with each bringing a distinct skillset and expertise to the table. A description of each department follows.



DISTRICT LEADERSHIP AND SUPPORT (DLS)

The District Leadership and Support department provides broad-ranging support to the organization, including human resources, communications, and business, financial and procurement services. This department also serves as a direct connection to the Commission, the District's governing body, and coordinates with contracted legal services. Centralizing these core business services provides efficiencies for the District, such as effectively developing and investing in its employees; advancing a policy-driven strategic approach to governance; deepening relationships with customers and the public; supporting diversity, equity and inclusion activities; and managing funds in a fiscally responsible manner.

ECOSYSTEMS

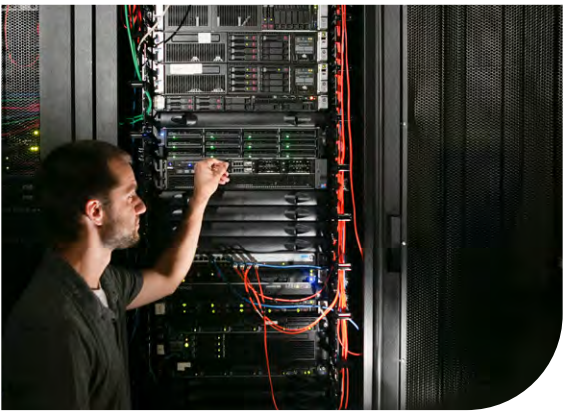
The Ecosystem Services department advances initiatives and provides support services for treatment plant and collection system operating. This includes a robust suite of laboratory services to monitor the performance of the plant, give information for community service charge bills, and to ensure the safety of the environment and public health with rigorous testing. Pollution prevention staff work on programs and initiatives to reduce pollutants such as chloride and mercury from entering the collection system and enable water stewardship in the community, which can reduce demand for traditional wastewater treatment infrastructure and collection services. The pretreatment program provides coordination and oversight of industrial wastewater contributors and non-traditional sources, and the resource recovery team play an important role in helping maximize the District's efforts to safely recover, reduce and reuse byproducts of the treatment process.

ENGINEERING

The Engineering department's main purpose is to plan, design, construct and commission new capital improvements. This team also provides design and construction administration and advisory services to District teams so that safe, reliable and cost-effective infrastructure is built both on the plant grounds and beyond the fence. These projects range in value from less than $100,000 to more than $40 million.
The Department also manages long-term issues associated with the collection system. This includes the Inflow/Infiltration (I/I) Reduction Program, which seeks to reduce groundwater and stormwater in the collection system, and the Force Main Condition Assessment Plan, which assesses the condition of the District's vast network of pipes.

OPERATIONS & MAINTENANCE

As the backbone of the organization, the employees of Operations & Maintenance (O&M) 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 24 hours a day, 365 days a year. The largest of our departments, O&M fulfills its charge by providing an array of critical services through the Electrical, Mechanical, Facilities Maintenance, Collections Systems Services and Metrogro workgroups, which all work together to recover the resources of clean water, biosolids, biogas and phosphorus fertilizer.



STRATEGY

The Strategy Department is home to two functions: strategy and information technology. Strategy includes maintaining the strategic plan (with DLS), overseeing the District's project portfolio, setting project management standards, managing the District's capital program and capital finance plan, managing expansions to the District's service area, providing GIS services, and running the service charges program. In addition, the strategy department provides policy analysis and leads strategic initiatives.

IT provides technological infrastructure support, software support, system administration, cybersecurity services, design services, data management, database administration, records administration and technological consulting services for all departments at the District.

PHOTOS, pages 60 & 61

Accounting supervisor Siphiwe Nkosi manages District finances.

Chemist Jessica Schwark mentors intern Madey Mochalski in the lab.

Engineering project coordinator Mike Azzarello and intern Rachel Clark visit Pumping Station 3.

Facilities maintenance worker Luis Valdes-Jasso conducts engine repairs.

Network administrator Michael Bowman checks connections on the server.

2023 DISTRICT FOCUS ITEMS

Focus Items reflect significant work efforts that the District will be commit its time and resources to in 2023 and in some cases, beyond. (For a full discussion of Focus Items, please see page 4.)

The following list reflects the prioritized work efforts of District departments in the coming year. These are items for which the District's Commission and/or CED have already provided guidance involve significant departmental resources, especially staffing; and require close executive level monitoring to ensure success.

Table 6, below, shows the 2023 department-level focus items, including the performance area(s) each item supports, the responsible department(s) and the specific deliverables for 2023.

TABLE 6 | 2023 Department-Level Focus Items

DEPARTMENT-LEVEL FOCUS ITEMS

Focus Item	Performance Area(s)	Responsible Department(s)	2023 Deliverable(s)
Budget and Accounting Process Improvements	Financial Sustainability	Budget & Accounting	Complete engagement with financial consultants and develop timeline to implement changes.
Nine Springs Capital Project Infrastructure Plan	Financial Sustainability	O&M/Strategy	Develop alternatives for future campus infrastructure plans to be presented to the Commission and incorporated in future CIPs.
Biosolids Efficiency Improvements	Infrastructure Reliability	O&M	Based on the infrastructure plan, develop CIP business case for biosolids loading improvements.
Campus Security	Infrastructure Reliability	Safety/HR	Add cameras to campus and pumping stations as needed, explore additional fobs/lock changes.
Collection System Facilities Plan	Infrastructure Reliability	Strategy	Complete rough draft of plan by end of 2023. Continue pipe condition assessment, other workload permitting.
Heat & Power Improvements	Infrastructure Reliability	Engineering/O&M	Complete solar expansion on maintenance facility.

TABLE 6 | **2023 Department-Level Focus Items**

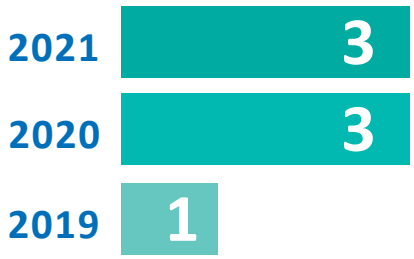
DEPARTMENT-LEVEL FOCUS ITEMS

Focus Item	Performance Area(s)	Responsible Department(s)	2023 Deliverable(s)
Liquid Processing Improvements *(total project)*	Infrastructure Reliability	O&M/Engineering	Implementing the alternatives analysis and design of Phase 2 of the Liquid Processing Improvements project throughout 2023.
Other Major CIP Project Implementations *(Several projects monitored separately)*	Infrastructure Reliability	Engineering	Design and construction of several CIP projects throughout 2023 to improve collection system and plant capacity and reliability, such as PS 17 Force Main; West Interceptor-Shorewood; Northeast Interceptor-Waunakee; Lower Badger Mill Creek Interceptor; Plant Electrical Equipment Replacement; PS 6 to PS 10 Connector).
Nine Springs & MGE Service Plan *(includes back-up generator, possible solar and gas distribution)*	Infrastructure Reliability	O&M/Engineering	Continuation of discussions and planning with MGE for plant back-up generator and Renewable Energy Rider program.
Biosolids Class A Product Research/Evaluation	Regulatory Compliance	Ecosystem Services	Provide research plan to Commission and begin implementing plan to answer key product questions and provide updates as necessary.
Biosolids Global Data Management	Regulatory Compliance	Ecosystem Services	Plan and hire a consultant to create a new biosolids database.
Chloride Variance Pollution Minimization Plan	Regulatory Compliance	Ecosystem Services	Update on progress under current pollution minimization plan.

PERFORMANCE INDICATORS

To ensure needed performance in the areas identified in the strategic plan, the District develops and revises performance indicators on an ongoing basis. Many of these indicators are technical and pertinent only to the workgroups that use them. The indicators reported here are intended to reflect overall District performance in key areas. Data is provided for the last three years where applicable to provide a better snapshot of performance over time.

RECORDABLE INJURIES

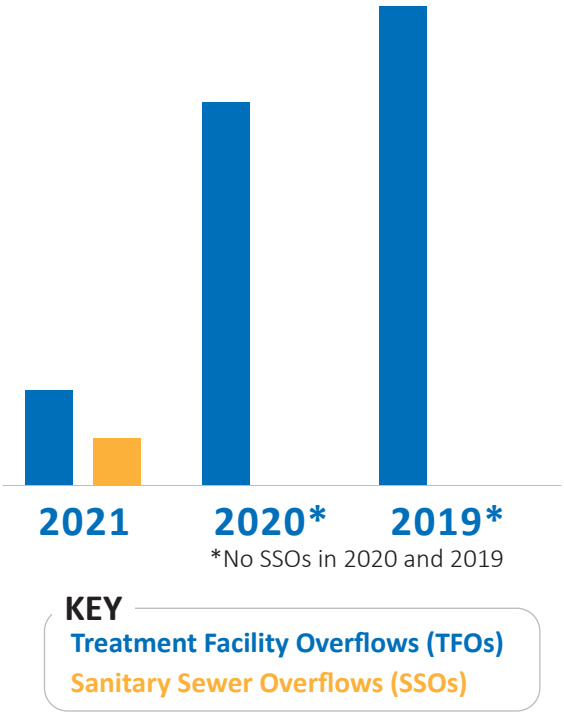


Performance Areas Indicator Supports:
Workforce Development
Infrastructure Reliability

NACWA PEAK PERFORMANCE AWARD

Performance Areas Indicator Supports:
Regulatory Compliance
Infrastructure Reliability

OVERFLOWS

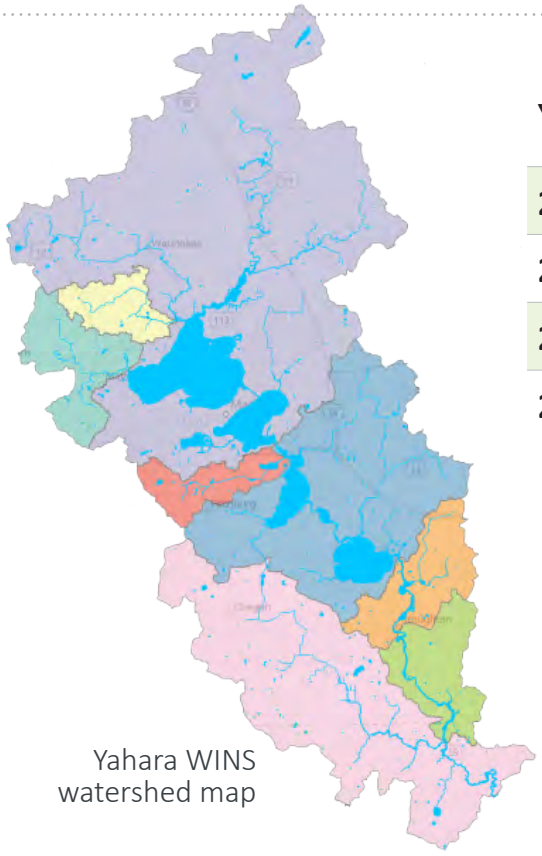


Performance Areas Indicator Supports:
Regulatory Compliance
Infrastructure Reliability

WPDES PERMIT COMPLIANCE

Performance Areas Indicator Supports:
Regulatory Compliance
Infrastructure Reliability

YAHARA WINS PHOSPHORUS COMPLIANCE

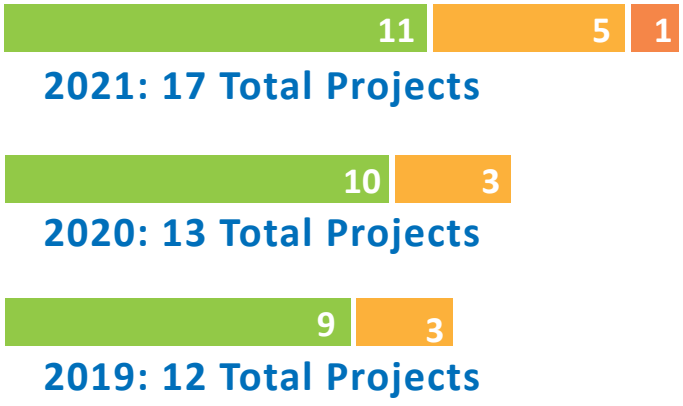


Yahara WINS watershed map

Year	Acres in conservation practices that keep phosphorus on the land and out of local waterways
2021	36,120
2020	22,450
2019	16,340
2018	14,820

Performance Areas Indicator Supports:
Regulatory Compliance
Adaptation
Public Trust

CAPITAL PROJECTS MANAGEMENT



KEY
Capital Projects on Target
Capital Projects Requiring Additional Monitoring
Capital Projects Requiring Course Correction

Performance Areas Indicator Supports:
Regulatory Compliance
Infrastructure Reliability

ANNUAL AUDIT RESULTS

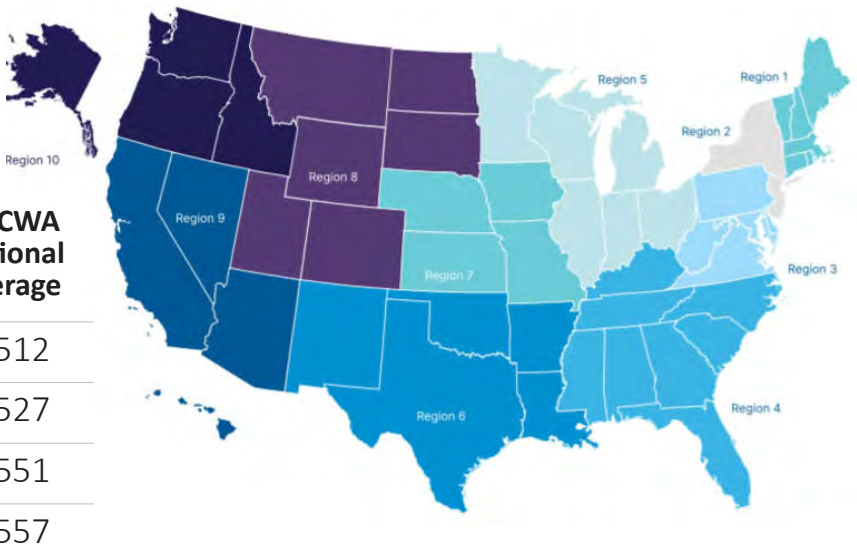
2021 ☑ UNQUALIFIED OPINION - CLEAN AUDIT

2020 ☑ UNQUALIFIED OPINION - CLEAN AUDIT

2019 ☑ UNQUALIFIED OPINION - CLEAN AUDIT

Performance Area Indicator Supports:
Financial Sustainability
Public Trust

DISTRICT HOUSEHOLD BURDEN COMPARED TO NACWA AVERAGES



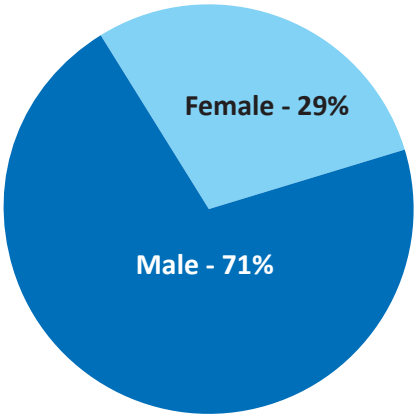
Year	District Household Charges Average*	NACWA Region 5 Average	NACWA National Average
2019	$343	$477	$512
2020	$364	$502	$527
2021	$385	$518	$551
2022	$412	$541	$557
2023	$432	$563	$570

Note: City of Madison and District service charge rates estimated for 2023; NACWA charges estimated for 2022 and 2023.

*Includes both District and City of Madison sewer charges.

Performance Areas Indicator Supports:
Financial Sustainability
Public Trust

EMPLOYEE DEMOGRAPHICS & TURNOVER



Note: As of December 31, 2021. 119 total employees

Race	Employee Census
Asian	2
American Indian or Alaskan Native	1
Black	4
Hispanic or Latino	3
Native Hawaiian or Other Pacific Islander	0
White	106
Two or more races	3

	New Hires	Resignations	Retirements	Internal Promotions	Other
2019	23	0	5	10	0
2020	15	7	3	7	0
2021	10	5	5	12	0

Performance Area Indicator Supports:
Workforce Development

RESOURCE RECOVERY

CLEAN WATER *(in billions of gallons)*

2021	13.57
2020	15.64
2019	17.16

METROGRO *(in millions of gallons)*

2021	20.8
2020	32.0
2019	34.1

STRUVITE *(in tons)*

2021	563.1
2020	656.9
2019	691.6

BIOGAS *(in million cubic feet)*

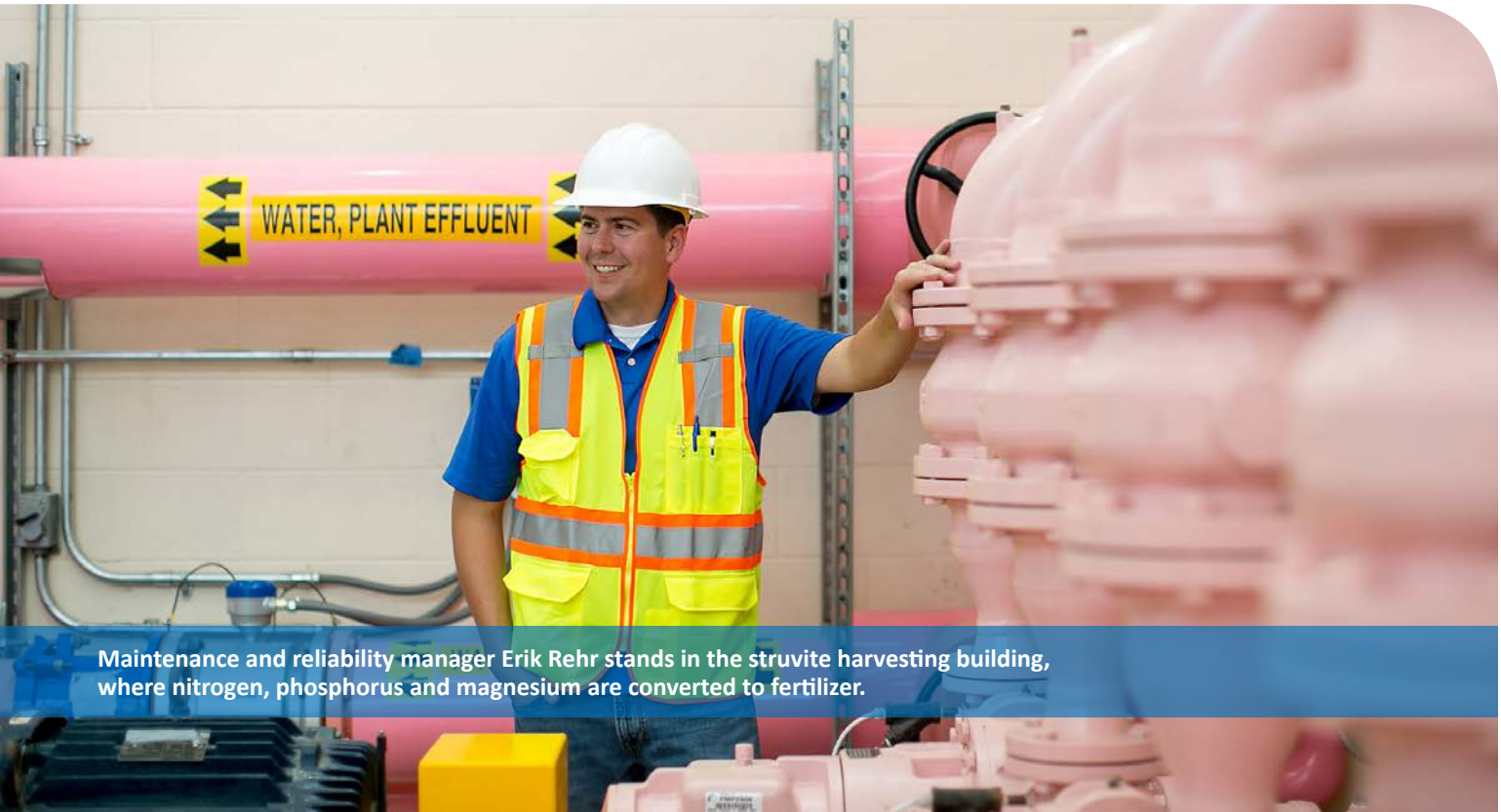
2021	294.9
2020	294.5
2019	301.0

REUSED EFFLUENT *(in millions of gallons)*

2021	207.9
2020	197.7
2019	209.4

Performance Areas Indicator Supports:

Adaptation
Public Trust
Financial Sustainability



Maintenance and reliability manager Erik Rehr stands in the struvite harvesting building, where nitrogen, phosphorus and magnesium are converted to fertilizer.

APPENDICES

A woman enjoys bird watching in the Wildlife Observation Area

Return to T.O.C.

Appendix A
Project Summaries

This section contains summaries for projects in the 2023 Capital Improvements Plan. These summaries are intended to provide a broad overview of each 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.

Please note that project summaries are provided only for those projects that are anticipated to occur within the planning horzon of this document (2023-2028).

TABLE OF CONTENTS - PROJECT SUMMARIES

CIP ID#
A01.1

East Primary Influent Channel Air Piping Replacement

Start Date
2022

Completion Date
2024

Project Type
Plant Improvements – Primary Treatment

Location
Nine Springs Wastewater Treatment Plant

Description
This project will replace the air piping in the influent channels to the primary tanks on the east side of the treatment plant. Several air leaks were discovered in the air piping in April 2021, and it has been determined that the system can no longer be repaired cost effectively. It is anticipated that this project will be funded through a loan from the Clean Water Fund.

Background
The air piping in the influent channels to the primary tanks supplies pressurized air to the wastewater so that the solids remain suspended until they reach the primary settling basins. Without the proper amount of air in these channels, the solids will settle over time, reducing the channel capacity and increasing maintenance costs to clear the settled material. The air piping in the primary influent channels on the west side of the plant was replaced as part of the Liquid Processing Improvements (Phase 1) in 2020. The piping for the east plant is older than that on the west side prior to its replacement. It requires replacement to ensure that the primary treatment process continues to operate effectively.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$142,000	$1,390,000

Return to T.O.C.

CIP ID#
A01.2

Low Dissolved Oxygen (Partial Plant)

Start Date
2022

Completion Date
2026

Project Type
Plant Improvements – Aeration System

Location
Nine Springs Wastewater Treatment Plant

Description
The purposes of this project are to replace aging assets associated with the secondary treatment system and to test the use of low dissolved oxygen (DO) at full scale on a portion of the biological nutrient removal process. The test results will be used to determine if the low DO process changes can be implemented in the entire secondary treatment process. It is anticipated that costs associated with implementing and testing the low DO process changes will be funded through cash in the capital projects fund.

Background
The existing activated sludge facilities operate an enhanced biological phosphorus removal process. Many of the aeration supply and control equipment assets need replacement due to age, condition or obsolescence. As part of the 2016 Liquid Processing Facilities Plan, changes to the existing processes were evaluated as part of asset replacement, including a process called nitrite shunt, that could result in more effective nutrient removal while using less energy and potentially positioning the District for future total nitrogen regulations. While bench-scale testing of the nitrite shunt process did not yield satisfactory results, it did identify low DO as a promising alternative that could remove the necessary nutrients with less energy.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$207,000	$3,850,000

CIP ID#
A01.3 Low Dissolved Oxygen (Full Plant)

Start Date
2023

Completion Date
2029

Project Type
Plant Improvements – Aeration System

Location
Nine Springs Wastewater Treatment Plant

Description
This project involves the implementation of a low-dissolved oxygen (DO) 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# A01.2). It is anticipated that costs associated with the project will be funded through the Clean Water Fund.

Background
The existing activated sludge facilities operate an enhanced biological phosphorus removal process. Many of the aeration supply and control equipment assets need replacement due to age, condition or obsolescence. As part of the 2016 Liquid Processing Facilities Plan, changes to the existing processes were evaluated as part of asset replacement, including a process called nitrite shunt that could result in more effective nutrient removal while using less energy and potentially positioning the District for future total nitrogen regulations. While bench-scale testing of the nitrite shunt process did not yield satisfactory results, it did identify low DO as a promising alternative that could remove the necessary nutrients with less energy. The low DO improvements will be implemented in all plants of the biological nutrient removal process if the initial testing, currently scheduled for 2024-2026, is successful.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$498,000	$21,563,000

Return to T.O.C.

CIP ID#
A01.4

West Blowers and Switchgear Replacement

Start Date
2022

Completion Date
2026

Project Type
Plant Improvements – Aeration System

Location
Nine Springs Wastewater Treatment Plant

Description
This project will replace the west blowers and associated medium-voltage switchgear. These facilities have been in operation for more than 35 years, and they are currently operating beyond their expected lifespan. This project was included in the 2016 Liquid Processing Facilities Plan. It is anticipated that the costs of the project will be funded through the Clean Water Fund.

Background
The 2016 Liquid Processing Facilities Plan recommended replacement of the west blowers using a phased approach. The plan called for two blowers to be replaced between 2020 and 2025, and the remaining blower and blower switchgear to be replaced shortly after 2024. Since the plan was developed, the condition of the blowers has deteriorated significantly, and one of the units is inoperable and requires costly repairs. Given the condition and criticality of this equipment, District operations staff is recommending that all three blowers and associated switchgear be replaced as soon as possible to ensure that this critical process continues to operate satisfactorily.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$822,000	$10,100,000

Return to T.O.C.

CIP ID#
A01.5

East Blowers and Switchgear Replacement

Start Date
2023

Completion Date
2026

Project Type
Plant Improvements – Aeration System

Location
Nine Springs Wastewater Treatment Plant

Description
This project will replace the east blowers and associated medium-voltage switchgear. This equipment is of varying ages, with some of it more than 50 years old. This infrastructure is a crucial component of the activated sludge process and needs to be replaced to ensure compliance with the District's discharge permit. It is anticipated that the costs of this project will be funded through the Clean Water Fund program.

Background
The east blower system is older than the west blower system, with some of the facilities dating back to the 1960s. The system includes four electric blowers and one engine-driven blower that operates on biogas to reduce electricity demands in the east plants. The 2016 Liquid Processing Facilities Plan recommended the replacement of the east blower switchgear, but not the blowers themselves. New east blowers were not deemed necessary since the plan recommended that the aeration systems of the west and east plants be connected in such a way that the new west blowers could provide excess capacity to the east plant. District staff have elected not to connect the west and east sides of the plant, thereby necessitating the replacement of the east blowers and switchgear.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$822,000	$11,230,000

Return to T.O.C.

CIP ID#
A02

2021 Treatment Plant HVAC Improvement Project

Start Date
2020

Completion Date
2023

Project Type
Plant Improvement- 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, many systems have deteriorated beyond reasonable repair and need to be replaced. It is anticipated that this project will be funded through a loan from the Clean Water Fund.

Background
This project will address HVAC deficiencies throughout the treatment plant. Many systems installed prior to the Eleventh Addition to the treatment plant are not working as designed or are not functioning at all. These systems do not meet applicable code requirements and pose a health risk to workers. A consultant performed a comprehensive study of existing systems in 2020 and compiled a prioritized list of the most deficient systems. This project will include improvements in the Gravity Belt Thickener Building, Dissolved Air Floatation Thickener Building, Metrogro Pumping Station, and Headworks Building Control Room. Other plant areas will be addressed in subsequent phases of this initiative.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$1,011,000	$1,960,000

Return to T.O.C.

CIP ID#
A03

NSWWTP Electrical Service Equipment Replacement

Start Date
2022

Completion Date
2026

Project Type
Plant Improvement - Electrical Distribution

Location
Nine Springs Wastewater Treatment Plant

Description
This project proposes to replace the outdoor service switchgear, transformers, busway system and indoor distribution switchgear for the incoming electrical service to the treatment plant. This system is responsible for transforming the incoming voltage so that it can be utilized by plant equipment and for isolating and protecting that equipment. It is anticipated that future equipment replacement will be funded through a loan from the Clean Water Fund.

Background
Electrical power from the utility is routed to the treatment plant through two sets of switchgear. The first set, known as switchgear H1, is located outside of the Effluent Building. This system operates at 13.8 kV and steps down the voltage to 4.16 kV for use in downstream plant processes. The second system, known as switchgear S1, is located inside the Effluent Building. All equipment was installed in 1984-1985 and is approaching the end of its useful life (40-50 years). An inspection of the H1 equipment was conducted by an electrical engineering company in the fall of 2020. While the equipment was determined to be in good operating condition overall, it is beginning to show signs of deterioration. The condition of the S1 switchgear will also be evaluated as part of this project and may be replaced if warranted.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$175,000	$4,739,000

Return to T.O.C.

CIP ID#
A04.1 Heat and Power Improvements

Start Date
2025

Completion Date
2031

Project Type
Energy-Related Projects – Use Reduction/Generation

Location
Nine Springs Wastewater Treatment Plant

Description
The purpose of this project is to identify and replace aging assets associated with the District's energy-producing infrastructure and to optimize the use of energy going forward. These improvements will position the District to use its biogas to generate electricity on site at greater efficiency or to produce a biogas of pipeline quality that can be sold to others. This project was evaluated as part of the 2020 Energy Management Master Plan. Additional facility planning and design phases are expected to precede construction. It is anticipated that all project costs will be financed through a loan from the Clean Water Fund.

Background
An energy study was conducted in 2014 by Strand and Brown and Caldwell to provide a roadmap for how the District might achieve energy independence. Areas of focus included ways to reduce energy usage, improve utilization of digester gas and produce more energy. The 2020 master planning study expanded on all these areas and examined the most energy-efficient way to handle and dispose of biosolids. It is anticipated that the master plan will lead to three major projects going forward: (1) Heat and Power Improvements; (2) Biosolids Processing; and (3) Miscellaneous Energy Projects.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$50,914,000

Return to T.O.C.

CIP ID#
A04.2 Miscellaneous Energy Projects

Start Date
2023

Completion Date
2034

Project Type
Energy-Related Projects – Use Reduction/Generation

Location
Nine Springs Wastewater Treatment Plant

Description
These are projects that are recommended by the 2020 Energy Management Master Plan to reduce or optimize energy use. Due to their smaller scope and cost as compared to the cogeneration and biosolids projects in the master plan, many of these projects can be implemented in the near term and will be done so on an annual or intermittent basis over the next 10 years. These projects will likely be funded through a mixture of cash and loans, dependent on the cost in a given year.

Background
An energy study was conducted in 2014 by Strand and Brown and Caldwell to provide a roadmap for how the District might achieve energy independence. Areas of focus included ways to reduce energy usage, improve utilization of digester gas and produce more energy. The 2020 master planning study expanded on all these areas and examined the most energy-efficient way to handle and dispose of biosolids. It is anticipated that the master plan will lead to three major projects going forward: (1) Heat and Power Improvements; (2) Biosolids Processing; and (3) Miscellaneous Energy Projects.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$233,000	$10,422,000

Return to T.O.C.

CIP ID#
A05

Lagoon Dikes Improvements

Start Date
2020

Completion Date
2024

Project Type
Plant Improvements – Lagoon Management

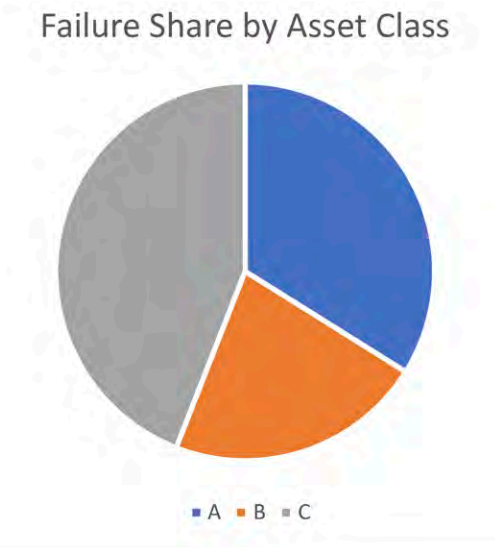
Location
Nine Springs Wastewater Treatment Plant

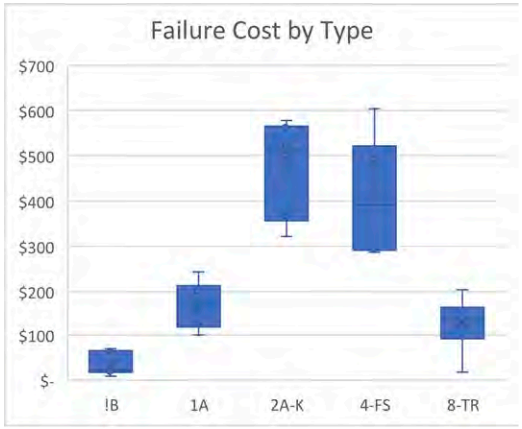
Description
The purpose of this project is to conduct a geotechnical study of the dikes in the District lagoons and implement measures to stabilize them, especially in periods of high-water levels. The project is being conducted in several phases between 2020 and 2024, and any recommended repairs will be prioritized and implemented as needed. It is anticipated that the geotechnical study will be funded through cash in the capital projects fund, 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 1980s, at which time application on agricultural lands commenced. Some of the biosolids in the lagoons were found to have levels of polychlorinated biphenyls, or PCBs. The District worked with the EPA to clean up the lagoons in the late 1990s 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

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$565,000	$4,148,000





CIP ID#
A06

Maintenance, Financial and HR Systems

Start Date
2020

Completion Date
2027

Project Type
Plant Improvements – Computerized Maintenance Management System (CMMS)

Location
Nine Springs Wastewater Treatment Plant

Description
The purpose of this project is to replace the District's existing CMMS and to address needs in the related financial and human resources systems. Each system will operate independently, but their functions and design must be closely integrated. The cost of this project will be funded through cash in the capital projects fund.

Background
The District installed its initial CMMS in 1997 for a cost of approximately $1.0 million (roughly $2.2 million in 2022 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 that 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 and reliability-centered maintenance. The project will also identify processes within the Human Resources department that need to be incorporated in the new financial system or in a new dedicated system.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$689,000	$6,007,000

Return to T.O.C.

CIP ID#
A07 Metrogro Applicators & Equipment

Start Date
2015

Completion Date
2026

Project Type
Metrogro Applicators and Equipment

Location
Metrogro Program

Description
This line item is included in the Capital Improvements Plan to fund the periodic replacement of the District's biosolids applicators, tankers, and low-disturbance toolbars. It is anticipated that these replacements will be funded through cash in the capital projects fund.

Background
While the District's recently completed Biosolids Management Plan recommended a possible transition from a liquid biosolid to a cake product, that transition will take years to complete. It is probable that a cake product will not be produced on a consistent basis until 2035 at the earliest. The District's Metrogro Program will remain the backbone of the Biosolids Reuse Program for the foreseeable future. The District's standard is to replace an applicator when it reaches 10,000 hours of service. Using that standard, new applicators were purchased in 2019, 2021, and 2022. Two more applicators are scheduled to be purchased in 2024 and 2025. Acquisition of new equipment will also allow for enhanced GPS capability and low-disturbance soil injection. These features are lacking in the older equipment.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$106,000	$4,494,000

CIP ID#
A08

Flow Splitter Improvements

Start Date
2022

Completion Date
2024

Project Type
Plant Improvements – Headworks

Location
Nine Springs Wastewater Treatment Plant

Description
This project will rehabilitate, modify or possibly replace the existing flow splitter structure which is located immediately downstream of the grit removal tanks at the Headworks Facility. The structure's concrete and metal components have deteriorated significantly since the structure was put into operation as part of the Tenth Addition, likely due to the high levels of hydrogen sulfide and turbulent flow in this structure. It is anticipated that this project will be funded through a loan from the Clean Water Fund.

Background
The flow splitter structure was built in 2005 as part of the Tenth Addition and allows for the controlled distribution of flow to the west and east plants. Flow from the grit removal basins enters the splitter structure from the west. The flow rises within the structure and spills over weirs that empty into five channels that connect to discharge pipes to the west and east sides of the plant. Flow to each side of the plant can be controlled by the placement of stop logs in the effluent channels. Corrosion of the structure has made it difficult to remove the stop logs in recent years. A thorough video inspection of the structure in February of 2021 revealed that the concrete walls supporting the effluent channels are also in very poor condition. It is desired to rehabilitate or rebuild the damaged sections of concrete before the steel reinforcing is further compromised and leads to failure of the structure.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$551,000	$2,500,000

Return to T.O.C.

CIP ID#
A09

Treatment Plant HVAC Improvements – Group 1 Projects

Start Date
2024

Completion Date
2025

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 a loan from the Clean Water Fund.

Background
A consultant performed a comprehensive condition assessment of existing HVAC systems in 2020-2021 and compiled a prioritized list of improvements for the most deficient systems. The improvement projects were broken down into three priority areas, or groups, with the first group containing items that need to be addressed in the near term to satisfy code requirements, worker safety and/or equipment condition. The most critical projects in Group 1 are included in a separate project which is scheduled for construction in 2022-2023 (see related Project ID# A02). This project will address other projects which were identified in the Group 1 category.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$3,310,000

CIP ID#
A10.1 Headworks Screening

Start Date
2027

Completion Date
2029

Project Type
Plant Improvements – Screening at Headworks Facility

Location
Nine Springs Wastewater Treatment Plant

Description
This project includes the replacement or modification of the fine-screening equipment and related screening handling system at the Headworks Facility. One possible solution is to replace the existing band screens 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.

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 screening handling system requires frequent operator attention to keep it running. Further, the equipment for the screening handling system is prone to plugging and wear and tear, and it is difficult to obtain replacement parts in a cost-effective and timely manner.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$5,012,000

Return to T.O.C.

CIP ID#
A10.2

Grit Processing Improvements

Start Date
2028

Completion Date
2029

Project Type
Plant Improvements – Grit Handling

Location
Nine Springs Wastewater Treatment Plant

Description
This project will improve the performance of the grit handling equipment in the Headworks Facility. It is expected that several pieces of equipment will be replaced due to age and wear, including grit pumps, concentrators, classifiers and appurtenances. It is anticipated that project costs will be funded through the Clean Water Fund.

Background
The existing grit system was installed as part of the Tenth Addition to the Nine Springs Treatment Plant in 2005. The system consists of three vortex grit basins, six recessed impeller grit pumps and three grit concentrators/classifiers located on the mezzanine level of the Headworks Facility. This system was evaluated as part of the 2016 Liquid Processing Facilities Plan. While the equipment works reasonably well and requires little operator attention, it is now reaching the end of its useful life and will require replacement in the next five to 10 years, especially the grit concentrators.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$2,585,000

CIP ID#
A11

Septage Receiving Modifications

Start Date
2024

Completion Date
2027

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.

Background
The septage receiving facility was constructed as part of the Tenth Addition to the treatment plant and has experienced a number of operational difficulties since it was placed into operation. Trucks discharging at the facility have to back up to empty their contents, resulting in congestion during periods of heavy traffic and icy and unsafe conditions in winter. Further, sand and grit accumulate in the discharge trough, which requires manual cleaning by District staff on a frequent basis. Improvements will allow for one-way traffic for haulers and an improved screening system to keep unwanted material out of the screening channel. A space needs study for the treatment plant is planned for 2022-2023, which will help inform the preferred location of the future facility.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$4,005,000

Return to T.O.C.

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 from revenue sources other than loanss in the capital projects 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 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 projects 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 department or Engineering department and completed by a contractor in accordance with the District's procurement code.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$119,000	ONGOING

Return to T.O.C.

CIP ID#
A13 & A14

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 two areas:

1. Minor Capital Improvements (Project Id# A13)
2. Annual Pavement Improvements (Project Id# A14)

Background
The District annually includes funds in its capital projects budget for resurfacing of roads and for other unanticipated, minor expenses. These funds are used to periodically restore paved areas of the plant and to address minor defects with District assets that arise during the budget year.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$192,000	ONGOING

Return to T.O.C.

CIP ID#
B01.1 & B01.2

West Interceptor – Shorewood Relief (Phases 2 & 3)

Start Date
2018

Completion Date
2023

Project Type
Capacity Improvement – Conveyance System

Location
West Interceptor Relief Sewer

University Avenue, Walnut Street to Shorewood Boulevard, 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 replacement and 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, the construction will occur in three phases, with Phase 1 construction occurring in 2021-2022. Phases 2 and 3 are scheduled for 2022 and 2023, respectively. Phase 1 of the project is being financed through the Clean Water Fund while the other phases will be paid for from revenue sources other than loan proceeds in the capital projects fund.

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. 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

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
Phase 2 - $0	Phase 2 - $1,754,000
Phase 3 - $5,346,000	Phase 3 - $5,481,000

Return to T.O.C.

CIP ID#
B02.1 & B02.2

Lower Badger Mill Creek Interceptor – Phases 5 and 6

Start Date
2022

Completion Date
2024

Project Type
New Capacity – Conveyance System

Location
Lower Badger Mill Creek Interceptor

CTH PD to Midtown Road, City of Verona, 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. Construction will occur in two phases in order to accommodate proposed development in the basin. This project will be funded through revenue sources other than loan proceeds in the capital projects fund. 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 to serve the cities of Verona and Madison and the towns of Verona and Middleton.

Phases 1-4 of the interceptor project were constructed between 2006 and 2018. Phase 5 will extend the sewer approximately 3,000 feet to the north to Shady Oak Lane in 2023. The sewer is scheduled to be completed in 2024 when it is extended 5,500 feet to Midtown Road.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
Phase 5 - $1,283,000	Phase 5 - $1,382,000
Phase 6 - $127,000	Phase 6 - $3,566,000

Return to T.O.C.

CIP ID#
B03

Pumping Station 6 to Pumping Station 10 Connector

Start Date
2022

Completion Date
2025

Project Type
System Redundancy – Conveyance System

Location
Pumping Station 6
402 Walter Street, City of Madison

Pumping Station 10
110 Regas Road, City of Madison

Description
This project proposes to connect the East Interceptor at Pumping Station 6 (PS 6) to the Northeast Interceptor at Pumping Station 10 (PS 10) with a new pipeline. The new sewer will flow by gravity or under pressure between the two stations, or a combination of the two. The primary purpose of this interconnection is to provide system redundancy and reliability. It is expected that this project will be funded through a loan from the Clean Water Fund.

Background
The District's collection system consists of 18 pumping stations and 32 miles of raw wastewater force mains. A loss of electrical power at any of these pumping stations or a pipe failure in any of the force mains threatens the ability of the collection system to safely and efficiently convey raw wastewater to the treatment plant. Diversion sewers such as the one proposed for this project allow for the emergency transfer of flow between pump stations and they have been used very effectively in other areas of the collection system. The Pumping Station 6 to Pumping Station 10 connector was studied and recommended in both the 2002 Collection System Facilities Plan and the 2009 Collection System Facilities Plan Update.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$440,000	$9,882,000

Return to T.O.C.

CIP ID#
B04

NEI – Waunakee Extension Capacity Improvements (Phase 1)

Start Date
2021

Completion Date
2024

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 18,600 feet of new relief or replacement 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 three phases, with construction of the first phase scheduled for 2023-2024. It is anticipated that this project will be financed through the Clean Water Fund.

Background
Continued high growth rates in this part of the collection system have created 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 or about 2022, based on population forecasts. Periodic flow monitoring performed by District staff as part of the billing program validates these projections.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$2,819,000	$9,548,000

Return to T.O.C.

CIP ID#
B05 NEI – Truax Extension Rehab

Start Date
2021

Completion Date
2025

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. Bypassing of flows during lining will be through the NEI-Truax Extension Relief Sewer, which was completed in the fall of 2020. 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

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$7,769,000

Return to T.O.C.

CIP ID#
B06

NEI – FEI to SEI Rehab

Start Date
2024

Completion Date
2025

Project Type
System Rehabilitation – Conveyance System

Location
Northeast Interceptor (NEI)

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 (FEI) and its junction with the Southeast Interceptor (SEI). 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 Interceptor and the Southeast Interceptor 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.

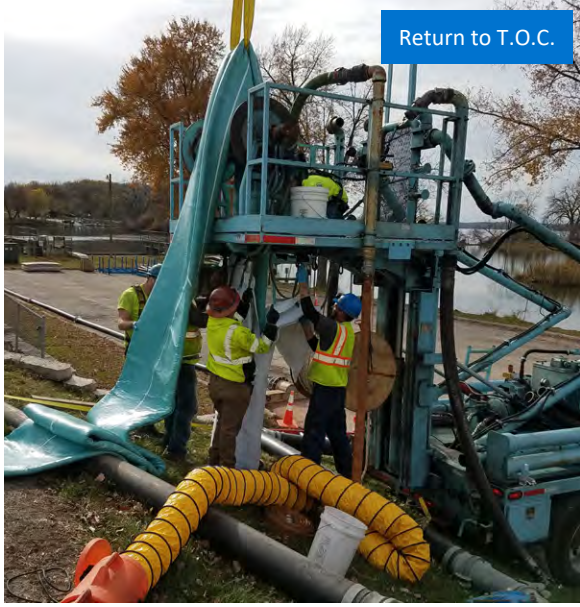
Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$2,277,000

Return to T.O.C.

CIP ID#
B07

SEI Rehab – Pumping Station 9 to SEI-Dutch Mill Extension



Start Date
2024

Completion Date
2025

Project Type
System Rehabilitation – Conveyance System

Location
Southeast Interceptor

Along U.S. Highway 51 from Pumping Station 9 to U.S. Highway 12/18, Village of McFarland

Description
This project will correct condition defects in the Southeast Interceptor between the District's Pumping Station 9 in the Village of McFarland and U.S. Highway 12/18. Numerous cracks and missing pipe material in the asbestos cement sewer will be rehabilitated through the insertion of a cured-in-place lining. New force main valves and a flow meter will also be installed at Pumping Station 9 as part of the work. It is anticipated that this project will be financed through the Clean Water Fund.

Background
This section of the Southeast Interceptor was constructed in 1961 and consists of approximately 8,300 lineal feet of 12-inch and 15-inch asbestos cement pipe. A routine inspection by closed-circuit television in 2014 revealed numerous defects, including surface corrosion, cracks and missing pipe material.
The Wisconsin Department of Transportation (WDOT) is planning to make improvements to U.S. Highway 51 from I-39/90 to U.S. Highway 12/18 in or about 2023. As the Southeast Interceptor runs parallel to U.S. Highway 51 but not underneath the traveled lanes of the highway, the rehabilitation project does not need to precede the road reconstruction project.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$2,718,000

CIP ID#
B08

NSVI Capacity Improvements – Phase 1

Start Date
2024

Completion Date
2028

Project Type
Additional Capacity – Conveyance System

Location
Nine Springs Valley Interceptor (NSVI)

Lewis Springs E-Way from Pumping Station 11 to Syene Road, City of Fitchburg

Description
This project will provide additional capacity to the Nine Springs Valley Intercepting System between the District's Pumping Station 11 and Syene Road. It is expected that approximately 8,700 feet of relief or replacement sewer will be installed along the Lewis Springs E-Way in order to serve new development in the southwest and western portions of the District's service area. This project will be funded through a loan from the Clean Water Fund.

Background
The Nine Springs Valley Intercepting System between Pumping Station 11 and Pumping Station 12 was constructed in 1965 and includes 33,000 feet of sewer, ranging in diameter from 30 inches to 54 inches. The Interceptor's service area includes some of the fastest-growing lands in Dane County and Wisconsin. Population and wastewater forecasts performed by the Capital Area Regional Planning Commission (CARPC) indicate that most of the NSVI system and approximately 3,600 feet of sewer upstream of Pumping Station 12 will require additional capacity between 2025 and 2040. This project is the first phase of a multi-phase project that will address capacity needs in the remainder of the NSVI system.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$12,500,000

Return to T.O.C.

CIP ID#
B09

West Interceptor Rehab – Babcock Hall to Dayton Street

Start Date
2024

Completion Date
2025

Project Type
System Rehabilitation – Conveyance System

Location
West Interceptor

Along Babcock Drive, University Avenue and North Randall Avenue, City of Madison

Description
The purpose of this project is to rehabilitate a portion of the West Interceptor, which is located on the University of Wisconsin campus. The sections to be rehabilitated have been in service for over 100 years and are suffering from internal corrosion. Inserting a cured-in-place liner in the existing sewer will extend its service life 50 years or more. It is anticipated that this project will be financed through the Clean Water Fund.

Background
These sections of the West Interceptor are the oldest assets in the District's collection system. The 24-inch cast iron sewer was originally constructed by the City of Madison in 1916 and then transferred to the District in 1933. Like other sewers of similar age and construction materials, this sewer suffers from tuberculation, or the buildup of deposits on the inside walls of the pipe. These deposits reduce the capacity of the sewer over time and may compromise the structural integrity of the pipe if left unchecked. Rehabilitating the pipe with a new liner is a cost-effective way to address these problems.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$1,350,000

Return to T.O.C.

CIP ID#
B10 District Flow Monitoring Stations

Start Date
2025

Completion Date
2026

Project Type
Inflow & Infiltration – Conveyance System

Location
Various

Description
This project supports the District's inflow and infiltration monitoring program through the installation of flow monitoring stations. These monitoring stations will be installed at strategic locations in the collection system to provide accurate flow measurements from District customers. It is anticipated that this project will be funded through the Clean Water Fund.

Background
Owner community meetings held in 2019 identified inflow and infiltration (I/I) reduction as a top priority for the District. With that in mind, the District hired a consultant in 2020 to develop an I/I reduction plan. One of the recommendations from that plan is to use the District's hydraulic model of its collection system to identify areas of excessive I/I. The construction of long-term monitoring sites in the collection system is needed to properly calibrate the model and validate its results. The installation of monitoring sites that are well constructed, provide accurate data and are safe for District staff will ensure the integrity of the flow data and the I/I Reduction Program.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$1,239,000

Return to T.O.C.

CIP ID#
C01 Grass Lake Dike Stabilization

Start Date
2018

Completion Date
2022

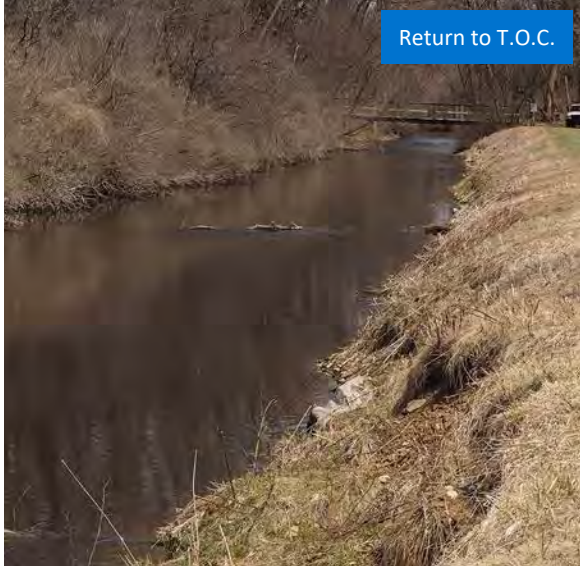
Project Type
System Rehabilitation – Effluent Conveyance System

Location
Badfish Creek and Grass Lake

Badfish Creek, Schneider Drive 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 vegetation into the channel at strategic locations. Funding of the improvements will be from revenue sources other than loan proceeds in the capital projects fund.

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 Facilities Maintenance 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 and final design have been completed. Construction is scheduled for the second half of 2022, pending the acquisition of the necessary permits.



Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$905,000

Return to T.O.C.

CIP ID#
C02

Pumping Station 4 Rehabilitation

Start Date
2020

Completion Date
2024

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 will 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 works in concert with the pumps from Pumping Stations 2 and 3.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$3,237,000	$7,069,000

Return to T.O.C.

CIP ID#
C03

Pumping Station 17 Firm Capacity Improvements

Start Date
2021

Completion Date
2024

Project Type
System Capacity – Conveyance System

Location
Pumping Station 17

407 Bruce Street, City of Verona

Description
This project will provide additional capacity to Pumping Station 17 in advance of an increase in flows to the station, which is expected to occur in 2024. Some ancillary equipment will also be rehabilitated as part of this project. The work is expected to include the following elements: new pumping units and variable frequency drives; a new standby generator; replacement of HVAC equipment; and new station flow meter in exterior meter vault. It is anticipated that this project will be funded through a loan from the Clean Water Fund.

Background
Pumping Station 17 currently 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 District's Lower Badger Mill Creek Interceptor is constructed up to Midtown Road. A capacity upgrade will be needed for Pumping Station 17 when this occurs. These firm capacity improvements are expected to serve the station for approximately 15 years. Due to size and hydraulic limitations of the existing station and floodplain concerns, it is expected that a new pumping station will need to be constructed at that time to serve the basin in the long term.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$2,372,000	$6,790,000

Return to T.O.C.

CIP ID#
C04

Pumping Station 17 Force Main Relief – Phase 2

Start Date
2021

Completion Date
2023

Project Type
Capacity Improvement – Conveyance System

Location
Pumping Station 17 Force Main

Badger Mill Creek, Arbor Vitae Place to Goose Lake, City of Verona and Town of Verona

Description
This project will add a 24-inch diameter relief force main to the existing 16-inch diameter force main and will provide additional capacity for wastewater that is pumped from Pumping Station 17 in the City of Verona. Approximately 8,350 feet of force main and 3,000 feet of 36-inch diameter gravity interceptor sewer will be installed in the second phase of this project. 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 District's Lower Badger Mill Creek Interceptor is constructed up to Midtown Road. 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 completed the first phase of the project in conjunction with a City of Verona utility project in 2020 and 2021 to reduce costs and inconvenience to the general public. Phase 2 of the project will occur in 2023, just prior to completion of the final phase of the Lower Badger Mill Creek Interceptor Project.

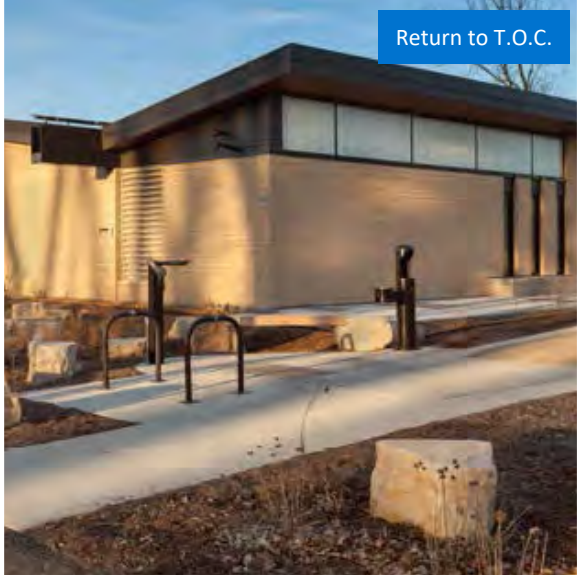
Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$8,818,000	$10,500,000

Return to T.O.C.

CIP ID#
C05

Emergency Power Generation at District Pumping Stations



Start Date
2022

Completion Date
2030

Project Type
System Reliability – Conveyance System

Location
Various Pumping Stations

Description
This project will improve the District's ability to sustain its collection system operations in the event of a local or regional power outage. Improvements will include the addition of on-site diesel generators for emergency use and associated switching equipment that will be installed at District pumping stations which currently lack such standby facilities. It is anticipated that this project will be funded through a loan from the Clean Water Fund.

Background
District Administrative Guideline #11 provides guidance on how to sustain operations during a loss of power from the electrical grid. More specifically, the guideline specifies a desired level of service such that wastewater collection and treatment can continue to operate at peak design capacity for at least 72 hours after a loss of power. Applying this standard to District pumping stations, one method of achieving this level of service is by providing standby generators at each station. District staff have prioritized each pumping station's needs for standby generation and have developed an implementation schedule that begins in 2025 and runs through 2030.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$5,000	$9,271,000

Return to T.O.C.

CIP ID#
C06

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 cash in the capital projects 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 projects 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 department or Engineering department and completed by a contractor in accordance with the District's procurement code.

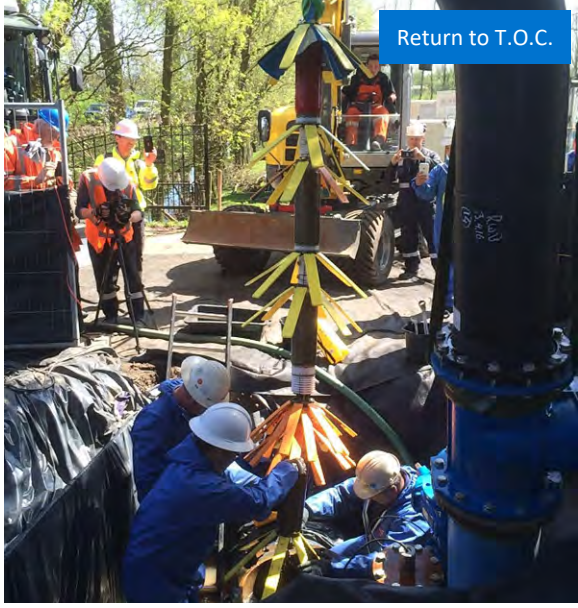
Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$103,000	ONGOING

Return to T.O.C.

CIP ID#
C07

Force Main Condition Assessment



Start Date
2024

Completion Date
2029

Project Type
Conveyance System- Force Main Condition Assessments

Location
Various

Description
The purpose of this project is to provide support for annual inspection of the District's force mains. These assets are extremely difficult to inspect by traditional methods as they are difficult to access, they are under pressure, and they cannot be taken out of service for long periods of time. Technology has been developed that can address these challenges, but the inspections require careful planning and can be costly to perform. It is expected that these annual or semi-annual inspections will be paid for from revenue sources other than loan proceeds in the capital projects fund.

Background
Black & Veatch developed a Force Main Condition Assessment Plan for the District in 2017. The primary goals of this work were to develop a plan for the District to use to evaluate the condition of its force mains and to recommend when and how the condition assessments should be performed. The Collection System Facilities Plan Update will make further recommendations on the timing and location of projects when it is completed in 2023. In the interim, an annual placeholder is being included in the six-year Capital Improvements Plan beginning in 2024.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$3,684,000

Return to T.O.C.

CIP ID#
C08.1 Pumping Station 16 Rehabilitation

Start Date
2025

Completion Date
2027

Project Type
System Rehabilitation – Conveyance System

Location
Pumping Station 16

1303 Gammon Road, City of Middleton

Description
The purpose of this project is to rehabilitate mechanical and electrical equipment at Pumping Station 16. The rehabilitation is expected to include the following elements: replacement of Pumping Unit C; replacement of cast iron fittings and valves in the dry well piping; new electrical generator, switchgear, and motor control centers; variable frequency drives; HVAC system replacement; and modifications to the odor control system. It is anticipated that this program will be funded through a Clean Water Fund loan.

Background
Pumping Station 16 was placed into service in 1981. No major rehabilitation projects have been completed in the 41 years since the station was installed. Pumping Units A and B were replaced in 2014 and are in good condition, but much of the remaining equipment has reached the end of its useful life. Of special note, the cast iron fittings in the dry well need to be replaced. In 2017 a cast iron tee developed a crack and subsequent leak, which required immediate replacement. Due to odor concerns both at the station and the downstream force main, a comprehensive odor control evaluation will be conducted as part of this project and the related force main rehabilitation project (Project ID# C08.2).

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$6,370,000

Return to T.O.C.

CIP ID#
C08.2

Pumping Station 16 Force Main Rehabilitation

Start Date
2021

Completion Date
2026

Project Type
System Rehabilitation – Conveyance System

Location
Pumping Station 16

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 1979-1980 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. 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. This work will be coordinated with the proposed rehabilitation of Pumping Station 16 (Project ID# C08.1).

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$0	$2,068,000

CIP ID#
D01

Capital Budget Expenses

Start Date
Ongoing

Completion Date
Ongoing

Project Type
Capital Budget Expenses

Location
District-wide

Description
These are general capital budget expenses. More specifically, they are annual funds used for smaller planning, study and related expenses that are required to update and implement the Capital Improvements Plan (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 time frames, and external resources are necessary. This budget item provides funds to cover expenditures for smaller studies or planning efforts.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$53,000	ONGOING

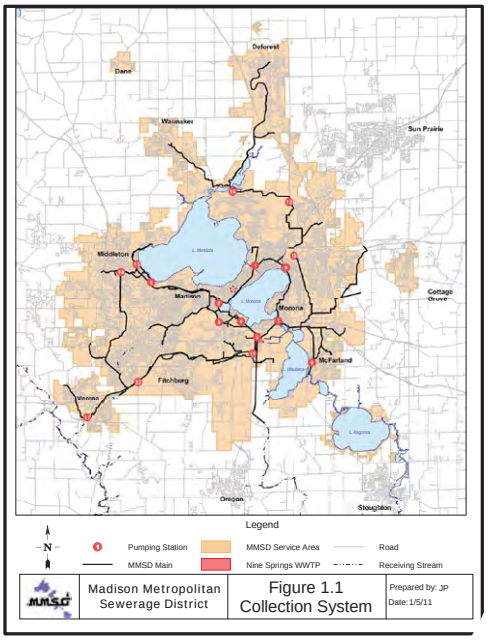
CIP ID#
D02

Collection System Facilities Plan Update

Madison Metropolitan Sewerage District
Collection System Facilities Plan Update

Prepared by the Staff of the
Madison Metropolitan Sewerage District

December 2011



Start Date
2018

Completion Date
2023

Project Type
Capital Budget Expenses

Location
Collection Systems

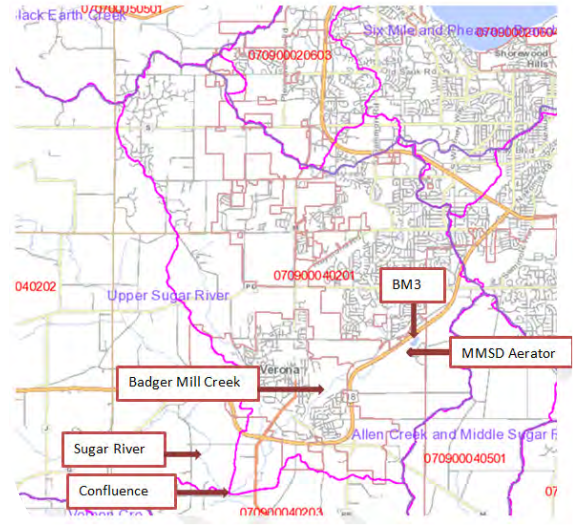
Description
The District's Collection System Facilities Plan is a key planning document that is periodically updated based on projections from the Capital Area Regional Planning Commission. Funding for this study will be through cash in the capital projects fund.

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 is 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. An engineering consultant will be retained to complete a portion of this update, with particular attention given to work on control of inflow and infiltration on private property.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$143,000	$335,000



CIP ID# **D03**

Badger Mill Creek Phosphorus Compliance

Start Date
2019

Completion Date
TBD

Project Type
Effluent

Location
Badger Mill Creek

Town of Verona and 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. New water quality standards for this waterway are part of the District's Wisconsin Pollution Discharge Elimination System (WPDES) permit that was issued in May 2020. The District began preliminary planning for the new standards in 2019, assuming a nine-year compliance schedule. It is anticipated that early planning work related to this effort will be funded through cash in the capital projects fund.

Background
The District currently pumps up to 3.6 MGD of effluent to Badger Mill Creek. The majority of the District's effluent (up to 75.5 MGD) is pumped to Badfish Creek. Historically, all the District's effluent was returned to Badfish Creek, but in 1998 after the City of Verona discontinued operation of their wastewater treatment plant and joined the District, the District began returning up to 3.6 MGD flow to Badger Mill to maintain historic flows.

The District's new WPDES permit requires a phosphorus water quality criterion for Badger Mill Creek, which is significantly less than the existing standard. The list of viable alternatives has been narrowed down to the following four primary options: diversion of effluent flow to Badfish Creek; water quality trading; watershed adaptive management; and treatment.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$106,000	$13,000,000

Return to T.O.C.

CIP ID#
D04

Plan for District Properties

Start Date
2022

Completion Date
2023

Project Type
Plant Improvements – Space Needs

Location
Nine Springs Wastewater Treatment Plant

Description
The primary purposes of this project are to perform an inventory of all available land and buildings owned by the District, identify those lands and buildings with the greatest needs, propose reconfiguration options and prepare an annual plan for recommended changes. 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 revenue sources other than loan proceeds in the capital projects fund.

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 Improvements Plan that will require additional space and coordination. These projects include the following: liquids processing improvement projects, Energy Management Master Plan, Biosolids Master Plan, Shop One site improvements and renovations, a new septage receiving facility and a potential resource recovery facility. All these projects should be evaluated together to effectively plan the future layout of the plant grounds.

Financial Analysis

2023 EXPENDITURE ($2023)	TOTAL PROJECT COST
$182,000	$360,000

Return to T.O.C.

Appendix B
Completed Projects & Retainers

2021 PROJECT COMPLETIONS

PUMPING STATION 7 IMPROVEMENTS

Pumping Station 7 (PS 7) was constructed in 1948. Before the construction of Pumping Station 18 (PS 18) in 2015, PS 7 conveyed approximately 40% of the daily flow to the District's treatment plant. While PS 18 lessened the criticality of PS 7 to a degree, improvements were still needed at PS 7 to replace aging equipment and optimize how the stations interact with each other. Improvements constructed as part of this project included the replacement of existing controllers and the control system, replacement of electrical switchgear and HVAC system, separation of the control room space from the garage and screen room, installation of an odor control system and pump and valve replacements. C.D. Smith began work on the project in August of 2019 and reached final completion in January of 2021. The total project cost of $4.1 million is being funded through a loan from the Clean Water Fund.

INTERCEPTOR REHABILITATION – 2020

This project involved the rehabilitation of existing sewers on two District interceptor systems in 2020. Approximately 4,500 feet of the Spring Street Relief Sewer on the West Interceptor was rehabilitated with a cured-in-place liner as part of the project, starting at the intersection of Spring Street and North Randall Avenue and terminating at West Washington Avenue near Brittingham Park. This 24-inch diameter cast iron sewer was installed in 1940 and had heavy mineral deposits, or tuberculation, along its entire length. These deposits decrease capacity and weaken the structural integrity of the pipe if not addressed. In addition, approximately 300 feet of the Northeast Interceptor Relief Sewer and East Johnson Street Relief Sewer were rehabilitated as part of this project. These sewers are located at the intersection of North First Street and East Johnson Street in the City of Madison. Work on this project was completed in the fall of 2020, with the final project closeout occurring in February of 2021. The total project cost of $1.0 million is being funded with a loan from the Clean Water Fund.

Improvements to Pumping Station 7, completed in 2021, replaced aging infrastructure and optimized its operation.

NORTHEAST INTERCEPTOR JOINT GROUTING MH10-112 TO MH10-106

Evidence of excessive inflow and infiltration (I/I) had been observed in the original Northeast Interceptor sewer immediately upstream of Pumping Station 10 for approximately 5,100 feet. The 48-inch diameter concrete sewer was installed in 1964 in an area with a high groundwater table. It is estimated that I/I rates were as high as five gallons per minute in some areas. In this project, each joint along the sewer was air tested and injected with grout for 2,600 feet to reduce the I/I to an acceptable rate. The remaining 2,500 feet of 48-inch sewer was rehabilitated similarly in 2021 and 2022. Work on this project was performed in the second half of 2020, with the final closeout of the project occurring in June of 2021. The total project cost of $193,000 was paid for from cash in the capital projects fund.

NORTHEAST INTERCEPTOR–TRUAX EXTENSION RELIEF

The Truax Extension to the Northeast Interceptor was constructed in 1969. The existing sewer within the project limits consists of approximately 11,000 feet of 48-inch diameter reinforced concrete pipe. Like many other sections of the Northeast Interceptor, this section of sewer is badly corroded due to hydrogen sulfide attack. In addition, population and flow forecasts by the Capital Area Regional Planning Commission indicate that additional capacity is needed in this section of the Northeast Interceptor before the year 2030 to serve rapidly growing areas in the villages of Waunakee and DeForest. This project increased system capacity via a relief sewer which will serve as a future bypass line when the existing sewer is rehabilitated in 2025. Speedway Sand & Gravel began work on the project in July of 2019 and the work was accepted by the District's Commission in July of 2021. The total project cost of $8.0 million is being funded with a loan from the Clean Water Fund.

As owner communities expand and develop new neighborhoods, District staff need to plan and coordinate sewer extensions and upgrades to the collection system.

PUMPING STATION 7 FORCE MAIN EMERGENCY REPAIR

The Pumping Station 7 force main system consists of two parallel force mains that convey approximately five to six million gallons of raw wastewater to the treatment plant each day. Each force main is made of concrete and is 36 inches in diameter, although they were installed in different years (1948 and 1963). Normally, only one of the pipelines is needed to provide service. In April of 2021, a leak was discovered on one of the force mains underneath the Beltline Highway, east of West Broadway in the City of Monona. Subsequent excavation revealed a small crack in the 1948 force main. Repair materials were ordered in May, and the crack was repaired by Capitol Underground and Visu-Sewer by lining approximately 330 feet of the pipe under the Beltline Highway in July. No disruption of service occurred during the investigation or repair of the leak. The total project cost of $280,000 was paid for from cash in the capital projects fund.

2022 PROJECT COMPLETIONS

Final Completion or Substantial Completion in 2022

LIQUID PROCESSING IMPROVEMENTS – PHASE 1

With the start-up of new Pumping Station 18 in 2015 and capacity upgrades to Pumping Station 11 occurring shortly thereafter, there was the potential for the hydraulic capacity of the Nine Springs Treatment Plant to be exceeded in high flow events. Facility planning began in 2016 for hydraulic upgrades to the treatment plant and to identify any related improvements to the liquid processes. A facilities plan was completed in August of 2017 that recommended a series of improvements to be implemented in three phases over roughly 10 years. The first phase of these improvements consisted of enhancements to peak-flow management at the plant, replacement of the ultraviolet light disinfection system, replacement of an electrical substation building and upgrades to the process control system. C.D. Smith began work on the improvements in the spring of 2020, and the project was accepted by the District's Commission in January of 2022. The total project cost of $16.6 million is being funded with a loan from the Clean Water Fund.

HEADWORKS FLOW METERING

The District's flow metering facilities were installed in 2005 as part of the Tenth Addition improvements. These facilities consisted of a venturi meter on each of the five influent force mains that convey flow to the treatment plant. Accurate readings of these meters are essential for service charge billing and proper operation of plant processes. Shortly after these facilities were started up, it was discovered that the flow meters were installed at an elevation that was too high relative to the water surface at the downstream fine screening units. To ensure that the flow meters read accurately, it was necessary to artificially raise the water surface upstream of the screens. This has caused the screens to run excessively and bypass rags and other solids. The purpose of this project was to lower each of the five venturi meters so that the fine screening units could be operated as originally intended with a lower upstream water elevation. Staab Construction began work on the project in June of 2020, and the project was accepted by the District's Commission in January of 2022. The total project cost of $2.2 million is being funded with a loan from the Clean Water Fund.

ENERGY MANAGEMENT MASTER PLAN

This master planning effort involved a comprehensive study of how the District is currently using energy, and it creates a roadmap for how to manage energy in the future. The study emphasized how to optimize energy use as critical pieces of equipment are replaced in the coming years, such as the gasdriven electrical generators and the associated hot water system. Projects related to heat and power improvements, biosolids processing and miscellaneous energy enhancements will be incorporated into the District's Capital Improvements Plan for implementation and/or additional planning in the years to come. Carollo Engineers, Inc. began work on the master plan in February of 2020, and the plan was accepted by the District's Commission in February of 2022. The approximate total project cost of $585,000 was paid for from cash in the capital projects fund.

2022 ANTICIPATED PROJECT COMPLETIONS

FINAL CLARIFIERS 4, 5 AND 6 EFFLUENT LAUNDER TROUGH REPLACEMENT

In the fall of 2017 District staff discovered numerous holes in the effluent launder troughs of final clarifier 6. It is believed that these holes are due to corrosion of the steel. Similar holes were found in the launder trough of final clarifier 5 in the spring of 2018. If the corrosion progresses too far, it could result in mixed liquor combining with the effluent and lead to decreased treatment performance. The corrosion could also compromise the safety of District personnel who need to stand on the troughs to maintain the clarifiers. This project will replace the effluent launder troughs on final clarifiers 4, 5 and 6. Sabel Mechanical, LLC began work on the new launder troughs in 2021, and it is expected that the work will be completed in the second half of 2022. The anticipated total project cost of $355,000 will be paid for from cash in the capital projects fund.

OPERATIONS BUILDING FIRST FLOOR REMODEL

A space needs study performed by Bray Architects in 2013 identified a need for improvements to the operators' control room in the Operations Building. In particular, a need for personal storage and a more efficient working space were identified. Further study and improvements were not conducted at that time, however. Since 2013, several members of the Ecosystems Services department had moved into offices in the laboratory, and the operations supervisor and lead operators shared a small office. These changes led to concerns over worker safety, the safety of the public during facility tours and overall unsanitary conditions in these work areas. This project included remodeling a portion of the laboratory and the operators' control room to provide a safer and more efficient use of space for staff who work in this area. Kenneth F. Sullivan Co. began work on the project in September of 2020, and work was accepted by the District's Commision on August 12, 2022. The anticipated total project cost of $2.2 million is being paid for through a loan from the Clean Water Fund.

Construction on the pedestrian bridge during the Operations Building First Floor Remodel project.

OPERATIONS BUILDING 800 MECHANICAL ROOM (MINOR CAPITAL IMPROVEMENTS 2020)

The District's mechanical room contains an electric chiller that uses a refrigerant to cool interior spaces within the Operations Building. An inspection of this room by the Department of Safety and Professional Services in April of 2020 noted that several aspects of the chiller operation needed to be brought up to the proper standards. Required improvements included the installation of a leak detection and alarm system for the refrigerant, ventilation modifications and provision of warning signs to alert personnel of the associated dangers with the system. The District retained Design Services to prepare plans and specifications for the necessary improvements in August of 2020, and the work was awarded to Kenneth F. Sullivan Co. in November of 2020. Completion of the project occurred in June of 2022. The total project cost of $105,000 was paid for from cash in the capital projects fund as part of the minor capital improvements line item in the 2020 capital budget.

ENGINE GENERATOR CONTROL PANEL REPLACEMENTS

The gas-driven engines and generators were installed in 1991 as part of the sludge gas utilization facilities for the Sixth Addition. The control panels for the generators use relays for control of the engines and have not been significantly modified since they were first installed. The panels also have high-voltage cabling in them that requires special safety equipment and expertise for staff to work in them. The purpose of this project was to replace the relay-based panels with modern programmable logic controllers (PLC) and to reconfigure the panels to eliminate the electric hazard for routine maintenance. Pieper Electric began work on the project in June of 2021, and it is expected that it will be completed in the second half of 2022. The estimated total project cost of $677,000 will be paid for from cash in the capital projects fund.

NINE SPRINGS VALLEY INTERCEPTOR-MCKEE ROAD TO DUNN'S MARSH

This portion of the Nine Springs Valley Interceptor was installed in 1965 and consisted of reinforced concrete pipe ranging in diameter from 30 inches to 42 inches, except for a 1,170-foot stretch that was replaced in 2000. Due to its proximity to the end of the Pumping Station 12 force main, significant corrosion occurred in portions of this section. In addition, upstream flows have increased at a rapid pace due to development, and updated population forecasts suggest that capacity in much of this section will be reached in the next 10 years. For these reasons, a new replacement sewer was installed along the recreational trail between McKee Road and Dunn's Marsh. R.G. Huston, Inc. began work on the project in December of 2020, and the work was substantially completed in October of 2021. The estimated total project cost of $4.3 million is being funded through a loan from the Clean Water Fund.

PUMPING STATION 17 FORCE MAIN RELIEF – PHASE 1

Pumping Station 17 currently serves only lands within the City of Verona, and it and its force main are nearing capacity. In addition, the completion of the Lower Badger Mill Creek Interceptor between County Highway PD and Midtown Road is scheduled for 2023-2024. When this occurs, flow from the City of Madison's Midtown Pumping Station will be redirected to Pumping Station 17. In advance of this diversion, a relief force main for Pumping Station 17 is needed to provide the required future capacity. The relief force main project was broken into two phases so that construction of the first phase would be coincident with a City of Verona project in the same corridor. Minger Construction Co., Inc. began installation of the force main in November of 2020, and it was completed in the first half of 2022. The estimated total project cost of $3.5 million will be paid for from cash in the capital projects fund.

Project engineer Rachel Feil talks with contractors at the Nine Springs Valley Interceptor construction site.

NSVI-MORSE POND EXTENSION

This project included the construction of approximately 3,200 feet of new sanitary sewer 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 in the City of Verona. The sewer construction was 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. It is expected that the final payment of the District's share of the project will be made in 2022. The total project cost of $2.2 million was financed through cash in the capital projects fund.

NORTHEAST INTERCEPTOR JOINT GROUTING MH10-101 TO MH10-106

This is the second of two planned projects to reduce inflow and infiltration in the original Northeast Interceptor sewer upstream of Pumping Station 10. The work consists of testing each joint of the 48-inch diameter sewer for water tightness and injecting grout as needed to seal any leaks. The first phase of the project involved approximately 2,600 feet of sewer, and the work was performed in 2020-2021. The second phase of the project addressed the remaining 2,500 feet of sewer in the section to be rehabilitated. Visu-Sewer began work on the project in November of 2021, and the work was accepted by the District's Commission on July 28, 2022.

WEST INTERCEPTOR-SHOREWOOD RELIEF (PHASE 1)

This is the first phase of a three-phased project to provide additional capacity to the West Intercepting System between Whitney Way and Walnut Street in the City of Madison and the Village of Shorewood. The additional capacity is needed to serve flows from future development in the Pumping Station 15 service area. Approximately 5,600 feet of 30-inch and 36-inch diameter replacement sewer was installed during the first phase of this project between Whitney Way and Shorewood Boulevard. Phases 2 and 3 of this project are scheduled for construction in 2022 and 2023, respectively. Advance Construction, Inc. of Green Bay, WI began work on the Phase 1 project in February of 2021, and the work was substantially completed in the first half of 2022. The anticipated total project cost of $4.7 million is being financed with a loan from the Clean Water Fund.

GRASS LAKE DIKE STABILIZATION

The District constructed facilities to discharge treated effluent to the Badfish Creek waterway in 1958. These improvements included an earthen dike along the western edge of Grass Lake to create a barrier between the lake and the effluent discharge waterway. Over the years, the bank slopes have eroded significantly in some locations, and animals have burrowed into the dike so that seepage through the barrier is a concern if not addressed. This project will repair the dike using a combination of methods, including rebuilding the bank slopes, redirecting the channel, and enhancing habitat by inserting vegetation into the channel at strategic locations. It is anticipated that the construction of these improvements will take place in the fall of 2022, and they will be completed before the end of the calendar year. Funding for the improvements will be via cash in the capital projects fund.

PLANT ASSET MANAGEMENT PLAN IMPLEMENTATION

This project generally refers to a series of initiatives to develop the District's Asset Management Plan. As part of this effort, the District retained a vendor in November of 2020 to implement a program for Reliability Centered Maintenance (RCM). RCM is a strategy to optimize a maintenance program by considering the various assets of a facility and maintaining them in such a way that system reliability is emphasized. Work on this program is expected to be completed before the end of 2022 at a total estimated cost of $240,000. These costs will be paid from cash in the capital projects fund.

The Badfish Creek outfall aerates treated water to improve the health of aquatic systems on its way to the Rock River and Mississippi River.

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 within the past year or those that are presently being withheld.

PUMPING STATION 15 REHABILITATION

The District withheld a $27,500 three-year special maintenance retainer upon project acceptance in March of 2018 as follows: (1) $10,000 to be paid to the 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 the contractor after three years for landscape maintenance warranty, with payments to the contractor of $2,500 per year for each year's successful warranty work for the landscaping. The total retained amount of $7,500 for the landscaping work will not be paid due to unsatisfactory performance. The remaining $20,000 retained amount will also not be released due to the failure of the contractor to submit final lien waivers from the project subcontractors.

Electrician Roy Wells works to repair an electrical unit in our Maintenance Facility.

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 under the Wisconsin Department of Transportation's contracting provisions.

SOUTHWEST INTERCEPTOR-HAYWOOD DRIVE REPLACEMENT

The District withheld a $20,000 retainer upon acceptance of the project in November of 2019, as follows: (1) a $10,000 maintenance retainer to correct any defective work for one year after project acceptance and (2) an additional $10,000 retainer to grout two sanitary structures to address infiltration and inflow issues. The full retainer amount will not be released to the contractor due to warranty issues with inflow and infiltration.

PUMPING STATION 7 IMPROVEMENTS

The District withheld maintenance retainers upon acceptance of the project on January 4, 2021, as follows: (1) a $10,000 retainer to correct any work which is found to be defective for the one-year period following project acceptance and (2) a $5,000 retainer to be withheld for three years after project acceptance to be split equally between the pump/motor assembly and the variable frequency drives. The $10,000 retainer was released to C.D. Smith in February of 2022.

NORTHEAST INTERCEPTOR-TRUAX EXTENSION RELIEF

The District withheld a $25,000 one-year maintenance retainer upon acceptance of the project in July of 2021. The retainer was released to Speedway Sand & Gravel, Inc. in July 2022.

LIQUID PROCESSING IMPROVEMENTS – PHASE 1

The District withheld a $15,000 one-year maintenance retainer upon final completion and acceptance of the work in January of 2022. The retainer will be released to C.D. Smith, Inc. one year after project closeout, pending satisfactory performance.

2020 INTERCEPTOR REHABILITATION

The District withheld a $10,000 one-year maintenance retainer upon closeout of the project on February 11, 2021. The retainer was released to Visu-Sewer, Inc. in May of 2022.

NORTHEAST INTERCEPTOR JOINT GROUTING MH10-112 TO MH10-106

The District withheld a $5,000 one-year maintenance retainer upon final completion and acceptance of the work on June 10, 2021. The District also withheld an additional $5,000 one-year maintenance retainer as a guarantee that the contractor shall provide post-grouting digital video of pipe sections that were tested, sealed and verified. The District released the $5,000 one-year maintenance retainer in June of 2022.

OPERATIONS BUILDING FIRST FLOOR REMODEL

The District withheld a $10,000 one-year maintenance retainer upon final completion and acceptance of the work on July 28, 2022. The retainer will be released to Kenneth F. Sullivan Co. one year after project acceptance, pending satisfactory performance.

HEADWORKS FLOW METERING

The District withheld a $10,000 one-year maintenance retainer upon final completion and acceptance of the work in January of 2022. The retainer will be released to Staab Construction Corporation one year after project closeout, pending satisfactory performance.

NSVI-MCKEE ROAD TO DUNN'S MARSH

The District will withhold a $25,000 one-year maintenance retainer upon final completion and acceptance of the work. The retainer will be released to R.G. Huston Co., Inc. one year after project closeout, pending satisfactory performance.

NORTHEAST INTERCEPTOR JOINT GROUTING MH10-101 TO MH10-106

The District withheld a $5,000 one-year maintenance retainer upon final completion and acceptance of the work on July 28, 2022. The District also withheld an additional $5,000 one-year maintenance retainer as a guarantee that the contractor shall provide post-grouting digital video of pipe sections that were tested, sealed and verified. The retained amounts shall be released to Visu-Sewer, Inc. one year after project acceptance, pending satisfactory performance.

ENGINE GENERATOR CONTROL PANEL REPLACEMENTS

The District will withhold a $7,000 three-year maintenance retainer upon final completion and acceptance of the work. The retainer will be released to Pieper Electric, Inc. three years after project acceptance, pending satisfactory performance.

WEST INTERCEPTOR-SHOREWOOD RELIEF (PHASE 1)

The District will withhold a $20,000 one-year maintenance retainer upon final completion and acceptance of the work. The retainer will be released to Advance Construction, Inc. one year after project closeout, pending satisfactory performance.

Fine screening equipment at the Headworks Facility helps remove rags and other large material from incoming wastewater.

Appendix C
Budget Summaries

2023 OPERATING BUDGET SUMMARY

OPERATING BUDGET REVENUES

Revenue Category	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
Sewer Service Charges	$45,152,000	$22,893,000	$45,600,000	$46,376,500	$50,498,000
Servicing Pumping Stations	514,000	259,000	483,000	475,000	454,000
Rent	84,000	63,000	89,000	88,000	90,000
Interest	6,000	27,000	41,000	61,000	29,000
Annexation and Plan Review Fees	74,000	46,000	77,000	70,000	70,000
Miscellaneous Income	(309,000)	47,000	120,000	120,000	106,000
Septage Disposal Revenue	967,000	289,000	735,000	785,000	809,000
Pretreatment Monitoring	30,000	-	28,000	27,500	38,000
Struvite Fertilizer Sales	212,000	73,000	196,000	210,000	215,000
Cash Reserves	-	-	-	4,620,000	-
TOTAL REVENUES	**$46,730,000**	**$23,697,000**	**$47,369,000**	**$52,833,000**	**$52,309,000**

OPERATING BUDGET EXPENDITURES

Expense Category	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
Administration, Engineering and Planning	$5,894,000	$3,157,000	$6,624,000	$6,855,000	$8,045,000
User Charge & PreTreatment Program	600,000	184,000	975,000	1,237,000	1,288,000
Wastewater Collection	3,136,000	1,392,000	3,215,000	3,140,000	3,233,000
Wastewater Treatment	12,393,000	6,815,000	14,111,000	14,218,000	14,962,000
Effluent Diversion	121,000	87,000	186,000	170,000	181,000
Metrogro Biosolids Reuse Program	2,028,000	679,000	1,980,000	1,874,000	2,114,000
Capital Outlay	974,000	749,000	1,042,000	501,000	1,215,000
Servicing Pumping Stations Owned by Others	514,000	259,000	483,000	420,000	454,000
Contribution to Capital Projects Fund	1,486,000	-	8,121,000	8,121,000	4,791,000
Contribution to Equipment Replacement Fund	150,000	-	-	-	-
Transfer to Debt Service Fund	16,552,000	-	16,297,000	16,297,000	16,026,000
TOTAL EXPENDITURES	**$43,848,000**	**$13,322,000**	**$53,034,000**	**$52,833,000**	**$52,309,000**

OPERATING BUDGET SUMMARY AND BALANCES

Operating Reserves	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
Opening Balance	$21,141,000	$24,173,000	$24,173,000	$23,320,000	$18,508,000
Revenues	46,730,000	23,697,000	47,369,000	48,213,000	52,309,000
Expenditures	43,698,000	13,322,000	53,034,000	52,833,000	52,309,000
CLOSING BALANCE	**$24,173,000**	**$34,548,000**	**$18,508,000**	**$18,700,000**	**$18,508,000**

2023 CAPITAL PROJECTS BUDGETS SUMMARY

CAPITAL PROJECTS BUDGET REVENUES

Revenue Source	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
LOANS					
CWF Loan- LPI-Phase 1/PS 7 Improvements/HW Flow Metering	7,488,000	-	748,000	-	-
CWF Loan- Waunakee Extension Relief	-	-	-	-	3,774,000
CWF Loan- Pumping Station 4 Rehabiliation	-	-	-	1,950,000	4,257,000
CWF Loan- Pumping Station 17 Force Main- Phase 2	-	-	-	-	10,270,000
CWF Loan- 2021 Treatmant Plant HVAC Improvement Project	-	-	929,000	1,493,000	991,000
CWF Loan- Pumping Station 13 and 14 Rehabilitation	2,708,000	-	8,000,000	3,936,000	-
CWF Loan- Operations Building First Floor Remodel	1,313,000	-	795,000	149,000	-
CWF Loan- NSVI Improvements- McKee Road to Dunn's Marsh	-	3,648,000	4,000,000	4,707,000	-
CWF Loan- West Interceptor- Shorewood Relief (Phase 1)	-	2,562,000	4,600,000	-	-
CWF Loan- NEI-Truax Extension Rehab	-	-	-	5,964,000	-
CWF Loan- Pumping Station 17 Firm Capacity Improvements	-	-	-	-	2,993,000
CWF Loan- Lagoon Dikes Improvements	-	-	-	1,014,000	-
CWF Loan- NEI Truax Ext. Relief	205,000	-	-	-	-
CWF Loan- 9 Springs Hot Water & W1 Piping Improvements	460,000	-		-	-
CWF Loan- WI Spring Street Relief Lining	880,000	-	-	-	-
CONNECTION CHARGE REVENUES	3,814,000	2,503,000	4,000,000	3,600,000	4,550,000
INTEREST ON INVESTMENTS & MISC. INCOME	4,000	9,000	6,000	29,000	83,000
CONTRIBUTION FROM OPERATING FUND	1,486,000	-	3,501,000	3,501,000	4,791,000
TOTAL REVENUES	**$18,358,000**	**$8,722,000**	**$26,579,000**	**$26,343,000**	**$31,709,000**

CAPITAL PROJECTS BUDGET EXPENDITURES

PROJECT	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
NINE SPRINGS WASTEWATER TREATMENT PLANT PROJECTS					
Liquid Processing Improvements- Phase 2	-	7,000	7,000	-	-
East Primary Influent Channel Air Piping Replacement	-	-	3,250	77,000	142,000
Low Dissolved Oxygen (Partial Plant)	-	-	3,250	62,000	207,000
Low Dissolved Oxygen (Full Plant)	-	-	-	-	498,000
West Blowers and Switchgear Replacement	-	-	3,250	283,000	822,000
East Blowers and Switchgear Replacement	-	-	3,250	-	822,000
2021 Treatment Plant HVAC Improvement Project	38,000	47,000	884,000	1,251,000	1,011,000
NSWWTP Electrical Service Equipment Replacement	-	9,000	160,000	108,000	175,000
Heat and Power Improvements	-	-	-	711,000	-
Miscellaneous Energy Projects	-	-	-	191,000	233,000
Lagoon Dikes Improvements	190,000	10,000	295,000	752,000	565,000
Maintenance, Financial and HR Systems	-	-	659,000	501,000	689,000
Metrogro Applicators & Equipment	818,000	6,000	700,000	-	106,000
Flow Splitter Improvements	-	-	45,000	141,000	551,000
Headworks Screening	-	-	-	10,000	-
Septage Receiving Modifications	-	-	-	-	-
Miscellaneous Treatment Plant Projects	8,000	-	120,000	124,000	119,000
Minor Capital Improvements	-	7,000	115,000	115,000	122,000
Annual Pavement Improvements	-	-	-	65,000	70,000

CAPITAL PROJECTS BUDGET EXPENDITURES, continued

Energy Management Master Plan	151,000	11,000	15,000	-	-
Engine Generator and Blower Control Panel Replacements	145,000	52,000	485,000	-	-
Final Clarifier 4, 5 and 6 Effluent Launder Trough Replacement	235,000	53,000	115,000	-	-
Headworks Flow Metering	638,000	1,000	-	-	-
Liquid Processing Improvements- Phase 1	3,471,000	30,000	30,000	-	-
Ops Building Mech Room Refrigirent monito	88,000	-	-	-	-
Operations Building First Floor Remodel	1,435,000	123,000	160,000	150,000	-
Resource Recovery Facility	15,000	-	-	-	-
Shop One Interior Renovations	-	-	-	52,000	-
Annual Process Tank Coating and Repair	-	-	-	202,000	-
Biosolids Processing	-	-	-	206,000	-
INTERCEPTORS					
West Interceptor- Shorewood Relief (Phase 1)	3,034,000	655,000	1,100,000	-	-
West Interceptor- Shorewood Relief (Phase 2)	75,000	30,000	1,630,000	1,694,000	-
West Interceptor- Shorewood Relief (Phase 3)	-	7,000	99,000	93,000	5,346,000
Lower Badger Mill Creek Interceptor- Phase 5	-	7,000	99,000	93,000	1,283,000
Lower Badger Mill Creek Interceptor- Phase 6	-	6,000	110,000	113,000	127,000
Pump Station 6 to Pump Station 10 Connector	-	6,000	190,000	144,000	440,000
NEI- Waunakee Extension Capacity Improvements (Phase 1)	-	17,000	993,000	577,000	2,819,000
NEI- Truax Extension Rehab	3,000	-	-	5,995,000	-
NEI- Truax Extension Relief	4,200	-	-	-	-
SEI Rehab- PS 9 to SEI-Dutch Mill Extension		-	-	77,000	-
WI- Spring Street Relief Lining	3,000	-	-	-	-
Northeast Interceptor Joint Grouting MH10-101 to MH10-106	29,000	166,000	242,000	242,000	-
Northeast Interceptor Joint Grouting	8,000	-	-	-	-
NSVI Improvements-McKee Road to Dunn's Marsh	2,686,000	6,000	250,000	-	-
NSVI-Morse Pond Extension	-	35,000	35,000	-	-
Repair to West Interceptor Extension on Allen Boulevard	-	21,000	100,000	-	400,000
PUMPING STATIONS AND FORCE MAINS					
Grass Lake Dike Stabilization	$17,000	40,000	625,000	742,000	-
PS 4 Rehabilitation	217,000	87,000	888,000	1,669,000	3,237,000
PS 7 Emergency Repair	278,800	-	-	-	-
PS5 Communications Upgrade	5,000	-	-	-	-
PS 17 Firm Capacity Improvements	-	136,000	641,000	402,000	2,372,000
PS 17 Force Main Relief- Phase 2	18,000	102,000	1,538,000	288,000	8,818,000
Emergency Power Generation at District Pumping Stations	-	-	5,000	5,000	5,000
Miscellaneous Collection System Improvements	36,000	1,000	90,000	90,000	103,000
PS 16 Force Main Rehabilitation	-	-	-	67,000	-
PS 13 & PS 14 Rehabilitation	6,319,000	1,484,000	3,600,000	3,976,000	-
PS 17 Force Main Relief- Phase 1	2,599,000	125,000	305,000	-	-
PS 17 Rehabilitation	41,000	-	-	-	-
CAPITAL BUDGET EXPENSES					
Capital Budget Expenses	397,000	-	50,000	52,000	53,000
Collection System Facilities Plan Update	-	2,000	20,000	82,000	143,000
Badger Mill Creek Phosphorus Compliance	-	17,000	-	206,000	106,000
Plan for District Properties	-	-	172,000	177,000	182,000
Plant Asset Management Plan Implementation	-	13,000	55,000	-	-
TOTAL EXPENDITURES	**$23,002,000**	**$3,319,000**	**$16,640,000**	**$21,785,000**	**$31,566,000**

CAPITAL PROJECTS BUDGET SUMMARY AND BALANCES

Operating Reserves	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
Opening Balance	**$6,743,000**	**$6,719,000**	**$6,719,000**	**$5,818,000**	**$16,658,000**
Revenues	18,358,000	8,722,000	26,579,000	26,343,000	31,709,000
Expenditures	23,002,000	3,319,000	16,640,000	21,785,000	31,566,000
CLOSING BALANCE	**$2,099,000**	**$12,122,000**	**$16,658,000**	**$10,376,000**	**$16,801,000**

2023 DEBT SERVICES BUDGET SUMMARY

DEBT SERVICES BUDGET REVENUES

Revenue Category	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
Transfer From Operating Fund	$16,552,000	-	$16,297,000	$16,297,000	$16,026,000
Interest	9,000	(90,000)	49,000	143,000	150,000
TOTAL REVENUES	**$16,561,000**	**($90,000)**	**$16,346,000**	**$16,440,000**	**$16,176,000**

DEBT SERVICES BUDGET EXPENDITURES

Expenditure Category	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
First Half Interest	$1,600,000	$1,581,000	$1,581,000	$1,709,500	$1,834,500
Principal	10,659,000	12,281,000	12,281,000	13,250,000	13,949,000
Second Half Interest	1,511,000	-	1,854,000	1,709,500	1,834,500
TOTAL EXPENDITURES	**$13,770,000**	**$13,862,000**	**$15,716,000**	**$16,669,000**	**$17,618,000**

DEBT SERVICES BUDGET SUMMARY AND BALANCES

Operating Reserves	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
Opening Balance	$27,133,000	$29,924,000	$29,924,000	$28,697,000	$30,554,000
Revenues	16,561,000	(90,000)	16,346,000	16,440,000	16,176,000
Expenditures	13,770,000	13,862,000	15,716,000	16,669,000	17,618,000
CLOSING BALANCE	**$29,924,000**	**$15,972,000**	**$30,554,000**	**$28,468,000**	**$29,112,000**

NMF = No Meaningful Figure

2023 ALL-FUNDS BUDGET, NET OF INTER-FUND TRANSFERS

	2021 Actual	2022 Through June	2022 Estimated Total	2022 Budget	Proposed 2023 Budget
Opening Balance	$55,017,000	$60,816,000	$60,816,000	$57,835,000	$65,720,000
Revenues	81,649,000	32,329,000	90,294,000	90,996,000	100,194,000
Expenditures	80,470,000	30,503,000	85,390,000	91,287,000	101,493,000
CLOSING BALANCE	**$56,196,000**	**$62,642,000**	**$65,720,000**	**$57,544,000**	**$64,421,000**

SCHEDULE OF PRINCIPAL AMOUNT OF INDEBTEDNESS

Sewerage System Improvement Bonds	**January 2023**
Series 2003A PS's 1, 2 and 10 Rehabilitation	514,000
Series 2003B Tenth Addition	2,488,000
Series 2005 PS's 1, 2 and 10 Rehabilitation	52,000
Series 2006 Effluent Equalization Projects and AT's 1-6	414,000
Series 2007 West In Ext and PS 13-14 Projects	818,000
Series 2008 PS's 6-8 Rehabilitation and NEI Truax Ext Liner	3,203,000
Series 2010A NEI-PS 10 to Lien Rd	4,062,000
Series 2012A Nine Springs Eleventh Addition	27,655,000
Series 2012B Operations Building HVAC Rehab	1,702,000
Series 2013A NEI-SEI to FEI- Replacement Project	4,951,000
Series 2013B Pumping Station No. 18	9,222,000
Series 2013C Process Control System Upgrade	2,845,000
Series 2014A Pumping Station No. 18 Force Main	7,412,000
Series 2015A PS 11 & 12 Rehabilitation	6,935,000
Series 2015B Maintenance Facility Expansion	8,246,000
Series 2016A PS 15 Rehabilitation, PS 12 FM Relocation, Rimrock Int. Lining	5,341,000
Series 2017A West Interceptor-Randall St. to Near PS2	1,071,000
Series 2019A PS10 FM/WI- PS5 to Gammon Ext.	1,580,000
Series 2020A NEI Truax Ext Relief/SWI-Haywood Ext. Replacement	8,971,000
Series 2020B NLSPI- Phase 1A/PS7 Improvements/Headwords Flow Meetering	21,052,000
Series 2021A Pump Station 13 & 14 Rehabilitation/Operations Bldg 1st Floor Remodel/9 Springs Hot Water & W1 Piping Improvements/WI Spring Street Relief Lining	5,129,000
Series 2022A WI Shorewood Relief Sewer PH1/ NSVI McKee Rd to Dunns Marsh	5,944,000
Total Indebtedness	**$129,607,000**

Return to T.O.C.

Appendix D
Statistical & Supplemental Information

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 Aug. 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 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 approximately 15% of the entire county by area and approximately 70% of the county population. Areas served include the cities of Madison, Fitchburg, Middleton, Monona and Verona; the villages of Cottage Grove, Dane, De Forest, Maple Bluff, McFarland, Shorewood Hills, Waunakee, and Windsor; and the towns of Dunn, Madison, Pleasant Springs, Verona, Vienna and Westport.

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

Dane County & District Data

Madison Metropolitan Sewerage District

DISTRICT FAST FACTS

407,000
DISTRICT SERVICE POPULATION

187 SQUARE MILES SERVED

36M AVERAGE DAILY INFLUENT FLOW (MILLIONS OF GALLONS)

DANE COUNTY FAST FACTS

546,695
EST. COUNTY POPULATION

1,197 TOTAL SQUARE MILES

$74K PERSONAL INCOME PER CAPITA

Dane County Largest Employers

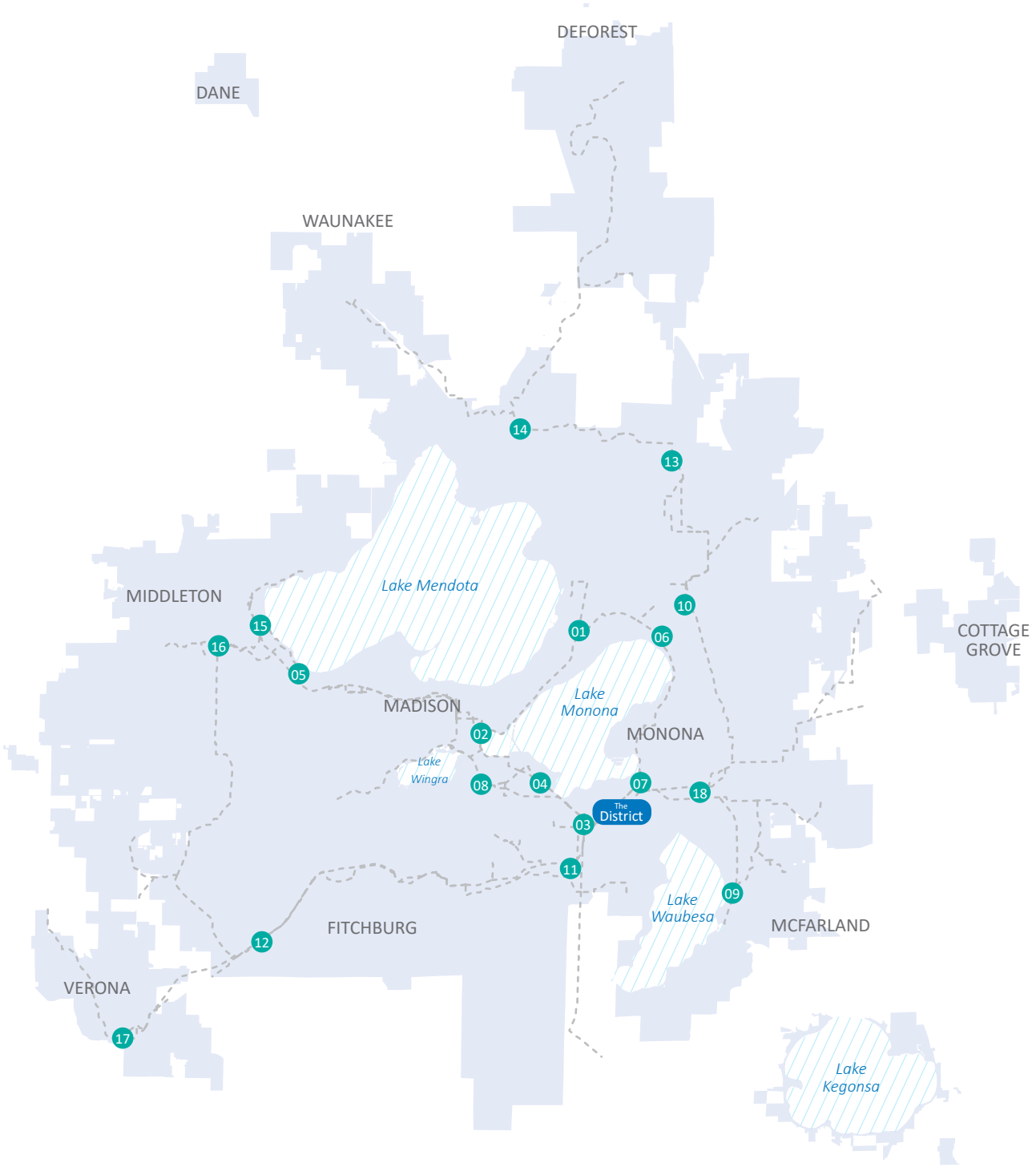
EMPLOYER	TYPE OF ORGANIZATION	EMPLOYEES
State of Wisconsin	State Government	36,475
University of Wisconsin-Madison	University/College	14,464
UW Hospital and Clinics	Healthcare	7,447
Epic Systems	Software Services	7,400
City of Madison	Municipal Government & Services	3,639
Madison Metropolitan School District	Education	3,591
Wisconsin Physicians Service (WPS) Insurance	Insurance	3,500
Madison College	Education	3,497
Meriter Hospital	Healthcare	3,400
Dane County	Municipal Government & Services	2,400
American Family Insurance	Insurance	11,300
CUNA Mutual	Insurance	3,300

Employee numbers as of 2021; 2022 numbers were not available at the time of publication.

Estimated Wastewater Contributions for 2022

	Community	Volume (gpd)	CBOD (lbs/day)	Solids (lbs/day)	Nitrogen (lbs/day)	Phosphorus (lbs/day)	Equivalent Meters	Actual Customers
CITIES	Fitchburg	1,826,000	4,303	3,391	798	102	9,440	6,631
	Madison	24,303,000	59,208	61,656	10,955	1,231	91,140	69,300
	Middleton	2,072,000	3,859	2,877	810	95	8,901	5,857
	Monona	842,000	1,163	988	234	27	4,113	2,987
	Verona	1,224,000	2,195	1,747	499	62	6,205	4,620
VILLAGES	Cottage Grove	708,000	1,285	1,440	256	29	2,723	2,327
	Dane	54,000	119	110	32	3	450	408
	DeForest (including ABS)	1,099,000	4,566	2,598	511	75	4,937	3,990
	Maple Bluff	141,000	161	123	43	5	756	594
	McFarland	645,000	1,249	1,138	290	32	3,929	3,457
	Shorewood Hills	146,000	245	241	58	6	1,317	704
	Waunakee	1,753,000	7,836	3,022	743	90	6,024	4,992
	Windsor	581,000	4,081	761	793	64	2,326	2,049
TOWN SANITARY AND UTILITY DISTRICTS	Dunn S.D. No. 1	154,000	59	108	18	2	191	191
	Dunn S.D. No. 3	72,000	115	130	28	3	493	492
	Dunn S.D. No. 4	16,000	12	11	4	0.4	68	68
	Dunn - Lake Kegonsa	126,000	233	210	58	6	677	566
	Madison	607,000	1,287	992	265	40	1,911	997
	Pleasant Springs No. 1	75,000	93	113	28	3	518	508
	Verona, Town of	600	0.8	0.9	0.2	0.03	3	3
	Verona U.D. No. 1	32,000	43	43	11	1	128	115
	Town of Vienna	100	0.2	0.2	0.03	0.004	1	1
	Vienna U.D. No. 1	74,000	115	115	14	2	97	44
	Vienna U.D. No. 2	34,000	59	65	16	2	205	206
	Westport - Cherokee Golf	2,000	6	3	1	0	8	1
	Westport Utility District	494,000	626	604	150	16	1,976	1,696
Interceptor Infiltration		**1,953,000**						
Daily Nine Springs Loadings		**39,033,700**	**92,919**	**82,487**	**16,615**	**1,897**	**148,539**	**112,806**

Collection System Overview Map



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Appendix E
Five-Year Vehicle Replacement Schedule

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

Five-Year Vehicle Replacement Schedule		
Year	**Vehicle**	**Estimated Cost**
2023	Metrogro Pickup-Four Wheel Drive	$55,000
	Electrical Pickup-Two Wheel Drive	$55,000
	Facilities Maintenance Flat Bed Truck	$80,000
	2023 Anticipated Fleet Fund Contribution	**$250,000***
2024	CSS Cargo Van	$50,000
	Mechanical Service Truck	$100,000
	Operations Pickup-Four Wheel Drive	$40,000
	Facilities Maintenance Skid Steer	$50,000
	Operations Pickup-Four Wheel Drive	$45,000
	2024 Anticipated Fleet Fund Contribution	**$300,000***
2025	HVAC Cargo Van	$45,000
	Admin Pool Van	$45,000
	Electrical Cargo Van	$45,000
	Locator Truck	$40,000
	Facilities Maintenance Small Dump Truck	$80,000
	2025 Anticipated Fleet Fund Contribution	**$250,000***
2026	Electrical Cargo Van	$45,000
	Locator Truck	$45,000
	Mechanical Service Truck	$100,000
	Metrogro Service Truck	$100,000
	2026 Anticipated Fleet Fund Contribution	**$250,000***
2027	Mechanical Route Truck	$50,000
	HVAC Cargo Van	$45,000
	Operations Pool Vehicle	$40,000
	Facilities Maintenance Pickup-Four Wheel Drive	$55,000
	Metrogro Flatbed Truck-Four Wheel Drive	$65,000
	2027 Anticipated Fleet Fund Contribution	**$250,000***

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Appendix F
New Position Justifications

In 2023, there are three positions proposed in the budget. The organization chart in **Appendix H** represents the District's hierarchy.

MAINTENANCE PLANNER - 2 POSITIONS

Prepared by Eric Dundee, Director of Wastewater Operations & Reliability

What new work is necessary to conduct effective District operations?

Two positions are required for the maintenance and upkeep of the Plan Work sections of the IPSECA Work Order Management Processes. There are two new aspects of work required that this position would assist with:

1. **Work Planning:** The Maintenance Planner will relieve technicians of the need for many administrative duties in the Computerized Maintenance Management System (CMMS). This keeps technicians focused on getting quality work completed on assets vs. sitting at a desk.
2. **Work Order Records Upkeep:** The Maintenance Planner will also add a crucial step in the work order process. By assessing completed work after the fact, the District can establish a system whereby maintenance personnel learn from practice and refine their procedures.

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

Due to increasing assets and aging infrastructure, the recommendation for Maintenance Planning and Work Order Management was first listed in the "Nine Springs Wastewater Treatment Plant Asset Management Plan" prepared by GHD in 2019. The report states that our organization should "Separate the planning and scheduling functions" and assign the planning function "to someone dedicated on a full time basis" (GHD, 2019).

GHD was supported by a similar recommendation by ReliabilityX in the "Asset Management Assessment Report" dated October 2021. The report states "in order to gain the efficiencies that planning and scheduling offers, the Planners should be dedicated resources whose function it is to prepare nonemergency work for execution" (ReliabilityX, 2021).

Preliminary rollouts of the Maintenance Planner role in each department have shown increases to not only the amount of priority work orders we can plan, fill for parts, and complete each week, but also the amount of technical data we are improving in the CMMS system (Job Plans, New Stock Codes, etc.). A full-time Maintenance Planner role will only accelerate these good results.

Maintenance Planner - continued

What critical results must be achieved?

To truly begin to achieve efficiencies in streamlining future work this position must be dedicated to planning on a full-time basis. The initial planning of the job is only the first step. By dedicating two FTEs to this role, we ensure the Maintenance Planner has time to properly classify and manage the CMMS system.

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

Detail-orientated: Given a varied amount of information, demonstrate the ability to take that information and turn it into detailed and accurate job plans.

Organized: Given a varied amount and degree of work to be planned, be able to organize and prioritize work to be efficient and effective. Has the ability to stay on task in the face of adversity.

Problem-solver: Demonstrates ability to use knowledge in their trade to determine the necessary parts and repairs necessary to a piece of equipment. Looks for innovative ideas and solutions and has the confidence to present ideas to the rest of the team.

Adaptable: Demonstrates flexibility in the face of change, projects a positive demeanor regardless of changes in working conditions and shows the ability to manage multiple conflicting priorities without loss of composure.

What are options for performing this work effectively?

Keep as is. We are currently performing planning with a part time role in each department. We are seeing efficiencies in getting work ready for the technicians and would continue that. The risk: Our Maintenance Planners don't have time to adequately update our CMMS system to achieve planning efficiencies in the future.

The option to dedicate two new full-time positions will allow us to address the risks in scenario #1 above and will continue to keep our technicians focused on value-added work. It also falls in line with the primary principle of best practice planning: "Planners are organized into a separate group from the craft maintenance crews to keep them focused on future work." (Palmer, 2019)

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

In addition to the option listed above, we could also revert to old ways of technician planning. The immediate benefit is we return staff to the labor pool that are currently dedicated to planning, getting some labor back. The risk: We decrease the efficiency of all other technical staff by forcing them to perform administrative duties in the system and lose the data tracking and upkeep in the CMMS that allows us to become more efficient over time.

What is your recommendation for moving forward?

We recommend the approval of two new Planner positions for hire in 2023. Planning is a long-standing and proven method to increase the efficiency of every Technician and ultimately get more work done. As our infrastructure expands and ages, this is of upmost value. Failure to dedicate Maintenance Planners goes against these proven best practices (Palmer, 2019) and will prevent us from meeting our asset management goals of the future.

References

GHD. (2019). Nine Springs Wastewater Treatment Plant Asset Management Plan.

Palmer, D. (2019). Maintenance Planning and Scheduling Handbook, Fourth Edition. New York: McGraw-Hill.

ReliabilityX. (2021). Madison Metropolitan Sewer District Asset Management Assessment Report.

ORGANIZATIONAL DEVELOPMENT SPECIALIST

Prepared by Mike Lipski, Human Resources Manager

What new work is necessary to conduct effective District operations?

Through the District's recent strategic planning work, the Executive Team and Commission identified key performance areas that directly relate to the District's success. The workforce development performance area is described as:

> *Workforce development supports the performance of the District by providing a capable workforce, having leadership at all levels of the organization, and fostering effective engagement with the community.*
>
> *This can be achieved by ensuring our employees have the skills they need to perform their jobs; feel they belong in the organization and can engage and grow in their work; and can work effectively with owner communities, members of the public, and stakeholders.*
>
> *In addition, District workforce development supports equity within the community by providing supportive and well-paying employment and career development and establishing a diverse and inclusive workplace.*

An indicator of success for workforce development is an employee engagement survey, which requires staff time to properly develop and implement strategies based on the survey's results.

The Executive Team has also identified employee engagement and diversity, equity and inclusion (DEI) as priority focus areas for 2023. A new position is needed to properly devote time to this net-new work, including workforce development through employee engagement, training and DEI.

What critical results must be achieved?

This position will be responsible for developing and implementing training at all levels of the organization. This position will facilitate the implementation of the District's employee engagement survey. This position will also work closely with the District's DEI consultant to ensure that a strategic plan is developed and goals are met. These results tie directly to the workforce development performance area and the identified Executive Team priorities of employee engagement and DEI.

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

The successful Organizational Development Specialist brings the following qualities to the work:

Inclusive: Shows respect for people and their differences; promotes fairness and equity; engages the talents, experiences, and capabilities of others; fosters a sense of belonging; works to understand the perspectives of others; creates opportunities for access and success.

Customer Service Orientation: Values the importance of delivering high-quality, innovative service to internal and external customers; follows through on commitments in a timely manner; maintains positive, long-term working relationships.

Creative: Recognizes that varying issues require different solutions; acknowledges the diverse needs of various workgroups and tailors solutions that will meet those needs.

Learner: Maintains curiosity around trends in the industry; stays up-to-date on theories and practices relative to the work and applies them as appropriate; attends conferences and other workshops to build relationships and learn about emerging trends.

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

The District intends to contract with consultants for both employee engagement and DEI. However, without a dedicated position to maintain the relationships with the consultants and direct the work at the District, the HR Manager will be required to take on this additional work, in addition to other critical responsibilities such as ELC support, recruitment in a very competitive job market and employee safety/security. Existing extra projects are already a struggle to complete within the current workload. By adding this work to the HR Manager, this problem will be exacerbated, and the likelihood of success for either program will shrink exponentially.

Marcus Canty, the health, safety and security leader and a member of the human resources team, demonstrates proper techniques for fall protection during in-house training sessions.

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Appendix G
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 (also WDNR)

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

NSWWTP: Nine Springs Wastewater Treatment Plant (also NSWTP)

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 (District's CMMS software)

WDNR: Wisconsin Department of Natural Resources)

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.

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.

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 District's executive leadership team.

Force main: The discharge pipeline of a pumping station.

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: Owner 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 (PS): 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 H
Organization Chart

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Madison Metropolitan Sewerage District

www.madsewer.org