DRAFT 2022

METROPOLITAN SEWER DISTRICT OF GREATER CINCINNATI

OPERATING BUDGET REQUEST

11/9/21

Hamilton County

- Commissioner Stephanie Summerow Dumas, President
- Commissioner Alicia Reece, Vice-President
- Commissioner Denise Driehaus
- Jeff Aluotto, County Administrator

City of Cincinnati

- Mayor John Cranley
- Paula Boggs Muething, City Manager

Metropolitan Sewer District

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- MaryLynn Lodor, Chief Operating Officer/Deputy Director of Operations
- Ryan Welsh, Chief Engineer/Deputy Director of Engineering

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- Ian McCoy, Information Technology Division Manager
- Andy Rossiter, Wastewater Treatment Superintendent
- Jennifer Richmond, Wastewater Collection Superintendent
- Reese Johnson, Compliance Services Superintendent

MISSION STATEMENT

MSD collects, treats, and manages wastewater from Greater Cincinnati communities, protecting the environment and public health by returning clean water to local rivers and streams.

METROPOLITAN SEWER DISTRICT OF GREATER CINCINNATI

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Mission

MSD collects, treats, and manages wastewater from Greater Cincinnati communities, protecting the environment and public health by returning clean water to local rivers and streams.

Vision

Our vision is to provide exceptional customer service to the community, delivered in a manner that is financially responsible, transparent, and cost effective to our ratepayers. As a public utility, MSD is dedicated to organizational and operational excellence.

Values

MSD subscribes to the following values:

- To be Accountable
- To be Ethical
- To be Respectful
- To act with Integrity
- To serve as Stewards of the Environment & Public Health

From the Director

Dear Commissioners and Stakeholders,

I am pleased to deliver the MSD 2022 Operating Budget Request. This budget document provides a high-level overview of the needs and priorities of the district for 2022, coupled with some operational highlights from 2021 and cost savings realized over the last few years totalling over $300M.

MSD is addressing the challenges of today and preparing for the future keeping our customers in mind. This past year was a challenge for everyone. For MSD, continued adaptation of work practices across all divisions was imperative to maintain efficiency of operations and ensure safety for its employees. I am proud to be part of this dedicated organization of hardworking staff.

2021 was a productive year despite the ongoing challenges with the COVID-19 pandemic and the unpredictable extreme weather and aging infrastructure. MSD remained focused on core service delivery and kept connected to national, regional, and local partnerships to provide uninterrupted, essential wastewater treatment and meet our customer service obligations.

Many initiatives that began in 2021 will continue into 2022 to improve services and overall performance. MSD's vision is becoming a utility of the future, embracing sustainability of social (equity, inclusion & diversity), environmental and economic issues.

MSD's 2022 Operating Budget request has been developed to support the essential operating functions of the utility, needed to keep our region safe and prosperous by returning clean water to area rivers and streams for the betterment of the entire Greater Cincinnati region.

Thank you for your support,

Diana Christy
Executive Director

MSD Customer Responses

Going Above and Beyond

When customers call MSD customer service, they are often experiencing a stressful and even traumatic situation caused by a sewage back up, a broken lateral or some other disruption in sewer service. MSD's dedicated staff are trained to provide exceptional customer service and help the customer understand what is happening and what next steps need to occur - either by MSD or by the property owner. Here are just a few of the comments we received in 2021 from MSD customers following an investigation.

Jennifer,

Today I had the pleasure of meeting Kyle Scott and Donnel Streat.

Wow these two guys are above and beyond. They went out of their way to try to auger my sewer line via my front yard clean out. Did I mention it was pouring rain! The auger tip got stuck because the line was damaged, no fault of their own. They helped me located the right of way and sewer line depths and really just made me feel like I was paying for them to be there. I deal with the city from time to time and this was hands down my best experience. Good job if you hired them and they deserve a raise for sure.

Thanks,
Eric

I just wanted to say thank you for your swift response — and I've also told the Stakeholder representative at 3CDC how great you guys were.

Thanks again from a grateful neighborhood!

Sue B.

Hello,

I just wanted to let someone know that I had a wonderful experience with 2 of your employees today. They were very professional and did a thorough job not only evaluating the issue itself but then also helping me understand what was going on. They cleaned up after themselves and sectioned off the area for safety. They worked very well together and overall did a great job. I have shared my experience with several family and friends today and thought I should let someone there know as well.

Thanks for the great service!

Jennifer B.

Dear MSD Managers,

We recently had a crew of MSD workers repairing a sewer line break in front of our house. We were so impressed by the professionalism and courtesy these workers showed during their time on our street.

Despite the difficulty of the task, your MSD crew worked tirelessly, staying well past 6:30pm on two nights to get the job done. We owe a big thank you to the following workers:

Marlon Wiggins
Zach Vanhook
Tim Sewell
Connie Daniels
Phil Freeman

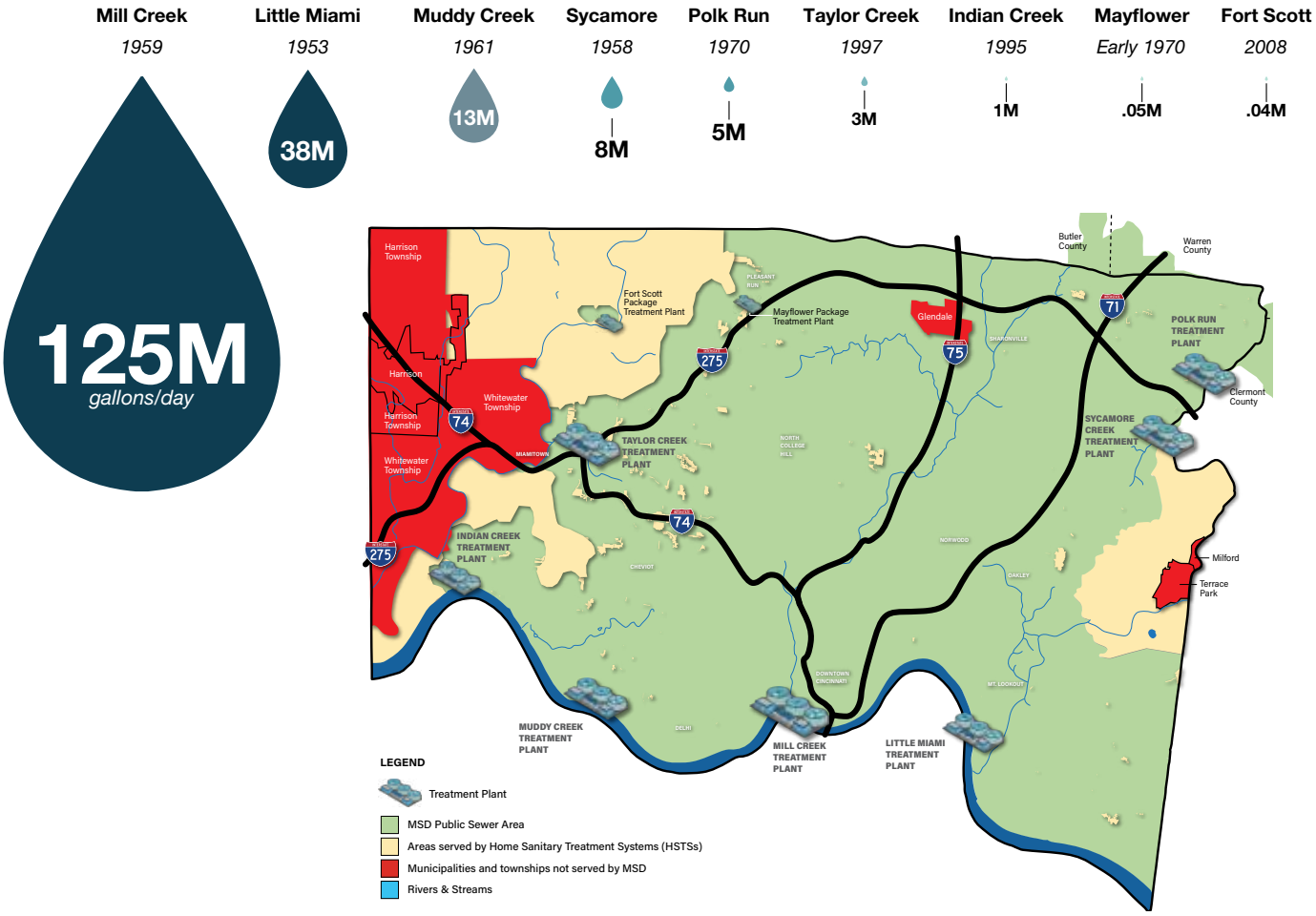
Please let them know how much we appreciate their hard work. And thank you for serving Cincinnati so well.

Sincerely,

Alan and Jo H.

MSD Background

Millions of Gallons Treated Per Day



The Metropolitan Sewer District of Greater Cincinnati is a county sewer district created under Chapter 6117 of the Ohio Revised Code, formed in 1968 by agreement between the City of Cincinnati and Hamilton County. The agreement remains in place today to provide critical clean water services to the Greater Cincinnati Region.

MSD collects and treats water used by homes, businesses, and other public and private entities within its 290-squaremile territory. MSD serves 90% of Hamilton County which includes almost 320,000 households and almost 800,000 Hamilton County residents and additional customers from small parts of Warren, Butler, and Clermont counties.

The system serves approximately 239,370 commercial, industrial, residential, and multifamily accounts.

MSD's service area includes Cincinnati which is the 64th largest city in the United States.

Hamilton County is headquarters to eight Fortune 500 companies and three Fortune 1,000 companies.

MSD's service area has a diverse industrial base—experiencing growth in biotechnology, financial services, and health care. The 10 leading customers accounted for just 4% of 2020 sewer revenue.

MSD's collection system includes roughly 3,000 miles of sanitary and combined sewers. Its nine wastewater treatment plants have a design capacity of 225 million gallons per day (mgd) in total. Additionally, MSD operates 9 wet weather facilities, 74 miles of storm sewers and 44 acres of green infrastructure. In 2020, approximately 1.75 billion gallons of combined sewage was treated at wet weather facilities and approximately 4.2 billion gallons was captured by MSD's real time control operations.

Coordination with the Policy Makers

In order to provide the Policy Makers with the most accurate and up to date information, the MSD Director or her designee attend meetings of the Board of County Commissioner and City Council. MSD also works with the County and City Administration as needed to facilitate collaboration for the benefit of the District. MSD employees are City employees.

MSD Background (continued)

Coordination with the Public

MSD works in coordination with local political jurisdictions public agencies, associations and community groups to share details on programs and services. MSD performs outreach and education routinely on social media, its

Customer Accounts Profile

The Metropolitan Sewer District serves approximately 239,370 customer accounts, according to 2021 billing records. Operating expenses include chemicals, power, materials and supplies, labor and technical or professional expert services. Expenses are primarily recovered from the collection of sewer service charges that are billed to customers.

The District's annual revenue requirements consist of covering anticipated operation and maintenance expenses, debt service payments for existing and proposed bonds, annual equipment purchases, and maintaining sufficient debt service coverage levels as required by financial policy and bond covenants.

MSD undergoes a financial audit to ensure accountability and effectiveness. On June 22, 2021 MSD Earned a "Clean Opinion" from State Auditor on 2020 Financial Audit. For the 5th year in a row, MSD has received an unmodified or "clean" opinion from the State Auditor's office for its annual financial audit. This is the highest opinion an entity can receive from the auditor's office and means that MSD has fairly represented its financial position in accordance with general accounting principles.

Top 44 Customers	Total Usage (CCF) 2020
C M H A	651,501
Emery Oleochemicals Llc	438,703
General Electric	382,864
University Of Cincinnati	247,466
Vvf Cincinnati Llc	228,958
Procter & Gamble Cincinnati Plant	205,308
Metropolitan Sewer District	194,388
Childrens Hospital Medical Center	184,689
Procter & Gamble	154,138
John Morrell & Co	150,316
Rhodia Inc	116,644
Givaudan Flavors Corporation	109,884
Rre Williamsburg Holdings Llc	104,897
University Hospital	102,401
Dystar Hilton Davis Inc.	97,453
Fath Management	97,371
Carew Realty Inc	91,260
Kroger Store	89,705
Sun Chemical Co	86,393
Samuel Adams Brewery Co Ltd	85,761
Rumpke Sanitary Landfill Inc	77,612
Wornick Tr, Ronald C	73,164
Aspen	72,327
Ford Motor Co	71,666
Good Samaritan Hospital	71,466
The Christ Hospital	67,078
Ccb Cc Operations Llc	59,310
Zwanenberg	56,878
Cincinnati Zoo	54,122
Kao Usa Inc	52,598
Kroger Co	52,528
Patheon Pharmaceuticals Inc	52,125
Downtown Property Mgmt Inc	51,589
Towne Properties	45,322
Maple Knoll Communities	45,235
Gaslight Property Llc	44,997
Cincinnati Renewable Fuels Llc	44,589
Bethesda Properties Inc	43,310
Forest Ridge Associates Llc	40,818
Rmf Holdings Llc	40,625
U S Post Office	40,152
Empire Packing Company, Llp	40,130
Fay Management Inc	39,017
General Mills Operations Inc.	38,784

The District's Financial Performance

MSD's Financial Planning Commitment

The ten attributes here are important guiding principles to ensure strong financial management.

Top Ten S&P Management Attributes	MSD's Performance
1. An established rainy day/budget stabilization reserve.	The District maintains strong liquidity, including the Operating Fund at 60 days of O&M, a construction fund with a balance that fluctuates based on anticipated near-term capital spending, and a reserve fund (Surplus Fund) with an unencumbered beginning of year balance at or above that expected by Rating Agencies for AA rated utilities
2. Regular economic and revenue reviews to identify shortfalls early.	• Budget analysts review monthly variance reports • Quarterly Reports are prepared and discussed for both the O&M and Capital Budgets, and presented to the BOCC • Quarterly financial reports are prepared and available for review
3. Prioritized spending plans and established contingency plans for operating budgets.	• Annual budget process prioritizes needs • Mid-year, MSD recommends potential budget adjustments to the Board for consideration
4. A formalized capital improvement plan in order to assess future infrastructure requirements.	• Annual budget includes a five-year capital improvement program • CIP budget is developed through a robust prioritization process, as well as long-range financing planning to understand impact
5. Long-term planning for all liabilities of a government, including pension obligations, other post-employment benefits and other contingent obligations would be optimal and allow for assessment of future budgetary risks.	• Financial statements are presented on the accrual basis of accounting • Revenue and Expenses are recognized in the period earned or incurred
6. Capital financial planning to mitigate costs.	• The District evaluates CIP funding options to minimize costs to customers and pursues low interest loans through OWDA whenever possible • The remainder of the capital program is funded via the reserve fund (Surplus Fund), with new revenue bond issuances secured as needed • Each year during the budget process, the District prepares a long-range financial plan, including a capital financing plan
7. A pay-as-you-go financing strategy as part of the operating and capital budget.	• The District finances the capital program through a mix of cash and debt. Strong debt service coverage provides the vehicle for cash financing of a portion of the capital program • The District's operating budget is fully funded through annual revenues

Financial Performance (continued)

Top Ten S&P Management Attributes	MSD's Performance

8. A multi-year financial plan in place that considers the affordability of actions or plans before they are part of the annual budget.	• The District prepares a long-range financial plan each year during the budget process. Plan includes the 5-year period of the CIP budget, plus 5 or more additional years to anticipate future requirements
	• Recommendations for revenue increases are based on:
	  • Minimizing required revenue increases
	  • Leveling revenue increases to the extent possible
	  • Maintain strong debt service coverage at AA-rated level
	  • Fully fund the capital program through a mix of cash/debt that minimizes cost to customers

9. Effective management and information systems.	• The District uses an integrated Cincinnati Financial Systems (CFS) to record income and expense on a cash basis, and a Payroll system (CHRIS) and other program-specific systems that capture and report critical operating information
10. A well-defined and coordinated economic development strategy.	• Direct communication between the District and the Board is essential • The District regularly communicates with the BOCC and stakeholders regarding the District's financial decisions and the impact on District customers • The District has an established Small Business Enterprise Program • Rates need to be sufficient to maintain financial strength and resiliency to meet unanticipated needs

Attributes adapted from Milwaukee MSD

Revenue Projections for 2022

MSD revenue is projected to be $270.8 million in 2022, a slight increase from declines experienced in 2019-2021. Revenues are collected to cover the costs of providing wastewater service and are derived principally from sewerage service charges, excess (high) strength surcharges, industrial pretreatment, and septic tank disposal charges. Other revenue sources include the fees from permits and licenses, plan review and inspection fees, connection charges, interest earned from the investment of available funds and other miscellaneous sources. Future revenues are predicated on a no-growth scenario.

MSD is currently serving approximately 239,370 customer accounts. The revenue projections assume the number of customers served by the District will remain unchanged during the study period outlined below and in the anticipated rate study.

Like many utilities, MSD has experienced a trend of declining volume per customer for many years. Declining volume has been common across the U.S., as customers install higher efficiency appliances and have become more conservation minded. More recently, billed volume has stabilized.The COVID-19 Pandemic has impacted the District, with 2020 billed revenues coming in as projected at $266 million, which was a decline of 3.4% from 2019. The District is experiencing some recovery in 2021, and anticipates further recovery in 2022 to 2019 levels.

Projected revenues also reflect the District's Customer Assistance Program (CAP). MSD currently has approximately 2,100 ratepayers enrolled in the CAP with a corresponding reduction in 2021 revenues of approximately $238,000. MSD expects enrollment in this program to continue to increase as MSD's outreach efforts continue and, as such, the impact on revenues will continue to grow in future years.

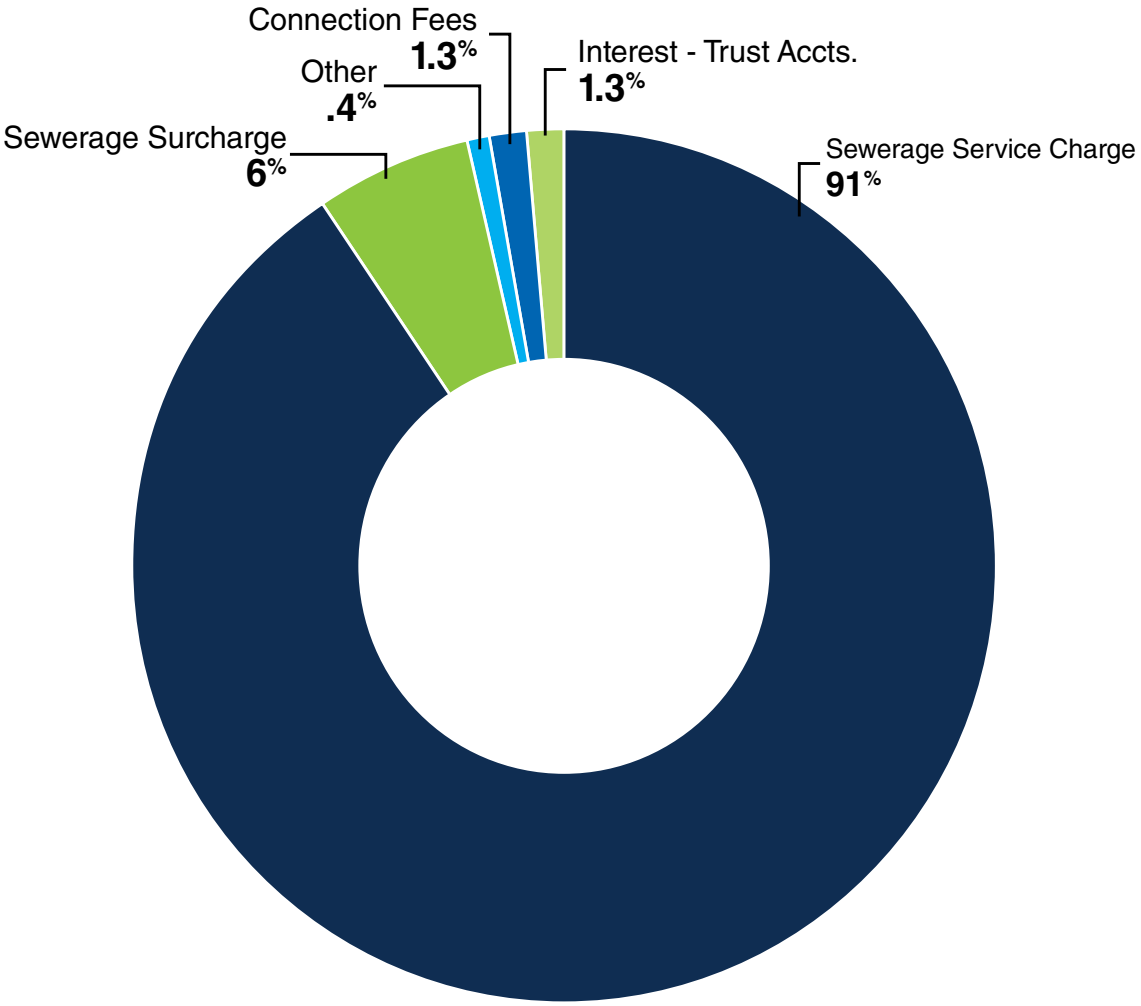
The last rate increase was adopted by the Board in January 2015. Each year, MSD has performed a rate study to determine if a revenue adjustment/rate increase recommendation is warranted. Without adjustments to rates in 7 years coupled reduced revenues from reduced volumetric and surcharges charges, COVID-19 impacts and rising cost of chemicals, fuel, supplies, parts and labor, MSD is recommending a rate increase to protect debt service coverages.

The average single-family household pays about $610/year for the essential services of sewer collection and treatment.

Revenue Source	2017	2018*	2019*	2020	Projection 2021	Projection 2022
Sewerage Service Charge*	$258,453,963	$268,547,192	$247,919,016	$239,935,595	$242,324,539	$245,645,585
Sewerage Surcharges	$17,992,210	$16,908,706	$17,054,508	$15,433,357	$15,433,357	$15,433,357
Septic Tank Disposal	$1,705,442	$1,651,326	$1,901,365	$1,571,469	$1,587,184	$1,603,056
Pretreatment Monitoring	$431,200	$355,415	$386,173	$223,974	$226,214	$228,476
Rental Income	$99,150	$109,450	$149,200	$146,850	$148,319	$149,802
Tap Permits-Licenses	$139,036	$34,170	$57,144	$29,920	$30,219	$30,521
Inspection-Plan Review	$202,460	$153,232	$359,022	$234,727	$237,074	$239,445
Other	$2,067,920	$1,446,255	$1,314,889	$574,088	$579,829	$585,627
Connection Fee Revenue	$2,726,030	$2,944,764	$4,036,468	$3,448,617	$3,483,103	$3,517,934
Interest-Trust Accounts	$2,389,387	$4,024,402	$3,298,389	$3,415,783	$3,059,313	$3,441,438
Build America Bond Discount	--	--	$2,768,498	$1,437,985	--	--
Homestead CAP	--	--	$(31,000)	$(189,500)	$(266,000)	$(272,000)
Total Operating Revenue	**$286,206,797**	**$296,174,911**	**$279,244,671**	**$266,452,366**	**$267,109,151**	**$270,875,241**

**Monthly billing was instituted in January 2018, resulting in 2018 revenues including 2017's last quarter and 2018 revenues collected.*

Revenue Projections for 2022



2022 MSD Cost Control Measures

Achieved by MSD in the last 10 years

Since the last time rates were adjusted, the consumer price index has increased by about 16%. MSD has implemented many cost savings initiatives over the last several years – through project selection, creative workforce management, strategic contracting, and coordination with partners. Here are just a few examples to demonstrate MSD's excellence in stewardship of ratepayer funds received from sewer revenues; these examples alone total at least $320M since 2015.

Lower Mill Creek Partial Remedy **Savings of $170M**	MSD competed construction of the Revised Original LMCPR in January 2020 and it was delivered under the project budget of $244M (2006$). If MSD had not developed that alternative, a deep tunnel that was estimated to cost $414.4M (2006$) would have been constructed instead. MSD's recommended alternative saved MSD ratepayers $170M.
Flow Monitoring **Annual savings since 2015 of $2M**	MSD substantially reduced the costs attributed to flow monitoring through the use of smart sensors. Up to 2013, MSD spent approximately $4.5M annually on flow monitoring alone. Following the implementation of enhanced procedures and advanced telemetry equipment in 2014-15, MSD now spends approximately $2.5M annually on all its remote data collection activities, which now encompass more than twice as many locations.
Consolidation of Divisions **Savings of $612,500**	In 2020, MSD reorganized 4 divisions into 2 divisions, eliminating two senior management positions while retaining all functionality and services. Finance and Accounting consolidated into Wastewater Administration, and Watershed Operations (WO) was distributed among Treatment, Collection, and Compliance divisions.
Unspent Budget Authority since 2015 **Savings of $46.3M**	MSD not only manages within the authorized budget, but in most years, delivers its services below the authorized budget. In any given year, there are operational needs that fluctuate and MSD is continuously managing within dollars allocated MSD works carefully to not spend unnecessarily and often returns budget authority at the end of each year.

Personnel	$5,489,997
Non-Personnel	$40,098,154
OTEA	$775,179
Total unspent operating budget 2015-2020	$46,363,330

2022 MSD Cost Control Measures

MSD has refinanced at lower interest rates **Saving of at least $85M**	MSD actively participates with the Couty Administration to secure lower interest rates to benefit ratepayers.
FEMA grant secured $5.5M project with 85% federal/state grant **Federal & state grant: totals $4.2M**	In 2021, the Federal Emergency Management Agency (FEMA) awarded MSD a $5.5M grant to purchase 31 Muddy Creek residential parcels. The grant will support the voluntary purchase of these residential and vacant properties. MSD also secured additional FEMA and OEMA approval to utilize contingency funds to provide "gap funding" to facilitate closings and help residents find safe and affordable replacement housing. The project grant has 61.97% funding from FEMA and 10.33% funding OEMA and 27.70% from MSD. The approval from FEMA/OEMA allows MSD to use any remaining funds from the grant program not spent by OEMA for the gap funding to reduce the likelihood that these funds will have to come from MSD, resulting in the MSD share being 12.5%.
MSD Cost Control Measures (Subtotal)	**At least $320 Million since 2015**

2022 Operating Budget Request

Overall Request

MSD's operating budget covers everyday costs to run the wastewater utility in a manner that allows MSD to meet permit requirements and follow best management practices to operate in an efficient, financial and sustainable way. Some of the larger costs are electricity, chemicals, personnel and repayment of debt.

MSD's budget is primarily divided into personnel, non-personnel, and debt payment. Debt payment is the principal and interest payments on bonds sold to fund the capital improvement program (CIP).

MSD has developed the 2022 budget based on the utility's needs, industry standards and obligations of the District. This operating budget request represents $14.2 million increase (6.38%) in operating budget from 2021. Some primary drivers of the additional funding is increased chemical costs, new costs to maintain new assets, special cleanings or assessments needed or new initiatives, power, critical parts and equipment to maintain the billions of dollars of assets, and other items that are outlined on pages 26and27.

MSD's 2022 Operating Budget Request, excluding Debt Payment and the Sewer Backup Program (SBU), is $140.8 million.

*NOTE: MSD dissolved Watershed Operations in 2021 and reallocated the staff and work into CS, WWC and WWT. CS received about 65% of the workload and budget, the rest was split between WWC and WWT. This change is now reflected in the 2022 budget request and therefore CS, WWC and WWT budget requests reflect those reallocated functions previously assigned to Watershed Operations.

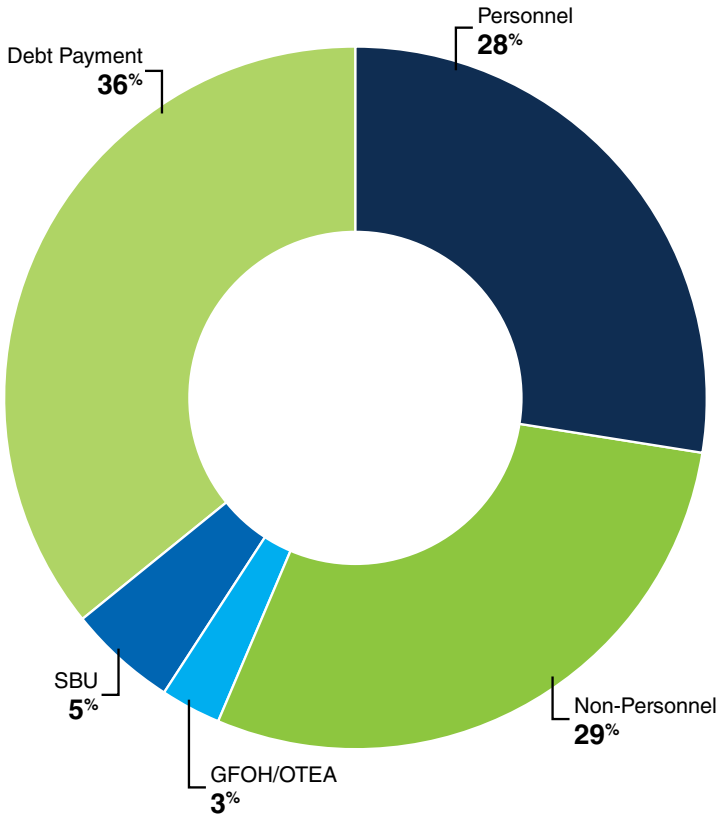
Based on the elimination of Watershed Operations in 2021, the 2021 total nonpersonnel budget of $6,398,500 was allocated to:

- 8% to WWC (Stormwater Control Measures)
- 27% to WWT (Wet Weather Facilities and Pump Stations)
- 65% to CS: (modeling, flow/remote monitoring, optimization and wet weather SCADA)

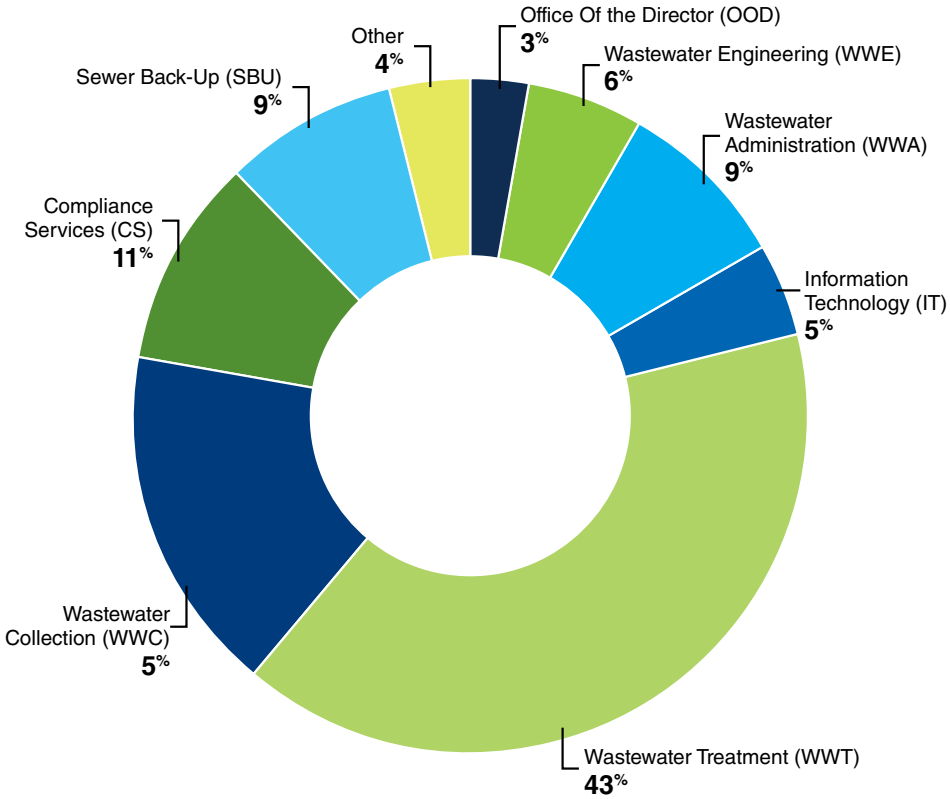
DEPT.	2022 Request
Personnel	**$65,431,020**
Office of the Director (OOD)	$2,607,330
Wastewater Engineering (WWE)	$8,211,744
Wastewater Administration (WWA)	$4,947,237
IT Division (IT)	$2,435,301
Wastewater Treatment (WWT)	$25,332,415
Wastewater Collection (WWC)	$13,431,143
Compliance Services (CS)	$7,512,352
Sewer Backup Program (SBU)	$953,498
Non-Personnel (without SBU)	**$69,101,648**
Office of the Director	$1,218,739
Wastewater Engineering	$864,088
Wastewater Administration	$7,231,156
IT Division	$4,449,255
Wastewater Treatment	$35,215,466
Wastewater Collection	$12,281,674
Compliance Services	$7,841,270
Other Non-Personnel	**$6,266,000**
GFOH	$2,600,000
FLEET	$2,016,000
OTEA	$1,650,000
Subtotal (w/o SBU & Debt Payment)	**$140,798,667**
SBU	**$11,213,263**
Debt Payment	**$85,000,000**
Grand Total	**$237,011,930**

2022 Operating Budget Request

Overall Request by Category



Non-Personnel Request by Division



2022 Operating Budget Request

2022 Overall Request vs. 2021 Budget

The Personnel budget increase of approximately $3.4 million is due to the following:

- 5% health care increase
- 2% COLA increases (estimated, negotiations resulted in 5% COLA for ASFME)
- 3% Merit increases (where eligible)
- Addition of 4.0 FTE in Treatment, all AFSCME positions based on basic services

The Non-personnel budget, excluding SBU, is $8.88M higher or 14.74% than the 2021 adopted budget. Non-personnel Cost increase are summarized below and further discussed in subsequent pages.

The 2022 debt payment request is $85.0 million and represents 36% of the overall operation budget request.

2021 Approved Budget vs. 2022 Overall Request

DIVISION	2021 BUDGET	2022 REQUEST	CHANGES FROM 2021 BUDGET TO 2022 REQUEST	
PERSONNEL	**$61,996,500**	**$65,431,020**	**$3,434,520**	**5.54%**
OOD	$2,438,574	$2,607,330	$168,756	6.92%
WWE	$8,000,537	$8,211,744	$211,207	2.64%
WWA	$4,714,378	$4,947,237	$232,858	4.94%
IT	$2,372,665	$2,435,301	$62,636	2.64%
WWT (*See note page 14)	$22,174,453	$25,332,415	$3,157,962	14.24%*
WWC (*See note page 14)	$12,481,170	$13,431,143	$949,973	7.61%*
CS (*See note page 14)	$5,637,659	$7,512,352	$1,874,693	33.25%*
WO (*distributed to CS, WWT, WWC)	$3,248,090	$(3,248,090)	$(3,248,090)	--
SBU	$928,974	$953,498	$24,524	2.64%
NON-PERSONNEL (without SBU)	**$60,222,412**	**$69,101,648**	**$8,879,235**	**14.74%**
OOD	$1,159,726	$1,218,739	$59,013	5.09%
WWE	$879,604	$864,088	$(15,516)	-1.76%
WWA	$7,054,917	$7,231,156	$176,239	2.50%
IT	$4,171,989	$4,449,255	$277,266	6.65%
WWT (*See note page 14)	$27,587,099	$35,215,466	$7,628,367	27.65%*
WWC (*See note page 14)	$10,414,860	$12,281,674	$1,866,814	17.92%*
CS (*See note page 14)	$2,555,717	$7,841,270	$5,285,553	206.81%*
WO (*distributed to CS, WWT, WWC)	$6,398,500	$(6,398,500)	$(6,398,500)	
OTHER NON-PERSONNEL	**$5,989,535**	**$6,266,000**	**$276,465**	**4.62%**
GFOH	$2,657,210	$2,600,000	$(57,210)	-2.15%
FLEET	$1,777,000	$2,016,000	$239,000	13.45%
OTEA	$1,555,325	$1,650,000	$94,675	6.09%
SUBTOTAL (W/O SBU & DEBT PAYMENTS	$128,208,447	$140,798,667	$12,590,220	9.82%
SBU	$10,993,396	$11,213,263	$219,867	2.00%
Debt Payment	**$83,586,000**	**$85,000,000**	**$1,414,000**	**1.69%**
GRAND TOTAL	**$222,787,843**	**$237,011,930**	**$14,224,087**	**6.38%**

*see note on page 14

2022 Operating Budget Request

Many sectors of the economy are experiencing significant increases in the costs of goods and services; MSD has been impacted and is not alone among peer utilities. In a survey of 107 small, medium and large utilities, 55% said that they were experiencing disruptions or increased costs for chemicals and other supplies in the last 6 months. In some cases, MSD vendors have canceled contracts due to their inability to provide materials at the contracted price which necessitated getting new contracts. While this MSD budget request was being prepared, two large increases emerged for 2022 in the amount of $2M: polymers used to process solids and incinerator ash lagoon cleaning costs. This $2M additional cost is not reflected in the requested dollars. To mitigate for this, MSD will attempt to manage within budget, track expenditures carefully throughout the year and report to the Board quarterly or monthly if the need arises. However, it is possible for additional funding may be needed and requested mid-year.

2020 Actual Expenditures vs. 2022 Overall Request

DIVISION	2020 ACTUAL	2022 REQUEST	CHANGES FROM 2020 ACTUAL TO 2022 REQUEST	
PERSONNEL	**$57,403,707**	**$65,431,020**	**$8,027,313**	**13.98%**
OOD	$2,221,536	$2,607,330	$385,794	17.37%
WWE	$7,177,032	$8,211,744	$1,034,713	14.42%
WWA	$4,290,665	$4,947,237	$656,572	15.30%
IT	$2,433,375	$2,435,301	$1,927	0.08%
WWT (*See note page 14)	$20,466,738	$25,332,415	$4,865,677	23.77%*
WWC (*See note page 14)	$11,990,068	$13,431,143	$1,441,075	12.02%*
CS (*See note page 14)	$5,026,552	$7,512,352	$2,485,800	49.45%*
WO (distributed to CS, WWT, WWC)	$3,186,014	$(3,186,014)	$(3,186,014)	
SBU	$611,726	$953,498	$341,772	55.87%
NON-PERSONNEL (without SBU)	**$55,853,473**	**$69,101,648**	**$13,248,175**	**23.72%**
OOD	$681,843	$1,218,739	$536,897	78.74%
WWE	$437,752	$864,088	$426,335	97.39%
WWA	$6,817,866	$7,231,156	$413,290	6.06%
IT	$3,982,071	$4,449,255	$467,184	11.73%
WWT (*See note page 14)	$26,447,131	$35,215,466	$8,768,335	33.15%*
WWC (*See note page 14)	$8,738,617	$12,281,674	$3,543,057	40.54%*
CS (*See note page 14)	$1,434,011	$7,841,270	$6,407,259	446.81%*
WO (*distributed to CS, WWT, WWC)	$7,314,183	$(7,314,183)	$(7,314,183)	
OTHER NON-PERSONNEL	**$5,356,223**	**$6,266,000**	**$909,777**	**16.99%**
GFOH	$2,582,066	$2,600,000	$17,934	0.69%
FLEET	$1,492,443	$2,016,000	$523,557	35.08%
OTEA	$1,281,714	$1,650,000	$368,286	28.73%
SUBTOTAL (W/O SBU & DEBT PAYMENTS	$118,613,403	$140,798,668	$22,185,264	18.70%
SBU	$9,088,195	$11,213,263	$2,125,068	23.38%
Debt Payment	**$80,623,737**	**$85,000,000**	**$4,376,263**	**5.43%**
GRAND TOTAL	**$208,325,336**	**$237,011,931**	**$28,686,595**	**13.77%**

*see note on page 14

2022 Major Non-personnel Increases

This table summarizes some of the drivers of non-personnel cost increases of MSD's 2022 operations, which totals $9,175,785.

Chemical Cost Increase	Chemicals used in the treatment of wastewater and odorous air. Actual contract costs have increased for polymer and chlorine. This increase is due to the demand spike in disinfection chemicals and are actual increases to contracted values. In the last 6-9 months the industry has seen significant cost increases due in part to COVID. The amount increased does not reflect increased costs for new polymer contract.	**$1,703,720**
O&M of New Wet Weather Assets	The Lick Run Greenway is now complete with annual O&M costs. While Green Infrastructure is lower cost than grey solutions. Solutions like Lick Run do need resources for maintenance. With 2022 being the first full year of operation, MSD may need additional funds for the nontraditional CSO solution as it monitors performance in 2022. New wet weather facilities including Wooden Shoe, DUCs 083, 472, Little Miami interceptors/RTC will be monitored for performance to prepare for optimization and ensure they are working properly. Monitoring is planned to include post-event data validation and performance evaluations for all facilities. Develop and implement coordinated control logic for Wooden Shoe Wet Weather Facility (Mill Creek Basin) to optimize the facility's performance and tie-in to Smart Sewer System for maximum system-wide overflow reduction along with refinement and identification of new opportunities. MSD will collect remote data and QA/QC 200+ permanent and project-based flow monitoring for model calibration and Phase 2A planning, 300+ outfall level sensors for regulatory reporting, and 50+ stormwater restriction devices for extreme wet weather event mitigation.	**$716,500** **$285,000** **$225,000** **$205,000**
Wet well cleaning	MSD needs to perform routine cleaning of the north wet well at Mill Creek to eliminate large quantities of grease and grit and prevent fire hazards. This is a proactive measure that represents a safety risk. The grease causes wear and tear on pumps that can cause damage; will be more costly if damage occurs. Last cleaning was in 2016 and should be performed every few years.	**$1,043,000**
Exceptional Needs: These were not included in prior budgets	MSD anticipates the need to perform operational enhancements to existing MSD Green Infrastructure (GI) installations. MSD is also considering other innovative opportunities to help MSD more strategically utilize GI and other Stormwater Control Measures (SCMs). Funding would be used for contract support and pilot project development. Optimization/operational enhancements or implementation of with stormwater infiltration wells, real time controls on retention and detention basins, and other innovative solutions to help MSD optimize GI and other SCMs. Phased digester cleaning staggered over multiple years as a Mill Creek odor risk mitigation. Evaluations at all MSD facilities for electric vehicle usage for MSD fleet.	**$500,000** **$300,000** **$200,000**

2022 Major Nonpersonnel Increases

Critical Parts/ Process Areas	Building repairs such as generator repair and service, AC upgrades.	**$76,730**
	Electrical and pumping machinery, parts, technical equipment and equipment repair.	**$195,100**
	Expert services for WWTP performance evaluations to assist with compliance needs.	**$173,850**
	Grounds maintenance contracts to reduce risk of injury from mowing steep slopes and focus internal crews on maintaining mission critical facilities.	**$90,570**
	Skim bags have proven to be an effective odor control measure in skimming process area. The cost has increased by the supplier and other bags are being tested but overall, the cost is higher.	**$90,570**
	Additional centrifuge motors and parts to mitigate risk of major dewatering failure. All are at the end of their useful life.	**$305,880**
	Replace aging equipment at various West Side facilities.	**$106,725**
Power Increases	The cost of power is anticipated to increase.	**$973,130**
Disposal Cost Increases	Expected annual increase based on the Rumpke contract.	**$672,225**
Anticipated Goods and Service Increases	This represents the cost of a general 2% increase to non-personnel spending for those object codes not otherwise noted. This is straight 2% and is based on pricing changes experienced in the last 12 months.	**$491,285**
Organizational Needs to support Personnel	Costs for IT services provided via ETS and CAGIS, reflective of increased demand due to cybersecurity requirements.	**$227,200**
	Subscription and memberships to industry leading organizations that provide benefit to MSD operations.	**$59,100**
	This increase would provide for additional office furniture and tool organization.	**$15,000**
	These resources would provide BIM training for employees on 3D models.	**$45,830**
	Training and attendance at specialized professional, technical meetings.	**$80,390**
Contract Increases	Additional assistance with year-end GCWW Billing catchup. Watershed SCADA maintenance and system support cost increases. HVAC contract for numerous MSD facilities.	**$428,500**

Becoming a Utility Of The Future

MSD has been working on several strategic initiatives aligned with MSD's vision to fulfill its mission and become a utility of the future. Following industry best practices, some of MSD's strategic initiatives are outlined below.

- **Resource recovery, efficiency and biosolids diversification**
  - The future Little Miami anaerobic digester will allow MSD to beneficially reuse biosolids. Part of the design of this project in the 5-year CIP will consider maximization of the planned solids handling and treatment facility including processes and procedures, staffing and contracting needs, cost of service and potential beneficial reuse opportunities.

- **Enhanced rate structure**
  - MSD began an evaluation of a rate structure enhancement which included imperviousness and wet weather flows as factors that impact MSD cost of service. A feasibility study and recommendation to the Board is on schedule for the end of the year. MSD facilitated an agency task force and stakeholders group to gain input into the study. If the Board advances this further, various next steps and implementation would follow. Such tasks include billing system updates and coordination, outreach and communication, and other efforts to ensure the new process hits the mark for affordability and enhanced equity. The implementation plan is not currently budgeted in this request.

- **Access to MSD - MSDs new website**
  - MSD will continue to find opportunities to share our story and provide progress updates. In 2022, MSD will roll out a new external website and internal dashboard that will help with information and transparency across the utility and to our customers.

- **SBU Mitigation Approaches to reduce risk of sewer backups**
  - MSD is creating "tools" to inform and incentivize actions for property owners to take preventative actions. MSD plans to create an implementation plan that will help property owners be more proactive to mitigate risk of SBUs. MSD envisions a focus group and/or stakeholder group in 2022. Tools may include inform and influence strategies, lateral insurance options, rules and reg changes, BMPs that may include incentives for private properties to implement downspout disconnections, rainguards/barrels and proactive backup prevention.

- **Sustainability**
  - MSD is benchmarking sustainability metrics and developing a plan to improve use of material resources including energy, supplies, and other inputs, and seek to reduce, re-use, and recycle to lessen our contributions to landfill and greenhouse gas emissions in our operations. MSD also considers issues associated with extreme weather and adaptation issues and opportunities. MSD promotes diversity, inclusion, equity, innovation, and wellness both within District operations and the service area.

- **Capital Financing Plan**
  - MSD has access to low interest loans from State Revolving Loan Fund Program, FEMA grants, Infrastructure Bill and WIFIA, and MSD desires to find more funds like this to offset ratepayer funds, diversifying sources.

2022 Budget Request by Division

Office of the Director (OOD)

Lick Run Ambassadors help MSD create a presence along the Greenway with general cleanup activities, creating educational opportunities & progamming around stormwater management, nature and the functions of Lick Run as a clean water solution. An important role ambassadors are also playing is community ownership & participation in creating a dialogue around clean water solutions, environmental justice and sustainability.

OOD works to align resources and efforts, between and among MSD's divisions to achieve the organizational mission, ensuring the utility is performing the necessary tasks in a fiscally responsible, efficient, business-like, and sustainable manner today, and for the future.

OOD develops the strategies for the operation, oversees the implementation and facilitates outreach and communication to partners, stakeholders, customers and policymakers.

Guiding, and assisting MSD to achieve its mission, OOD directs and manages a variety of strategies, tasks and workflows. The division tracks performance for each MSD division and oversees bi-annual staffing plan updates and the operating budget. It develops, communicates, and measures organizational goals; ensures implementation of City and County policies; coordinates the global needs of the utility; and provides recommendations to the County Commissioners, County Administration, and the City Manager. The goal of OOD is to help MSD become the utility of the future, leading for staff to realize its vision.

Within OOD, MSD's real property acquisition and maintenance is housed along with the utility's legislative functions, public records requests and special community resiliency programs such as the Customer Assistance Program (CAP) and the Muddy Creek FEMA project.

OOD directs, produces and oversees internal and external communication and public engagement efforts and serves as a resource to local organizations, community councils, boards, commissions, municipalities, and associations. MSD's legal counsel is housed within OOD which are provided by the City Solicitor.

legislation | legal | public records | communications | budget | oversight | community outreach | twitter | FB | special projects | grants | CAP | strategic plan

2022 Budget Request by Division

Office of the Director

Highlights from the last year

Muddy Creek Hazard Mitigation FEMA/OEMA Grant

In 2021, the Federal Emergency Management Agency (FEMA) awarded MSD a $5.5M grant to mitigate the flooding and sewer backup hazards identified in 35 Muddy Creek residential parcels in Cincinnati and Green Township. The majority of the parcels, built after the public sewer was installed in the 1950s, sit below the sewer's elevation. When heavy rains occur, overland flow mixed with sewage from overflowing manholes create repetitive flood damage. The grant will support the voluntary purchase of these residential and vacant properties. MSD has been working closely through virtual public meetings and individual outreach to owners and has begun acquisition. MSD will develop conceptual plans for the site in late 2022.

Utility Assistance & Delinquency Forgiveness

The City of Cincinnati and Hamilton County provided federal funds for MSD ratepayers to assist in meeting their payment obligations for MSD services during the COVID-19 pandemic's economic downturn. OOD worked with City and County agencies to help identify MSD customers needing this assistance and the level of debt that needed to be repaid. Through mid-October 2021, $333K in federal relief funds has been applied to MSD sewer charges. Additionally, MSD worked with GCWW to mitigate shutoff of service during the economic downturn and over 12,000 accounts received special pandemic disconnection relief.

Community Assistance Program (CAP)

Since 2019, MSD has implemented the CAP by offering a 25% discount in sewer rates for eligible low-income seniors. As of Fall 2021, MSD currently has approximately 2,100 ratepayers enrolled in the CAP and anticipates a reduction in 2021 revenues of approximately $238,000. The average savings to seniors is about $9.78/month and on average about $117/year. MSD conducts CAP outreach through a variety of outlets to be used in 2022. CAP enrollment is available online @ www.msdgc.org

Lick Run Dedication, and "Ribbon Tying" and widespread use as the Largest GI Installation for CSO Control

In May 2021, MSD, the City of Cincinnati, and Hamilton County dedicated the Lick Run Greenway site for a "ribbon tying" ceremony, signifying the connections and partnerships that made the Lick Run Greenway possible. The Greenway is the innovative conveyance system that helps MSD reduce overflows by over 900 MG in South Fairmount with the RTC facility and doubles as an environmental interpretation and recreational space for the community to enjoy.

Lick Run Ambassador Program

MSD developed an ambassador program, partnering with Keep Cincinnati Beautiful, CRC, Groundwork Ohio River Valley and Mill Creek Alliance to assist with maintenance and support for the Lick Run Greenway. MSD partnered with CRC's Summer Youth Employee Program and ambassadors worked 20 hours per week for a 24-week season at the Lick Run Greenway. MSD also contracted with Groundwork Ohio River Valley (GORV) to manage and supervise the Summer Youth Employee Program crews. The contract with GORV and CRC for the Ambassador Program was less than $80,000.

Enhanced Rate Structure Feasibility, Agency & Stakeholder Engagements

In February 2021 MSD began a feasibility study to evaluate enhancements to MSD's rate structure. In 3 months MSD facilitated 4 Agency task force meetings, 4 stakeholder meetings and engaged selected members in the process. MSD is planning to update the BoCC before the end of 2021. If the Board chooses to proceed, MSD is ready to develop a comprehensive implementation plan in 2022. The implementation plan would entail billing system updates, customer coordination, outreach and communication.

New Initiatives For the New Year

New Website Training

Once MSD's new Content Management based website redevelopment and redeployment is complete, MSD will have a web presence with content that can be maintained and enhanced by a variety of authors across MSD's seven divisions. While OOD maintains overall control over a new www.msdgc.org website, it will no longer be the sole editor and content creator. OOD will providing training to all MSD web content creators in the new Mura content management software. The new website content creation training will be completed by the end of 2022.

"Five Cities +" Conference

Cincinnati will host an annual conference of five metropolitan area sewer districts in 2022. Originally scheduled for 2020, the COVID-19 pandemic disrupted this event as it did many others. Since 1989, Cincinnati, Louisville, St. Louis, Indianapolis, and Columbus have met to promote the common interest of the improvement of business conditions in the municipal wastewater industry. Since the early 2000s, additional sewer agencies, like Sewer District No. 1 of Northern Kentucky, have joined the original five. In 2022, OOD, with assistance from all MSD divisions will lead this conference's organizing.

Billing and Operations Agreements

MSD relies upon billing and collection services for sewer revenues from eight municipalities or villages that are a part of MSD but have their own water and billing/collection systems. Addyston, Cleves, Lockland, Loveland, Norwood, Reading, the City of the Village of Indian Hill, and Wyoming are the municipalities and villages. Additionally, MSD has agreements with two surrounding counties, Clermont and Warren, for sewerage services exclusively provided by MSD or mutually provided to each county. Seven of the eight "municipal" agreements require renewal, as does one of the two county agreements. MSD will pursue review, discussion, and negotiation of these billing, collection, and operations agreements in 2022.

Utility Pipeline and Facility Workforce Development Partnership

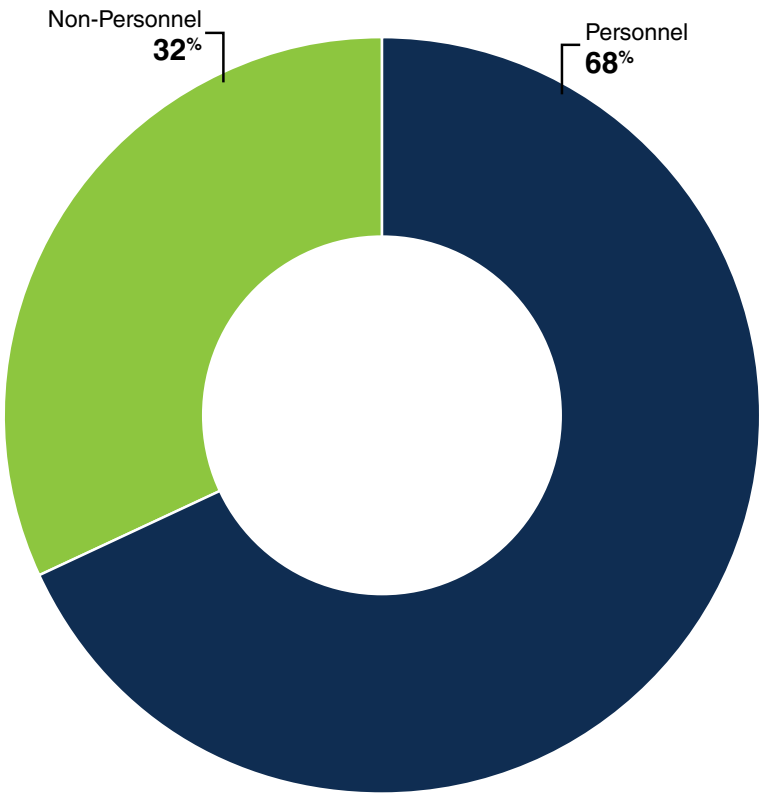
There is high demand for skilled utility pipeline and facility workers in both public and private sectors. This includes Storm and Sanitary sewer, Natural gas, Telephone and Water. Technicians and Operators with CDL, Equipment Operators, Welding, Electrical, Mechanical, and utility pipeline related trade skills. MSD is partnering with other utilities and Butler Tech to offer curriculum starting Spring 2022 to meet this industry demand. Credentials on the program include CDL Class A, OSHA 30 HR, and Utility Pipeline Installer Certification.

Participation in and Update of the Hamilton County Multi-Hazard Mitigation Plan

In an average year, approximately 4,000 structures in MSD's Service Area are impacted from extreme wet weather. Of these, about 15% are eligible for coverage under MSD's sewer back up program. The other 85% are attributed to overland flow or conditions on private property and are the owner's financial responsibility. Over the last 20 years, average annual rainfall in Hamilton County has increased by 15%, from 39 inches per year to 45 inches per year, and this trend is expected to continue. During the same period, the number of extreme storms, those delivering 2 inches of water or more in 24 hours, have increased 40%. MSD welcomes partnerships with EMA and others to improve preparedness of our ratepayers.

2022 Budget Request by Division

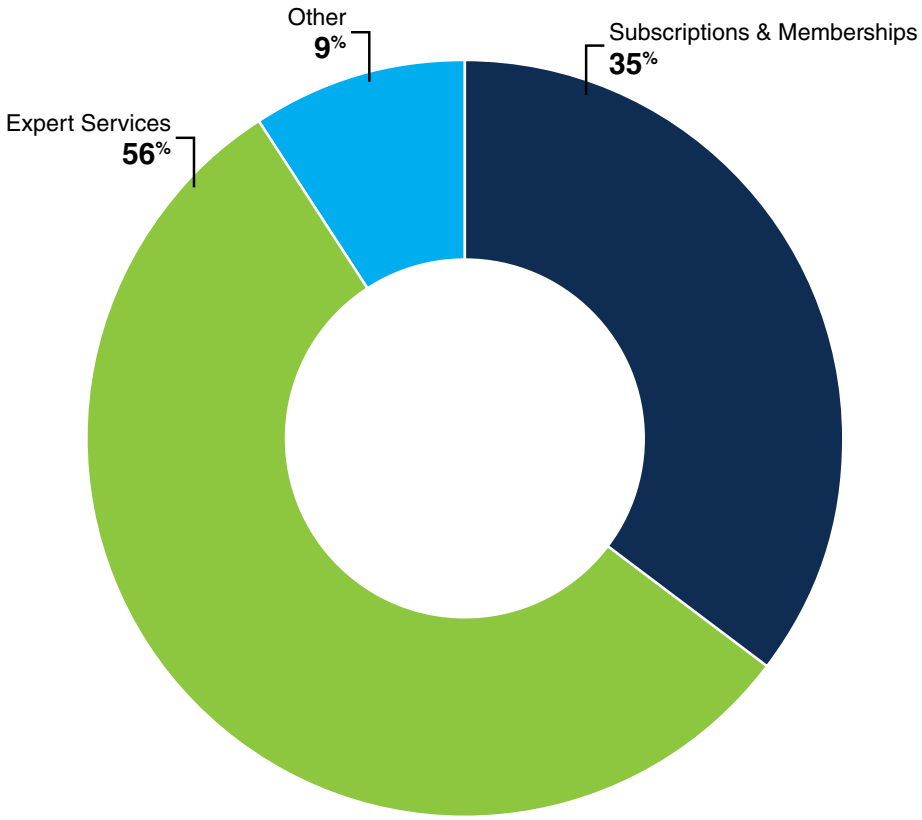
Office of the Director Budget Request



Dept.	2020 Actual	2021 Budget	2022 Request	Changes From 2020		Changes From 2021	
					%		%
OOD (410)	$2,903,379	$3,598,300	$3,826,069	$922,690	31.78%	$227,769	6.33%
Personnel	$2,221,536	$2,438,574	$2,607,330	$385,794	17.37%	$168,756	6.92%
Non-Personnel	$681,843	$1,159,726	$1,218,739	$536,897	78.74%	$59,013	5.09%

2022 Budget Request by Division

OOD Non-Personnel Request



How is OOD Non-personnel spent?

Professional Services

Expert services related to rates, operations, & maintenance

- Rate Study & Financial Management Support
- CAP Outreach
- Enhanced Rate Structure Support
- Legal Services
- Website Development & Implementation

Subscriptions & Memberships

Coordinating with community and industry organizations to improve MSD efforts implement best practices, strategize on regulatory affairs and community partnerships.

- National Association of Clean Water Agencies
- US Water Alliance
- Association of Ohio Metropolitan Water Agencies
- Ohio WARN
- OKI
- Midwest Regional Sustainability Summit
- Paddlefest
- Great Ohio River Swim
- Regional Stormwater Collaborative
- HCDOES Household Hazardous Waste


METROPOLITAN
SEWER DISTRICT
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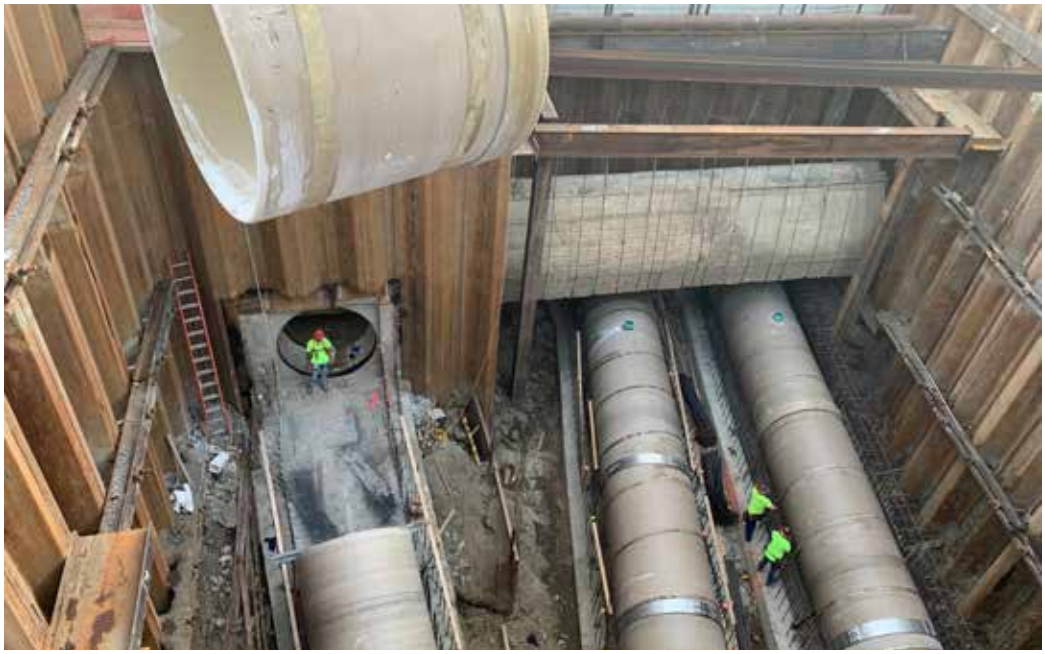
2022 Budget Request by Division

Wastewater Engineering



The Wastewater Engineering (WWE) Division is responsible for delivering MSD's Annual Capital Improvement Program (CIP). MSD has invested into a programmatic approach through its Program Management Team (PMT) to achieve better project development and delivery results. The return on this investment is highlighted with some of the accomplishments noted below.

It is expected that once these programmatic improvements are completed it will provide a significant benefit to the Utility in time for the delivery of the next phase of the Consent Decree WWIP as well as in the delivery of our essential asset management projects.

The utility's needs for asset renewal and meeting the new regulatory challenges of our federal Consent Decree require substantial effort and coordination to effectively implement. WWE coordinates closely with our Operating Divisions to help inform our project delivery process by ensuring the Utility is planning the right projects and leveraging our asset management system to achieve MSD's mission.

Between 2020 – 2021, WWE completed 30 projects, providing improved collection or treatment of wastewater, helping MSD fulfill its mission. With these projects there were challenges but each one was addressed and overcome with close communication and coordination. Projects like the Mill Creek Diversion Chamber, Lick Run, Wooden Shoe, SSO 700 Storage and Disinfection.

Currently the WWE Division has 164 active projects in planning, design and construction. Staff work closely with other divisions and external parties to plan design and construct the best projects for MSD ratepayers that are managed within budget and schedule.

planning | design | wet weather | GIS | project management | construction
customer service | surveying | QA/QC | development services | CIP | PMT

2022 Budget Request by Division

Wastewater Engineering

Highlights From Last Year

Full Implementation of the Project Delivery System (PDS)

The Program Delivery System (PDS) is a graphical tool, housed within MSD's SharePoint environment, providing a digitally interactive interface that allows users to navigate through project activities and governance requirements. The PDS contains links to workflow processes, procedures, forms and templates, serving as the framework for project approvals using the Stage Gate process. The PDS was fully developed for both traditional design-bid-build and progressive design-build project delivery. MSD also successfully took over the facilitation of the stage gate meetings from the PMT.

Full Implementation of the Project Management Information System (PMIS)

MSD's new PMIS facilitates the integration of cost and schedule-related information from MSD's various systems into the new project management software e-Builder. This system has been customized to MSD's planning, design and construction needs. The PMIS is licensed and managed by MSD. As of late 2021 all eligible projects have been migrated into the e-Builder system for project management

Automated Capital Reporting and Dashboards

Over the past year MSD has worked to integrate data from CFS, Peoplesoft / iWave, Primavera and e-Builder into a SQL data warehouse to provide consistent and accurate project-related information. This data is then visualized and analyzed using Power BI software to create reporting dashboards for key performance indicators (KPIs). Dashboards are being developed for project managers up to executive level management.

Project Nomination Process workflow in E-Builder for Approval in CIP

A workflow has been created to consistently develop and document project needs based on the asset condition data, operational needs, and regulatory requirements of MSD's infrastructure. This process is now being used to fully document the projects requirements and create a Fact Sheet that can be approved through the PDS stage gate process and included in the annual CIP Book. Next year the prioritization tool will further enhance the inclusion of priority projects into the CIP.

New Initiatives For Next Year

Watershed Integrated Planning Process

MSD will be developing a comprehensive approach to watershed planning that will integrate infrastructure condition and operations data, reported CSOs/SSOs/PSOs, the system-wide hydraulic models, and regulatory requirements into an integrated planning approach to define the priorities for the CIP over the next 20 years. MSD will also coordinate with local jurisdiction for construction coordination to facilitate lower costs and greater benefits for local communities.

Execution of the Phase 2A WWIP

It is expected that an affordable and executable Phase 2A WWIP will be approved by the Regulators in 2022. Once final, MSD will be focusing on the delivery and execution of the approved projects to meet the agreed upon WWIP requirements.

Enhanced use of Progressive Design-Build Delivery Method

MSD has evaluated our past performance on alternative delivery projects against industry best practices and is using the lessons learned and insights to develop a Progressive D/B Implementation Manual. This will also include a Project Delivery Method Decision Making Matrix to guide the assessment of future projects for appropriate delivery methods.

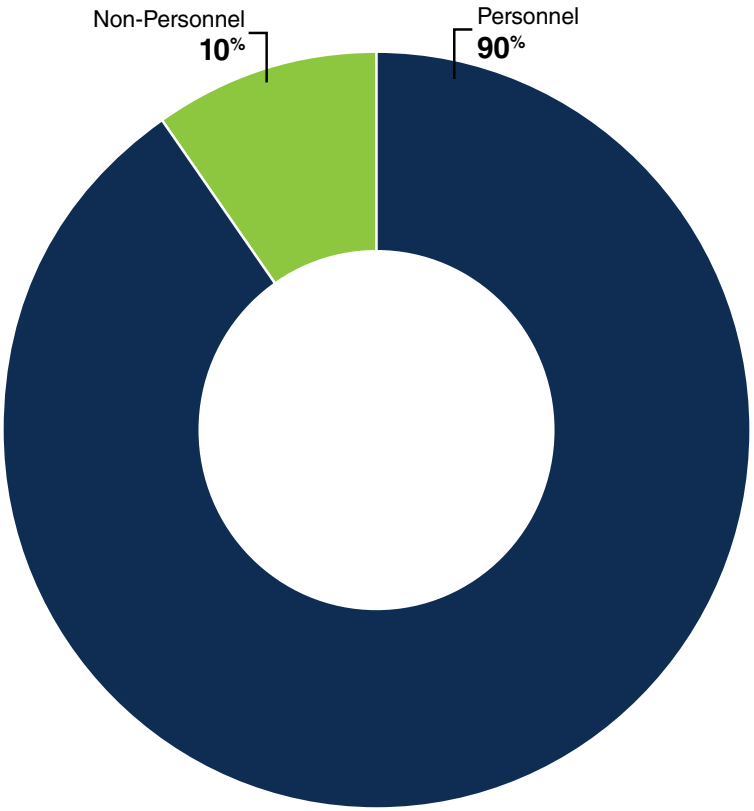
Capital Financing Plan

In the past, MSD has secured ow interest loans from State Revolving Loan Fund Program and grants from FEMA grants, With the passage of the infrastructure Investment & Jobs Act and additional rounds of Water Infrastructure Financing and Innovation Act (WIFIA) anticipated in 2022, MSD plans to position itself more funds to offset ratepayer funds and diversify sources. MSD will review all available sources for a capital financing plan and submit additional applications to diversity funding options in 2022.

MSD has a strong track record with the low interest WPCLF loans through the Ohio EPA, with $28 million in capital projects nominated in 2021. Also in 2021, MSD submitted 10 projects for the Ohio Water and Wastewater Infrastructure Grant Program. Projects included Little Miami WWTP Electrical Upsizing, Dry Weather Channel for Sanitary Sewer 937, CSO 402-406 Wet Weather Improvements. Four of the projects were also nominated by the Hamilton County Engineer which provides additional points in the scoring criteria.

2022 Budget Request by Division

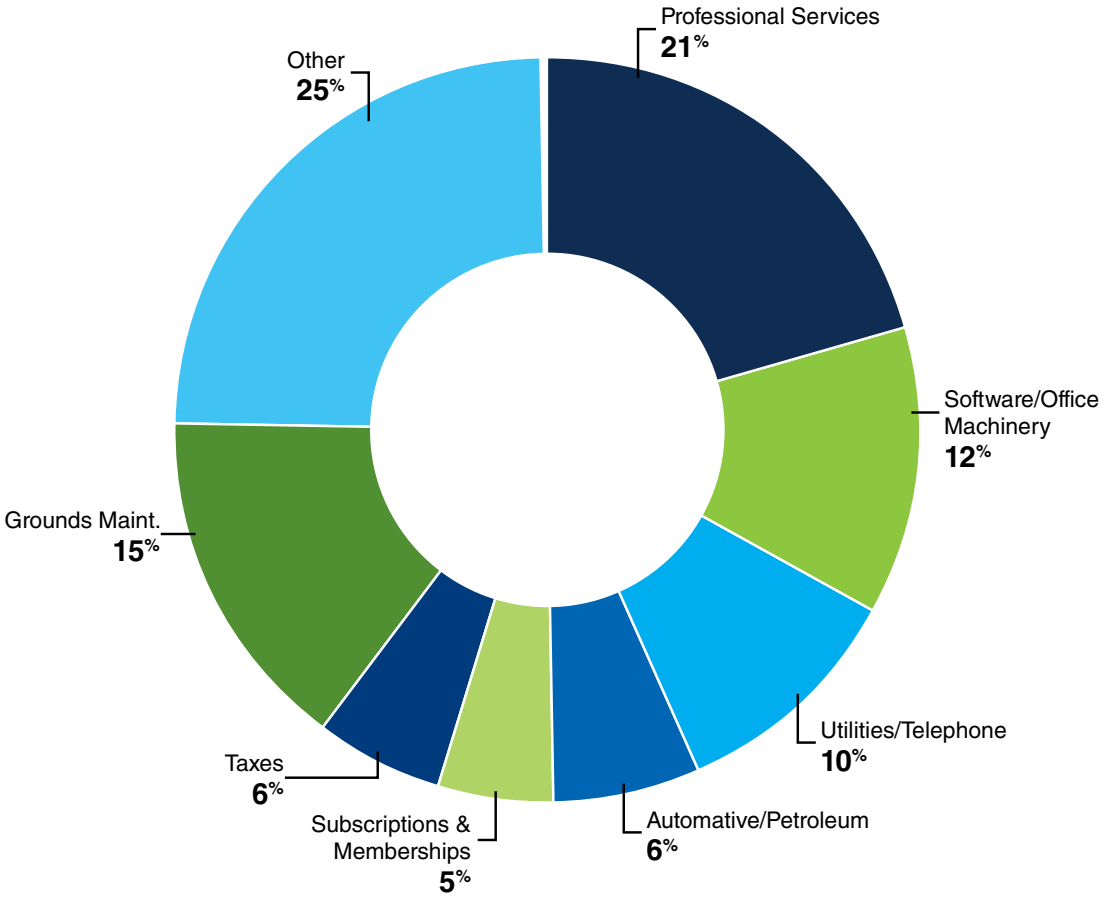
Wastewater Engineering Budget Request



Dept.	2020 Actual	2021 Budget	2022 Request	Changes From 2020		Changes From 2021	
					%		%
WWE (420)	$7,614,784	$8,880,141	$9,075,832	$1,461,048	19%	$195,691	2.20%
Personnel	$7,177,032	$8,000,537	$8,211,744	$1,034,713	14%	$211,207	2.64%
Non-Personnel	$437,752	$879,604	$864,088	$426,335	97%	$(15,516)	-1.76%

2022 Budget Request by Division

WWE Non-Personnel Request



How is WWE Non-personnel spent?

Professional Services

- Memorandum of Understanding reimbursements

Disposal and Cleaning

- Property maintenance
- Grass cutting

Software and Licenses, Office Machine

- Kroger lease for 1026 Summer Street (parking lot)
- Copier rental

Taxes

- Property Taxes

Utilities

- Water
- Natural Gas
- Electricity


METROPOLITAN
SEWER DISTRICT
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2022 Budget Request by Division

Wastewater Administration

Wastewater Administration Division helps all divisions fulfill MSD's mission by helping to attract, develop and retain a prepared workforce, while managing utility finances and performing the various accounting functions of the utility.

Wastewater Administration Division provides support to MSD employees, vendors, contractors, applicants, and MSD customers. The Administration Division ensuring that its customers are addressed and provide an array of services including the following:

Human Resources Section promotes, grows, hires, and sustains a diverse workforce with a key focus on workforce development, workforce management and labor relations.

Learning and Development section (L&D) provides training and development to enhance employees' knowledge, skills, and abilities. L&D coordinates training for OEPA credit, which is directly linked with our Wastewater Treatment Plant operators OEPA certification needed to maintain their plant operators' license.

Small Business Enterprise Program (SBE), Sewer Billing and Payroll monitors contract compliance with SBE Program rules and guidelines, serves as the sewer billing liaison between MSD, ratepayers, and several local municipalities, and processes payroll and payroll reimbursements for all MSD employees.

Finance and Accounting section oversees project related accounting functions and ensures processing of 12,000 invoices per year working in collaboration with divisional staff, vendors, and contractors. The section also prepares the Annual Financial Statements and related documents for the year end Audit review.

payroll | labor relations | training | HR | accounts payable | Small Business Enterprise | workforce development | Retirement | Classifications |

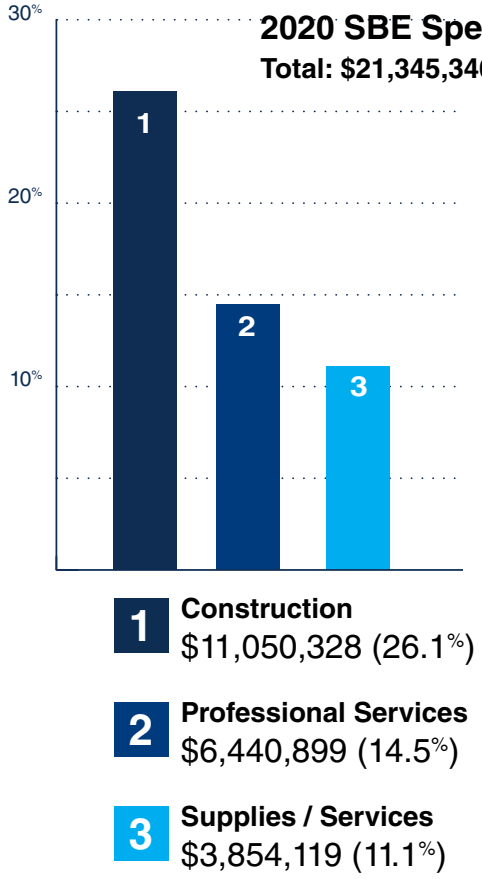
2022 Budget Request by Division

Wastewater Administration

Highlights from the last year

Small Business Enterprise Program

In 2020, MSD procured goods, services or construction from certified SBEs in the amount of $23.1M. MSD renewed registrations for 100 SBEs, maintained an average of 122 registered MSD-SBEs, established 33 SBE goals for MSD procurements and purchases, and reviewed and recommended contract awards for 26 bids and RFPs.



Consolidation of Finance and Accounting, and Administration Divisions.

With the retirement of a Divisional Manager for Finance and Accounting, MSD merged the Finance and Accounting division with the Wastewater Administration Division. The day-to day budget tracking, monitoring and annual budget coordination is completed by the Administrative Division. The budget policy development remains with the Office of the Director.

Fully Implemented Cornerstone

Cornerstone is an online training portal where employees can search for MSD and City-sponsored training courses and 2600 Plus Cornerstone On-line Trainings. Employees can request approval for instructor-led and online training courses, maintain their training records including external trainings, and obtain workflow approvals. Employees can access Cornerstone from any computer. More than 2600 prepackaged online courses are also at their fingertips. Employees can also maintain their training records including external trainings, generate training certificates and obtain workflow approvals. In the last 12 months, 3603 courses have been completed in Cornerstone.

2022 Budget Request by Division
Wastewater Administration

Initiated PIPES Upgrade

PIPES is software that allows for 3-way matching of invoices prior to processing payments/disbursements to the CFS vendors and MSD has been using it since 2014. This Upgrade will assist with uploading invoices, receiving tickets approval for invoices requests, encumbrance availability, payment/disbursement information, document storage, and more information available for the end user. The upgrade is in the final testing stage with completion expected by late Fall of 2021.

Clean Financial Audit from the Ohio State Auditor

In 2021, MSD again received a clean unmodified opinion and no findings from the Ohio State Auditor. The report states in the Auditor's opinion that: "the financial statements present fairly, in all material respects, the respective financial position of the Metropolitan Sewer District of Greater Cincinnati."

Improving Human Resources Services

HR continues to provide outstanding workforce development and labor relations services. This year, new hiring and testing tasks have been incorporated into the existing program that will allow for MSD to better manage filling positions. Below are a few highlights of their completed 2020 program


METROPOLITAN
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New Initiatives for the New Year

Launch the SBE-zine newsletter

The Electronic SBE newsletter will be sent to SBE Program vendors, Prime contractors and SBE subcontractors. The newsletter will share SBE Program updates / highlights, contracting opportunities and need-to-know information.

Revamped MSD New Employee Orientation

The purpose of the MSD New Employee Orientation program is to welcome new employees sharing information about the organization, its people, services, and programs. The intent is to improve connections to mentors/ Subject Matter Expert/Divisional Representative and on-line resources via Cornerstone.

Enhance MSD Onboarding Program

The success of a new employee is strongly influenced by the execution of a successful and informative Onboarding Program. The development of a standalone MyMSD page, “MSD New Employee Information” will aid employees (new and seasoned) with information and links about FAQ and Contact Information, Divisional descriptions/overview, Map of Service Area, Glossary of Terms and Abbreviations, and much more.

Completion of the PIPES Update

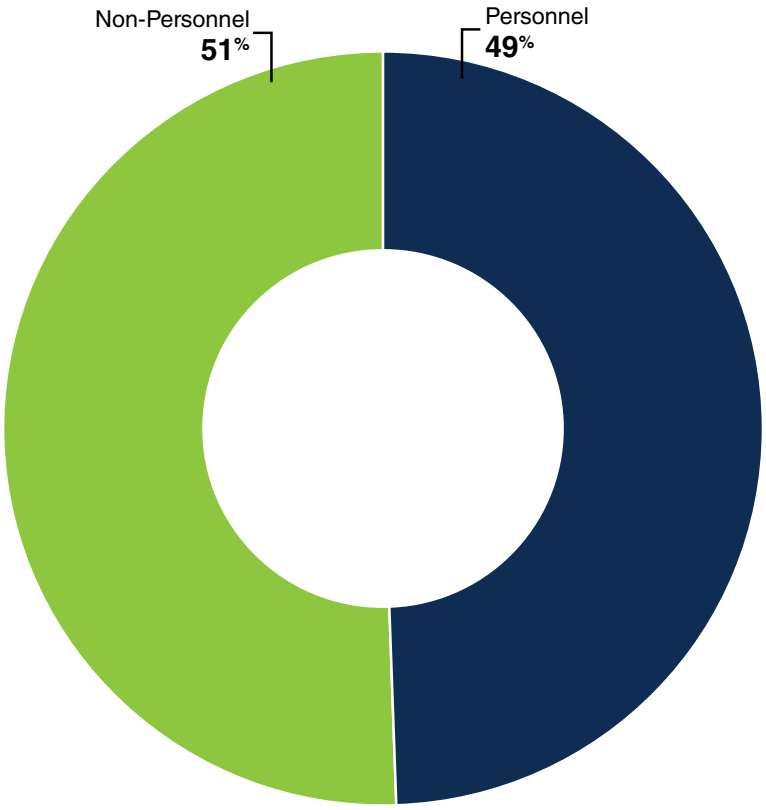
With the completion of the PIPES Upgrade expected in the Spring of 2022, enhanced monitoring and tracking of performance targets which supports compliance to the City’s Prompt Pay Ordinance will be underway.

Management and Supervisor Training

MSD’s Leadership Management Supervisory Development series consists of workshops on topics such as learning your Leadership Style, Working in Teams, Change Management, Emotional Intelligence, Understanding City Policies, and other topics. The participants will also complete a personalized Individual Development Plan for growth development. This training was on hold due to COVID. We are planning to resume this training in 2022.
In addition, supervisory skills trainings will be developed and held based on a supervisor needs assessment to be conducted this fall. Supervisors will be able to pick and choose trainings of interest, based on their needs.

2022 Budget Request by Division

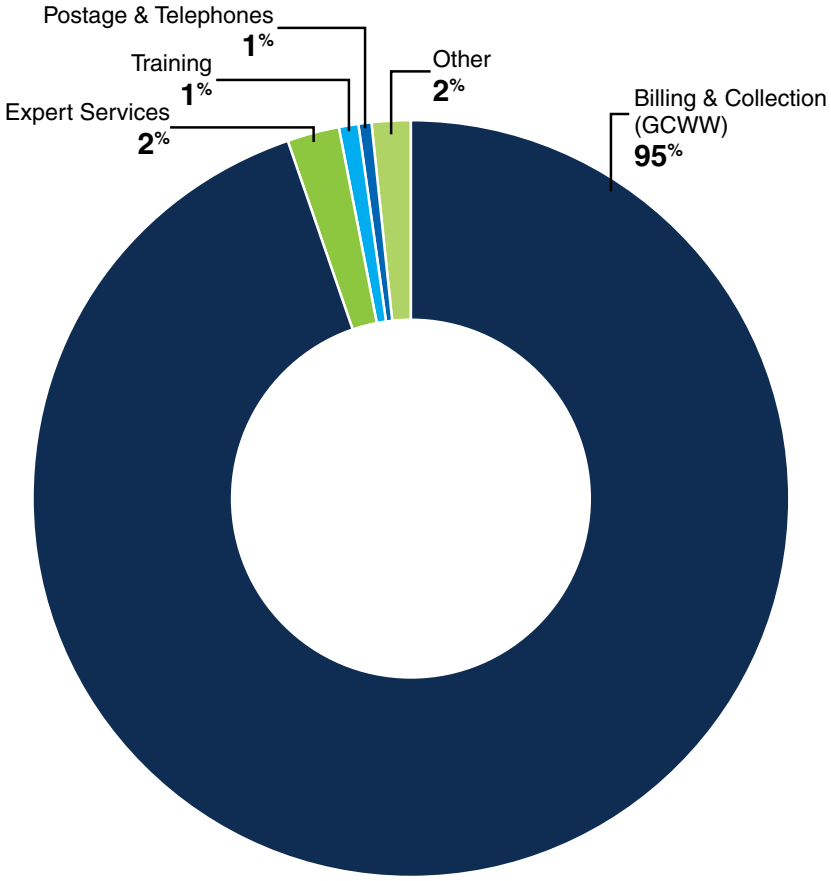
Wastewater Administration Budget Request



Dept.	2020 Actual	2021 Budget	2022 Request	Changes From 2019		Changes From 2020	
					%		%
WWA (430)	$11,108,531	$14,018,244	$14,318,199	$3,209,668	28.89%	$299,955	2.14%
Personnel	$4,290,665	$6,963,327	$7,087,043	$2,796,378	65.17%	$123,716	1.78%
Non-Personnel	$6,817,866	$7,054,917	$7,231,156	$413,290	6.06%	$176,239	2.50%

2022 Budget Request by Division

WWA Non-Personnel Request



How is WWA Non-personnel spent?

Professional Services

- Kronos Upgrade
- Maximo
- Document mgt system
- CyberSecurity Main + Suppt
- GCWW billing + collection

Software & Licenses

- e-Builder
- SBE Memberships
- CAGIS + Permits Plus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2022 Budget Request by Division

Information Technology

The IT Division supports all the utility's business needs with specialized expertise to maintain the databases and infrastructure that supports them.

The foundational service component of the MSD IT service stack is the Infrastructure Services team, which consists of datacenter, database, network, telecommunication, service desk and IT procurement services. The infrastructure service team supplies services to the Business Application Services teams and our customers in accordance with an Operational Level Agreement (OLA).

IT helps MSD determine what IT applications and systems might be best suited to make their work processes more efficient and their employees more effective. The Business Analyst works with Application Managers from various IT areas, as well as with IT vendors, to manage implementation projects to meet these business needs.

ETS/CAGIS Coordination | Datacenter | Helpdesk | Servers | MSDGC.COM | Business Applications | Workflows | Integration | Cybersecurity

2022 Budget Request by Division

Information Technology

Highlights From Last Year

Document Management System Upgrades

In 2020, MSD IT upgraded to OnBase Foundations, the latest release of the OnBase document management system. With Foundations, we receive more frequent updates and enhancements in form of enhancement packs. This makes it easy to leverage capabilities and user experiences across the platform and makes upgrade as simple as possible. During 2021, MSD IT also began implementation of DocuSign, the City's new enterprise standard application for electronic signature management

- 3600+ enhancements
- New Product Offerings
- Enhancement to existing modules
- Platform progress toward modernization
- Increase in cloud features, storage and integration options, including DocuSign electronic signature capabilities

SharePoint Upgrade

MSD IT has completed the upgrade to SharePoint 2019 on all its SharePoint sites, including the MyMSD intranet. The new version provides a clean, fresh look to a site which had not had a major overhaul in over 10 years. The new version has a more intuitive, hands-on editing interface for employees who maintain divisional/sectional sites. We are working with MSD division staff to help them improve their sites and content, and to give them a sense of ownership as they learn ways to increase visibility and accessibility of the content they manage.

Compliance Services Upgrades

During 2021, MSD IT completed numerous upgrades to systems and equipment in the Compliance Services Division, involving the laboratory, industrial waste, and other areas. Systems upgraded include:

- LIMS server and application upgrade to V6.9.x
- iPACS E-Reporting module build and deployment
- Cagis Docs client reconfiguration and roll out
- Seagull License server and software upgrade
- Bartender server and client upgrade
- Zebra printer upgrade and roll out
- (5) Lachat Instrument software and firmware upgrade
- (2) ICP and (1) ICP/MS Instrument software and firmware roll out

Cornerstone LMS Launch

MSD IT worked with the MSD Learning and Development team to launch the Cornerstone Learning Management System across the entire department. Employees can now use Cornerstone to request, take, and track training, whether the training is in person or online.

Cybersecurity Risk Reduction

An important task performed by MSD IT is the completion of improvements and patches to reduce Cybersecurity risks.

Cityworks Upgrades

MSD IT has completed major upgrades of Cityworks for WWC. Upgrades of this nature help maintain essential services of the utility from a business requirements, security and continuity of operations and enhanced functionality standpoint.

Flowfinity Upgrades

In April 2021, MSD IT worked with internal stakeholders and vendor to upgrade the Flowfinity application server to the newest version along with upgrade Flowfinity SQL database server. Upon the completion of the task, network security issues were resolved from application server side and overall improved the performance.

ArcGIS Server Consolidation

MSD IT cleaned up multiple ArcGIS server instances and consolidated into one production and one testing server; alleviating the ArcGIS server license violation issue and returning hardware infrastructure resources.

GeoCortex Upgrades

MSD IT has completed migrating GeoCortex to its own server and upgrading GeoCortex applications to the newer version for WWC and WWE. The upgrade fixed a known memory leak issue, improved overall performance, and allowing further integration between core business systems, including, but not limited to, GIS and Cityworks.

2022 Budget Request by Division

Information Technology

New Initiatives For Next Year

Enhanced Cybersecurity Protection

MSD is working in conjunction with ETS to enhance Cybersecurity protection for our mobile and on-site workforce, as well as valuable City assets by providing end-to-end protection from malicious attacks. The project will span multiple years due to the extreme complexity of the City's network and the limited resources everyone is facing due to the pandemic.

Kronos Phase II Implementation

MSD WWC has used Kronos as its primary timekeeping/payroll system for several years. During 2020-2021, MSD completed Phase I of the project to move the rest of the department to Kronos. Phase I involved getting all non-WWC employees familiar with the system in a test environment, while the departmental attendance policy was finalized and Kronos configuration completed to align with that policy. Due to delays caused by the COVID-19 pandemic, the policy and configuration were put on hold until summer 2021. Phase II, a division-by-division migration from various timekeeping/payroll processes based in systems like Maximo and CHRIS, is beginning late summer 2021 and expected to finish during spring 2022.

Maximo Upgrade for WWT/WO Work Order System

MSD is currently utilizing a version of Maximo that is no longer supported by IBM and is a critical system of WWT and WOs. Because it is not supported, it cannot be supported without a costly extended pay per incident contract. The upgraded system (to be funded out of WWT budget but implemented by IT) will have more functionality such as an improved user friendly interface, built in mobile access, business intelligence reporting tools, and the MSD will be able to reorganize data to be utilized in a more effective way.

This upgrade has been moved to 2022, as a result of delays caused by the COVID-19 pandemic. This upgrade is dependent upon the migration of WWT's timekeeping/payroll processes to Kronos, which has itself also been delayed due to COVID.

Cityworks Mobile Implementation

MSD WWC has used Cityworks in the field with Mobile device for several years. Running browser-based application on Mobile device is not user-friendly per our user's feedback.

MSD IT will implement Cityworks Mobile extension to give field crews easy access to service requests, work orders right in the palms of their hands.

MSD Utility Network Model Design

The ArcGIS Utility Network allows utilities to produce high-quality data, improve operational efficiency and asset utilization while strengthening relationships with regulators and consumers.

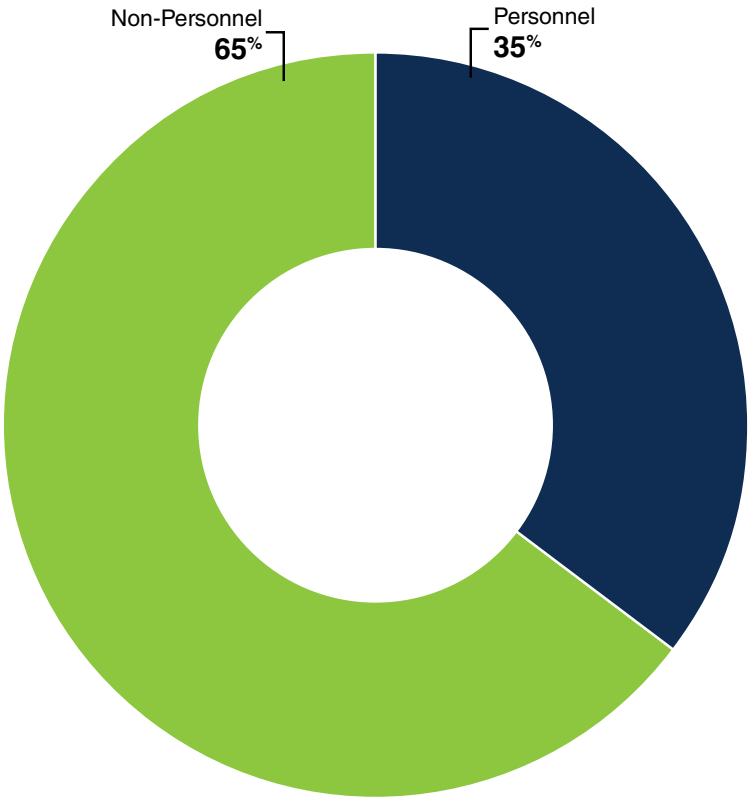
MSD IT will set up project team with engineers from different divisions to redesign our Geometric network and create network views using maps and diagrams, and our users can visualize resources temporally and in 3D across the ArcGIS platform.

Database and Application Hardening

MSD IT will undertake the review of all existing databases and connected applications, beginning with those exposed outsides of our network, to further enhance our security and internal practices to better leverage the Department of Defense and Department of Energy's best practices and known vulnerabilities. This will include, but is not limited to, applying Oracle Critical Patch Updates, applying user and system account privileges/access control, reviewing our system and recovery practices, as well as educating MSD IT personnel on these findings.

2022 Budget Request by Division

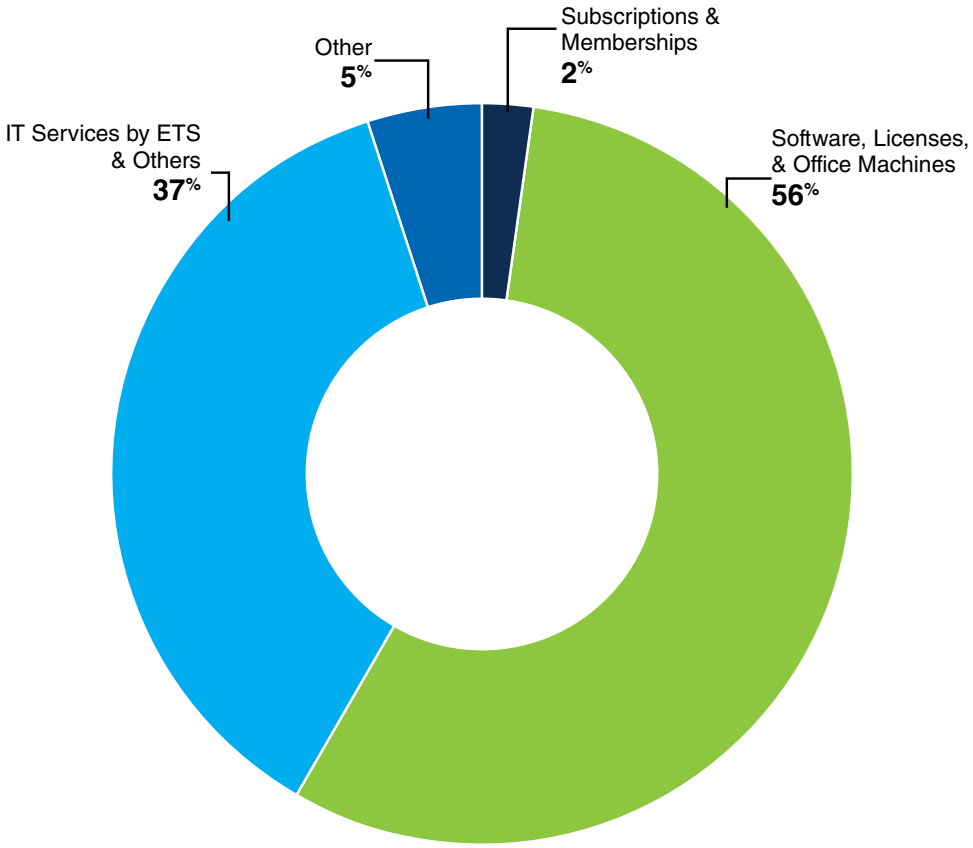
Information Technology Budget Request



Dept.	2020 Actual	2021 Budget	2022 Request	Changes From 2020		Changes From 2021	
					%		%
IT (431)	$6,415,446	$6,544,654	$6,884,556	$469,110	7.3%	$339,902	5.2%
Personnel	$2,433,375	$2,372,665	$2,435,301	$1,927	0.1%	$62,636	2.6%
Non-Personnel	$3,982,071	$4,171,989	$4,449,255	$467,184	11.7%	$277,266	6.6%

2022 Budget Request by Division

Information Technology Non-Personnel Request



How is IT Non-personnel spent?

Professional Services

- OnBase Development
- Kronos Development
- DataSplice Development

Software & Licenses

- Maximo, Flowfinity & e-Builder
- CAGIS + Permits Plus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2022 Budget Request by Division

Compliance Services

The Compliance Services Division assists with compliance related activities and strategies, regulating industrial and commercial customers, ensuring our workers are safe, and protecting public health and the environment. The Division also includes 65% of the work formerly completed by Watershed Operations, specifically modeling, monitoring, and operational optimization services

CS interfaces between the utility and Regulators for daily operations, and is involved in facility inspections, compliance reporting, violation abatement, and permit renewals. CS has enhanced its coordination efforts with operational divisions to evaluate and recommend compliance strategies, maximize environmental performance and improve public health protection.

CS ensures MSD's commercial and industrial customers are meeting MSD's Rules and Regulations and MSD's Surcharge Program is implemented fairly and equitably among high strength waste dischargers, providing compliance assistance if needed.

CS coordinates with WWT and WWC to evaluate performance, tracking all existing and potential overflow locations and MSD's Central (Mill Creek), East (Little Miami, Polk, Sycamore) and West (Muddy, Taylor, Indian, Ft. Scott, Mayflower) basins. MSD is leveraging its Smart Sewer System to detect, analyze and report overflow events in accordance with our NPDES permits and Consent Decree requirements.

Modeling of the wastewater collection system, selected surface water channels, and wastewater treatment plants is performed within CS. MSD continuously improves the accuracy and efficiency of the existing models to assist operations and engineering with project selection or impact analysis, collecting and disseminating data for organizational needs are performed which includes flow monitors, level sensors, odor sensors and rain gages.

MSD's NELAP-certified laboratory analyzes a wide variety of samples for surface water, sludge and wastewater utilizes and maintains state of the art instrumentation and serves the Hamilton County Environmental Services office and the Cincinnati Health Department for their sampling needs.

Safety at MSD is an organizational responsibility managed within CS. MSD strives to be a workplace with no lost work time. General facility security and emergency preparedness planning efforts are coordinated and internal audits are performed by CS staff. CS staff also serve as liaisons to local and regional emergency response and local environmental teams.

industrial waste | NPDES | enforcement | samples | training | guards | permits | emergency response | security | safety | laboratory | regulatory | compliance

2022 Budget Request by Division

Compliance Services

Highlights From the Last Year

COVID-19 Sampling of Wastewater

In 2020, the MSD formed a partnership with USEPA and Hamilton County Health Department to conduct COVID-19 sampling as a response to the global pandemic and assist in understanding the connection between the virus, community outbreak and wastewater. Since April 2020, MSD has provided weekly samples from MSD treatment plants and parts of the collection system and had various technical calls with experts helping them understand MSD's wastewater system and community to provide USEPA and the Health Department with information and access to our sewer collection system. That partnership then grew into the Ohio Coronavirus Wastewater Monitoring Network maintained by the Ohio Department of Health (DOH) and Water Resources Center of Ohio (WRC). In 2021, this partnership provided critical data that corroborated spikes of COVID-19 cases and empowered public health officials to have a better understanding of the severity and trajectory of the pandemic through its various surges.

Eastside Satellite Laboratory Recommissioning

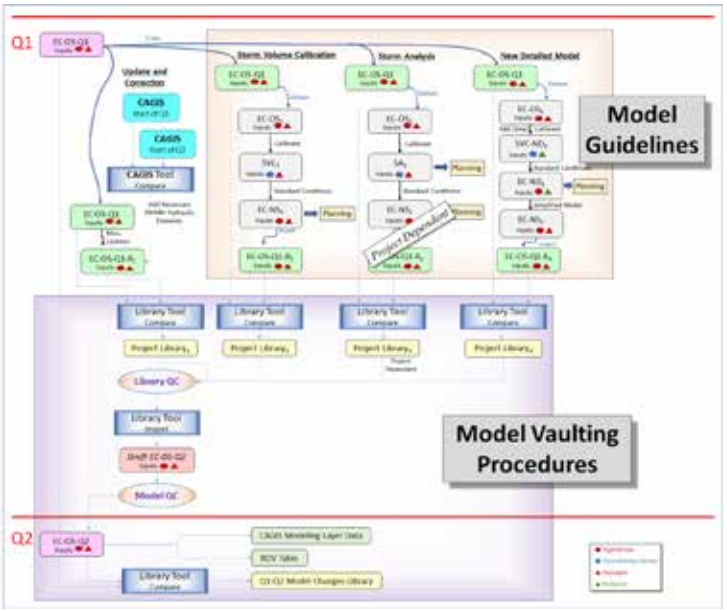
In 2020, the Polk Run laboratory was decommissioned as the Eastside Satellite Lab and the lab at the Little Miami WWTP was refurbished to serve the eastside treatment plants (Little Miami, Sycamore, Polk Run). Recommissioning the lab was managed and performed in-house using the operating budget and OTEA and Little Miami lab is laid out better, safer, closer to the central lab, and more capable of handling the sampling requirements of eastside plants along the registered National Wild and Scenic River.

Enhanced Regulatory Assistance to Divisions

The Environmental Group will continue to lead permit compliance and regulatory strategies such as USTs, RCRA, universal waste, and other applicable standards that govern MSD's industrial processes. CS will work with divisions to identify strategies to improve or optimize operations.

Model Vaulting

As our primary compliance verification tool, as well as the primary planning tool for capital improvements, MSD's suite of system-wide models (SWMs) must be maintained up-to-date and accurately documented as the system evolves. The Modeling group released a significantly expanded and updated Modeling Standards and Guidelines document in 2021. This codifies practices and tools including a new vaulting protocol that ensures each model version is properly reviewed, documented and secured. Now our operators and planners have the most up-to-date version of the system every quarter.



Maximizing Existing Assets through Optimization

Over the course of the previous year, a globally coordinated control strategy was implemented at the Ross Run and Mitchell Ave. Real Time Control (RTC) facilities. Advanced control algorithms were implemented that utilize the remote sensor data connected through the WW SCADA system to coordinate the operation of these RTCs in order to fully utilize the capacity in the interceptors and minimize overflows across the Mill Creek Basin. By the end of this year, the Mill Creek global coordinated control strategy will be further expanded to include the Wooden Shoe RTC at CSO-217 so that all wet weather facilities that impact the Mill Creek and Auxiliary Mill Creek Interceptors will be working in concert to maximize flow to the treatment plant and achieve over 60 MG of overflow reduction in a typical year.

Optimization efforts are also underway in the Muddy Creek Basin where a coordinated control strategy is being implemented for the Werk and Westbourne and Muddy Westbourne HRT facilities that will dynamically control storage and treatment at these two facilities based on available capacity in the Muddy Creek interceptor. An interim underflow control gate was installed at CSO-522 which is key to the success of the optimization strategy as it enables the Werk and Westbourne facility to store and treat the maximum amount of flow.

MSD also had success partnering with the University of Cincinnati to implement dynamic control of a private storm water detention basin that contributes to the combined sewer system. A gate within the Woodside Storm Water Detention Tank on UC's campus was connected to the WW SCADA system and is dynamically operated based observed rainfall or elevated levels at downstream capacity restraints. These constraints include CSO-012 and more urgently a manhole in Burnett Woods Park that can overflow during large or sudden events. Storm water detained in the tank is subsequently released in a control manner as capacity becomes available in the downstream system. No discharges from that manhole have been detected since installation.

Standardization of Routine Procedures

The laboratories at the Mill Creek, Little Miami, and Taylor Creek WWTPs provide sample analysis for WWT to ensure permit compliance. Data accuracy, analysis speed, and quality assurance process rate are all critical for the submission of permit required reports in addition to day-to-day operations. In the Mill Creek Wet Chemistry lab, iPads have been integrated into standardized routine sampling procedures to increase speed and reduce data entry errors. The iPads allow the bench chemist to collect data in a FlowFinity app that transfers the data directly into our Lab Information Management System (LIMS). Since the app performs the calculations and also checks for errors as the data is being collected, using iPads reduces the number of QC reviews that must be done by staff on each sample by 50%. The iPads have been critical for our response to the COVID pandemic as the lab was hit with significant staff departures and other changes but was able to maintain mission-critical services throughout.

PAA-UV Dual Disinfection Study at Polk Run WWTP

This year MSD partnered with USEPA Research and Development Center to examine the efficacy of PAA in conjunction with UV for disinfection at the Polk Run WWTP. The preliminary findings indicate that a dual disinfection strategy can reduce energy costs significantly. Specifically, at 0.7 mg/L PAA and 30% UV, the dual disinfection was about 50% more effective in disinfecting the secondary effluent compared to 30% UV intensity alone.

Injury Prevention and Analysis

The Safety Group has been enhancing its injury investigations and data analyses from a "what happened" approach to a "why did it happen" mentality. This year MSD implemented a new process that ensures every injury, incident and reported near miss is reviewed by senior management and evaluated for systemic contributing factors. Not only does the Safety Team Leader flag all programs that are pertinent to the incident but is prompted to develop or review the JHA for the activity with the affected workgroups. MSD is working hard to instilling a culture of safety from the top to the bottom of the organization, which helps every employ see that safety is everyone's job. Creating a culture of prevention includes evaluating trends and taking actions to mitigate future risk.

LOTO/ECPs

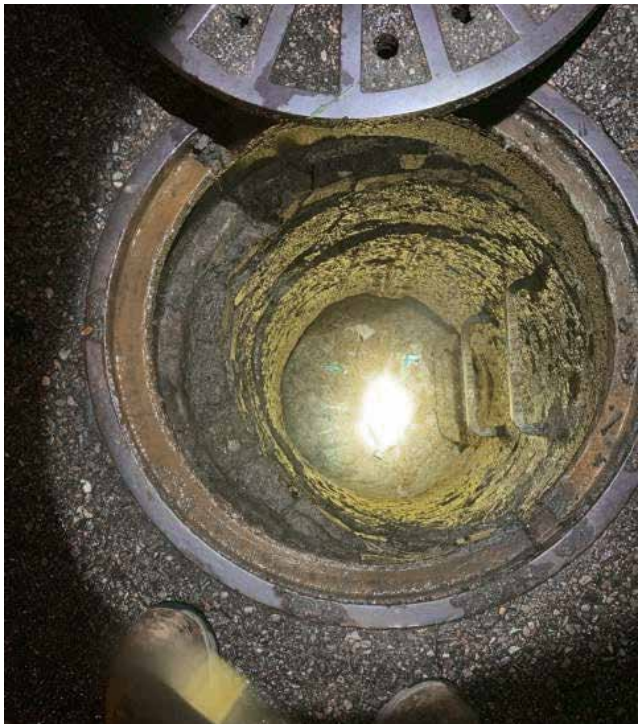
A LOTO/ECP steering committee has been chartered and is leading the effort to make progress on the large number of outstanding LOTO/Energy Control Procedures (ECPs). An internal team of experts has reviewed responses to our calls for information from the industry as well as responses to an RFQ. MSD is choosing a collaborative approach with an industry leading vendor to develop externally but review internally the procedures. Contract negotiations are underway and we expect to complete the first batch of LOTO/ECPs by the end of 2021 and efforts will continue in 2022.

2022 Budget Request by Division
Compliance Services

New Initiatives For Next Year

Surcharge Bill Updates to Improve Customer Service

The Commercial/Industrial Waste Group is planning to upgrade the way surcharge bills are developed so that it results in a more consistent, transparent, and predictable bill for our current and future customers and a more efficient sampling regimen for our staff. Two industrial customers have agreed to be the initial subjects of the new process and MSD will be evaluating the success of the changes based on their experience. The initiative will involve developing surrogate parameters for our surcharge calculations, ensuring their validity and repeatability, and then evaluating their effect on swings in the customers' bills. The initiative will also include online, continuous sampling equipment that will be evaluated for its accuracy and ease of use, with the goal of reducing the costs to monitor.

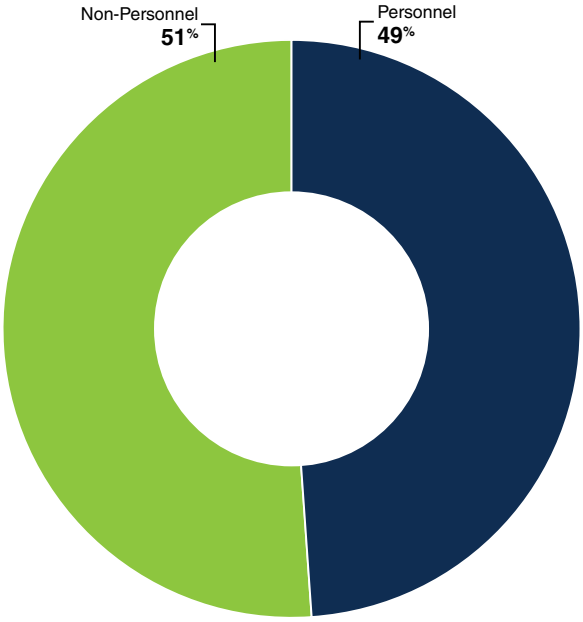


Grease blockage in a manhole caused by apartment complex, likely from disposing by pouring kitchen fats, oils an grease down the drain.

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
# of Grease Inspections	99	72	2	0	5	15	38	378	340	441	432	437
Notice Issued	3	3	0	1	0	0	1	7	12	20	24	27
Notice of Violation	1	2	0	0	0	0	1	0	2	5	15	22
Fine Invoice	0	1	0	0	0	0	0	1	2	2	11	5

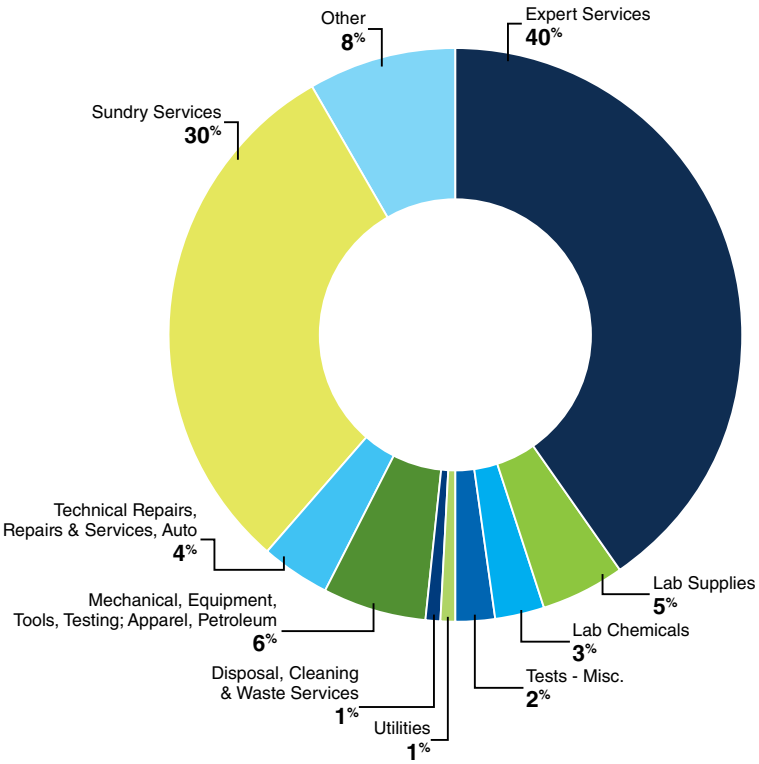
2022 Budget Request by Division

Compliance Services Budget Request



Dept.	2020 Actual	2021 Budget	2022 Request*	Changes From 2020		Changes From 2021	
					%		%
CS (460)	$6,460,563	$8,193,376	$15,353,622	$8,893,059	138%	$7,160,246	87%
Personnel	$5,026,552	$5,637,659	$7,512,352	$2,485,800	49%	$1,874,693	33%
Non-Personnel	$1,434,011	$2,555,717	$7,841,270	$6,407,259	447%	$5,285,553	207%

CS Non-Personnel Request



2022 Budget Request by Division

Compliance Services

How is CS Non-personnel spent?

Laboratory Supplies

- Reagents/chemicals
- Media filters
- PT tests for certification
- Equipment supplies (e.g., tubing, seals)

Sundry/Software

- Research and Development lab projects
- NELAC audits, training and program support
- Pretreatment program enhancements
- Labworks integration from LIMS to eOps and Chemical inventory

Professional Services

- Local limits development
- LOTO/ECPs
- Ohio River Sampling for NPDES permit
- Wet weather facilities & overflow monitoring
- Coordinated control logic development
- Remote flow monitoring for various needs, including SBU pilot, reguklatory repting, model caliartion and panning

Tools

- Gas meters

Technical Equipment Repair

- Scale calibration
- Type of equipment for maintenance:
  - Agilent
  - BOD analyzer
  - Lachat
  - Steris dishwashers
  - Evoqua deionized water supply
  - Horizon
  - UPS (backup battery)

Staff Development

- Documenting Standard Operating Procedures (SOPs) and polices that drive the day-to-day work
- Success planning - prepare job aids for future employees

Innovation & Research

- Research collaboration with USEPA, DOH on COVID-19 sampling
- Mid-west Technical Assistance Group/Isle Consulting
- Water Research Federation (WRF)

2022 Budget Request by Division

Wastewater Treatment

The Wastewater Treatment Division treats and manages wastewater, removing over 97% of pollutants received at nine treatment plants, returning clean water to rivers and streams.

Over 190 million gallons of wastewater is treated each day at MSD facilities by licensed operators and skilled maintenance staff that work around the clock to ensure clean water services are provided to our local communities and area streams.

MSD's operational excellence is recognized nationally for its compliance with National Pollutant Discharge Elimination System (NPDES) permits, and distinction in safety and an advanced maintenance program.

The continuous treatment of wastewater at its 9 permitted facilities requires significant resources to ensure the environment and public health is protected. WWT also operates and maintains the districts 97 pump stations and 9 wet weather facilities that reduced over 4.6 billion gallons of combined or sanitary sewage overflows between 2020 through Q2 2021.

Specialized equipment, various databases, electronic workflows and programs such as SCADA and other instrumentation assists in efficiently treating wastewater, processing solids, reducing overflows and mitigating odors. Electricity and natural gas, chemicals, safety practices and procedures, maintenance and repair of equipment, calibration of instrumentation, and training for our employees are all some of the critical inputs to keeping these essential clean water services working optimally for the benefit of the region.

plants | pump stations | aeration | incinerators | bar racks | grit | clarifiers | effluent | influent | centrifuge | lagoon | dewatering | settling | clean water

2022 Budget Request by Division

Wastewater Treatment

Water Quality Management

MSD WWTP Facility	Total 2019 Volume Treated (MG)	Total 2020 Volume Treated (MG)	Avg Daily 2020 Treated (MG)	Total 2021 through August 2021
Mill Creek	45,645	43,100	118	27,918
Little Miami	13,896	12,869	35	8,458
Polk Run	1,913	974	5	1,236
Sycamore Creek	2,894	1,570	9	2023
Muddy Creek	4,810	4,999	14	3,002
Taylor Creek	1,136	532	3	690
Indian Creek	362	164	1	210
Ft. Scott	14	15	.04	11
Mayflower	17	18	.05	12
TOTAL	**70,686**	**64,242**	**185**	**43,560**

Each day, MSD performs hundreds of monitoring tasks to ensure the facilities are following their NPDES permits – in total, about 2,400 monitoring requirements are performed each month. This data is required by and provided to Ohio EPA, in accordance with the Clean Water Act. MSD reviews and submits timely and accurate reports. Ohio EPA inspects MSD facilities each year.

Eight of MSD WWT plants were recipients of 2020 Peak Performance Awards, awarded by the National Association of Clean Water Agencies (NACWA).

Biosolids Management

WWT currently disposes biosolids (the solids byproduct from wastewater treatment) by incineration at Mill Creek or by landfilling at Rumpke Landfill. Up until 2016, MSD incinerated solids at the Little Miami for outlying plants but it was decommissioned due to new mercury air emission standards. Now, all dewatered solids from the outlying plants are landfilled, which is costly and not environmentally friendly; biosolids are considered to have nutrient value and some communities get tremendous value from beneficially reusing biosolids through land application or producing energy used which could then be used in the treatment process. Liquid solids (sludge) from certain plants are hauled to Mill Creek to be dewatered and incinerated. MSD operates three fluidized bed biosolids incinerators at Mill Creek to dispose of the solids generated at that facility. The incinerators are continuously monitored to ensure proper operation and air quality controls and routine preventative maintenance is performed to ensure maximum reliability and effectiveness. These require specialized skill to operate and the facility is subject to numerous performance and emission tests and is routinely inspected; maintenance and operations staff work hard to keep the systems continuously burning for up to a year at a time.

In 2020, MSD generated 36,111 dry tons of biosolids of which 77% was incinerated at Mill Creek WWTP; this is a reduction in solids from 2019 of 10.5% which is attributed to construction at the Little Miami WWTP which limited flow to the facility, and process changes at the Mill Creek WWTP. At Mill Creek operational staff were able to optimize the biological system to reduce the amount of solids produced that created a microbial environment that favors more "active bugs" over reproducing bugs to allow solids to be converted to energy instead of new cells.

Facility	Method of Disposal	Solids 2019 (dry tons)	Solids 2020 (dry tons)	Solids 2021 (through 8/21 -dry tons)
Mill Creek	Incineration	32,462	27,856	21,613
Mill Creek	Landfill (WWT Process)	30	1,996	118
Mill Creek	Landfill (Digester cleaning)	40	0	0
Little Miami	Landfill	5,707	3,998	4,949*
Muddy Creek	Landfill	2,093	2,262	1,546
TOTAL		40,332	36,111	28,226

*Little Miami solids through August 2021 is an estimate based on the data available up to the beginning of August.

MSD's WWE division is currently completing designs within input from operations and anticipating a progressive design

2022 Budget Request by Division

Wastewater Treatment

build on an anaerobic digester. Once constructed, the Little Miami facility will create a beneficially reusable biosolids and significantly less material would be landfilled, resulting in savings in waste disposal expenses. The current CIP schedule for the anaerobic digester at Little Miami would have the digester completed and operational by 2026.

Odor Control

MSD's odor control program focuses on continuous monitoring and measuring, identification of causes and sources and control through operation and maintenance of numerous engineered systems designed to community expectations of performance. MSD has refined its operation and management practices to optimize odor control, linking strategies to certain process areas, maintenance schedules, storage and treatment to minimize odor issues. MSD works to mitigate odors in accordance with the Board's "no offsite odors" and "zero tolerance" policy. MSD maintains an odor report hotline 513-557-5979, tracks investigations of each incident and attempts to identify the root cause of the complaint.

MSD hosts a quarterly meeting of a Community Advisory Par dor rela

Facility	2018 Odor Reports	2019 Odor Reports	2020 Odor Reports	2021 YTD through 8/21
Mill Creek	56	15	23	7
Indian Creek	1	0	2	3
Little Miami	12	12	12	9
Polk Run	4	4	4	2
High Rate Treatment (HRT)	0	1	0	0
Other (non WWT or WWC)	24	13	20	4
TOTAL	97	45	61	25

2022 Budget Request by Division

Wastewater Treatment

Wet Weather Facilities

WWT's Wet Weather Facilities and Pump Station Group operates and maintains MSD's real time control and high-rate treatment facilities and pump stations with the goal of maximizing the capture, storage and treatment. MSD's Consent Decree required the construction and operation of several new facilities, many of which were installed as part of Phase 1 of MSD's Long Term Control Plan. With the assistance of innovations managed and analyzed by Compliance Services, WWT can optimize and coordinate control of flows maximizing available MSD assets. MSD's real time control facilities provide reduced discharges to the environment. The facilities below reduced discharges in the amount shown by millions of gallons (MG).

Overflow Reduction by Real Time Control (RTC) Facilities Since 2015*

RTC Facility	2015	2016	2017	2018	2019	2020	2021 (YTD through 8/21)
Ross Run	284	383	342	633	422	967	647
Mitchell Ave	124	111	110	193	181	128	75
Badgeley Run	133	49	30	52	165	3	5
Lick Run	378	343	440	319	939	417	282
Bloody Run	-	-	-	-	267	233	210
Totals	**919**	**886**	**922**	**1197**	**1974**	**1748**	**1219**
Rainfall	**48.91"**	**44.49"**	**49.79"**	**55.84:**	**53.34**	**44.96"**	**35.37"**

*RTC facilities were installed as part of Phase 1 and represent the lowest cost of CSO reduction. By fully utilizing these existing assets through coordinated control, MSD can reduce future capital costs and reduce overflows.

Pump Stations

MSD operates and maintains 97 pump stations all throughout the district. The Pump Station Telemetry Upgrades project is currently underway and will provide enhanced visibility for the pump stations. This project will provide additional instrumentation which will have real time communication with MSD's Wet Weather SCADA system. The will be used to streamline system monitoring and help to automate maintenance strategies for these critical assets. This project is anticipated to be complete midyear 2022 but will be phased in as improvements are made at various pump stations. The work is being prioritized to address the more critical pump stations first.

Through the CIP, pump station projects center around improving the efficiency of conveying sewage while mitigating risk through elimination and rehabilitation of various stations. Elimination projects, when feasible, provide the most benefit to MSDs customers through reduced O&M costs, asset liability reduction and better system performance.

In 2021, MSD is eliminating 2 pump stations: Timbers and Stratford Lake. The Barrington Hills, Barrington Hills Block F, Gil Volz, Kildare Crossing, and Kirkridge Acres pump station elimination project are in final design stages and projected to receive construction funding in 2023. Other elimination projects that are being pursued include the Addyston pump station elimination (estimated construction in 2025) and Camargo Canyon pump station elimination (completed the 30% design review).

When elimination is not possible or justifiable, improvement projects are used to rehabilitate inefficient pump stations. Ongoing projects are the Village Woods pump station improvement project which received design and easement acquisition funding in 2021, Muddy Creek pump station and force main upgrade project in planning, and the Pleasant Run pump station upgrades project where the BCE is being developed.

MSD weighs the benefit of elimination vs. rehabilitation and funding for such analyses are through the CIP. Currently, only one pump station, Wayside Hills pump station is in this category which received planning funding for 2021.

2022 Budget Request by Division

Wastewater Treatment

Highlights From Last Year

Mill Creek

Mill Creek Diversion chamber project continues at the headworks of the plant but with close operator coordination. This project began in 2020 but only after the major rehab of the Mill Creek Interceptor (MCI) was taken off-line, all flow diverted miles upstream to the Auxiliary MCI and was lined to improve the lifespan by another 50 years. Operators closely coordinated the project with the engineering team to maximize flows are captured and treatment was provided.

Upgraded Plant Influent and Headworks Odor Control

The upgraded Plant Influent and Headworks odor control project replaced the old and antiquated ferrous chloride feed system has proven to be more efficient, safe and reliable with a secondary feed line of odor control chemicals to feed primary treatment and a rehabilitated headworks scrubber system. Systems are now linked to SCADA for enhanced performance monitoring and operation. For comparison, the average for the Primary Bio Filter e-Nose in 2020 was 15,283 D/T, and in 2021 YTD is only 3,078 D/T.

Grit Facility Odor Control Improvements

The activated carbon odor control at the Grit Facility is scheduled to be replaced with new activated carbon media. The existing media has been in service for nearly 10 years and is approaching the end of its useful life in the three carbon vessels. The new media will ensure that the system continues to perform up to MSD's expectations for years to come. The project will be staggered to ensure the odor control system stays online during the upgrade with 1 of the 3 being replaced during 2021 and additional replacements planned for 2022.

Ash Lagoon Clean-out

The Ash Lagoons at the Mill Creek facility routinely need to be cleaned out to allow the ash from the incineration process to settle before being taken to the landfill. In 2021 the South Ash Lagoon will begin the process of being cleaned out to make way for future ash.

PAA Disinfection Upgrade

The Mill Creek facility will begin the peracetic acid (PAA) feed system installation in 2021 with the system anticipated to be online in April 2022. The PAA will reduce risk of Mill Creek E. Coli violations during the recreational season. The current system represents a compliance risk of violating bacteria standards during the recreational season. The new system will consist of 1 unloading pump, 3 bulk storage tanks, and 3 transfer pumps to discharge to independent outfall channels.

Incineration Instrumentation Upgrade

MSD replaced the existing oxygen analyzers with new more robust and reliable analyzers at the Mill Creek facility. This has greatly improved the reliability of the system and eliminated a source of failure that frequently resulted in the need to take the incinerator offline for replacement. In addition, WWT will be installing a backup Continuous Emission Monitoring Systems (CEMS) to provide redundancy and minimize downtime of the incineration process and ensure reliable information for compliance with air quality permits.

SSO 700 STF: Continuous Operation through Construction

Soon after completion of the SSO 700 STF Storage Improvements Project, another intensive construction project was undertaken at the facility to increase disinfection capabilities. The SSO 700 will soon have disinfection processes to the overflows of the new fourth storage tank added as part of the previous construction. Previously overflows from the tanks only received primary-equivalent settling and bacteria that reaches the Mill Creek will be substantially reduced. These excess flows will now be able to be disinfected with sodium hypochlorite and dechlorinated prior to discharge to the Mill Creek. This project will also replace the existing, older UV disinfection system with new equipment. As a result of the close coordination, very few storms were missed, which kept the facility operating throughout the construction.

Eastern Basin

Little Miami

A major upgrade of the Grit Removal System was completed which removed the antiquated system and replaced it with a state-of-the-art system to capture grit and reduce the likelihood of damage to pumps and treatment trains downstream. The Little Miami facility also receives the 2nd highest number of odor complaints. MSD plans to install a real time odor monitor system with 3 calibrated electronic noses (e-noses), 4 Ambient e-noses to monitor the fence line and other processes, and a new weather station. The instruments are similar to the six e-noses and weather station currently in operation at Mill Creek. E-noses are used for monitoring and tracking odor sources before they migrate offsite.

Little Miami Primary Process Improvements for Odor Control

The existing blowers for the Primary Process are being replaced with more efficient and reliable blowers for the process. The blowers are used to mix the primary influent in an effort to reduce the floating sludge in the process and decrease the offsite odors from the facility. The blowers are expected to be installed by the end 2021.

Little Miami Instrumentation Upgrade for Aeration Basin Solids Monitoring

The Little Miami facility is installing real time solids meters for the aeration basins. These will provide better control of the process by aiding the operations of wasting and control of the blankets within the tanks.

Little Miami Online Chlorine Meter to Optimize Chemical Feeding

The Little Miami facility will be installing an online chlorine meter to provide real time analysis of the flow to optimize control of the chemical feed and reduce chemical and operating costs. MSD has installed comparable monitoring at other facilities and has seen a reduction of chemicals and costs without compromising performance.

Polk Run Aeration Upgrades

The Polk Run facility receives the 3rd highest number of odor complaints and a plan is needed to help identify the best approaches to reduce odors at the facility; initial planning for this was performed in 2021 and will be included in the 2022 CIP. A series of upgrades were made to the Aeration Basins Instrumentation, in addition to the installation of new mixers to the tanks. These upgrades allow for more efficient operation and better performance of the aeration tanks. The new instrumentation will allow for real time data to allow for better blower control. The mixers provide the ability to have anoxic zones within the tanks and reduce the nitrogen loading to the stream.

Sycamore Blower Header Replacement

The Sycamore facility is installing a new air header to the aeration basins. This work is critical to eliminate leaks in the air line and improve blower performance and decrease energy costs.

2022 Budget Request by Division

Wastewater Treatment

Highlights From Last Year (continued)

Western Basin

Muddy Creek

Taylor Creek Clarifier Improvements

The Taylor Creek Clarifier drive mechanism was replaced in 2021 to eliminate the rim drive and install a new center drive mechanism. This will provide the staff a direct improvement for winter operations where the previous unit struggled to drive the clarifier over the ice that would build up on the outer edges of the tank. This will allow for reduced downtime for maintenance as well.

Taylor Creek Holding Tank Improvements

Starting in August 2021 Taylor Creek will begin construction to alter one of our holding tanks. This improvement will include sloping the floor of the holding tank to make it mimic a gravity thickener. This should increase our hauled solids percentage thus reducing the number of trucks required to haul the same amount of sludge. While Taylor Creek does not receive many odor complaints, this will potentially reduce odors within the plant and potentially outside of the plant because it reduces or eliminates the need to use air inside the holding tank.

Grease Block Pump Station Improvements

The WWT operating and maintenance staff have begun installing “grease blocks” in an effort to reduce the odor loading to the facility and reduce the vactoring activities for the individual pump stations.

Fort Scott Instrument and Process Improvements

Fort Scott experiences the most amount of NPDES violations. To address this, WWT operating and maintenance staff are installing a number of instruments at the Fort Scott WWTP to allow for remote monitoring and control of the facility to catch issues and reduce compliance risks. The automation will allow staff to control the facility in real time to monitor and maintain operating parameters and reduce or eliminate permit violations.

Muddy Creek at Westbourne HRT

The Muddy Creek at Westbourne HRT Improvements project was completed in early 2021 and underwent reliability testing to demonstrate its ability to treat CSO and minimize untreated overflow from CSO 198. Improvements at the facility included; relief gates to minimize upstream surcharging, new screening equipment, upgraded disinfection and dechlorination tankage and dosage equipment, as well as upgraded programming and SCADA communication.

New Initiatives for 2021

Polk Run BNR Conversion

In 2022 Polk Run will be begin conversion of the existing process to allow for BNR (Biological Nitrogen/Phosphorous Removal) at the facility. The conversion is being completed in-house and will provide better effluent quality to meet and exceed the permit limits to the Little Miami national scenic river. The process will be closely monitored and tracked for performance standards. BNR uses less chemicals and generates less solids as a by-product which could also help to reduce operating costs.

Training for Instrumentation Technicians

Starting in 2021 and continuing into 2022 WWT will be training all instrument technicians on how to troubleshoot and maintain the PLC equipment throughout our facilities. This will increase the staffing availability to respond to and address issues faster than ever before.

Instrumentation technicians will also be trained on Schwing Pump components. These are critical to feed the incineration process and ensure the maximum amount of solids can be burned; Schwing Pumps have lead to delays solids management processing. Having staff better trained to deal with maintenance and repairs will assist in reducing down time.

Muddy Creek WiFi System

Starting in 2021 and continuing into 2022 WWT will be procuring and installing a whole facility WiFi system. The system addresses multiple safety issues by ensuring staff have cell phone availability throughout the facility including the tunnels and basements. Once installed the goal will be to continue installations across all MSD facilities.

Werk and Westbourne EHRT Dynamic Underflow Control

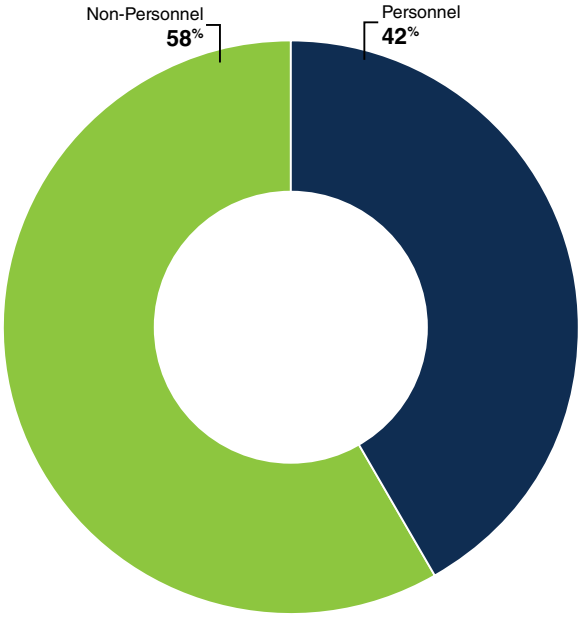
The installation and start-up of CSO-522 Dynamic Underflow Control (DUC) demonstration system upstream of Werk Westbourne EHRT is reducing overflows. The system was installed as a demonstration project and installed at a fraction of the cost. During wet weather and shortly after, the less concentrated combined flow is diverted into the Werk Westbourne EHRT by the DUC to free up downstream interceptor capacity.

Similar to how navigation apps help drivers find the best routes in traffic, MSD's use of smart sewer system and dynamic underflow control helps direct wet weather flows into facilities to reduce overflows. By sending flow to WWEHRT as a new operational optimization strategy, the demonstration DUC was a low cost measure to maximize collection and treatment to reduce SSOs. Upgrades to this demonstration system are needed in order to make it more robust and incorporate control into plant SCADA.

Dynamic Underflow Controls have great potential to reduce the cost of CSO control in many of MSD's sewersheds.

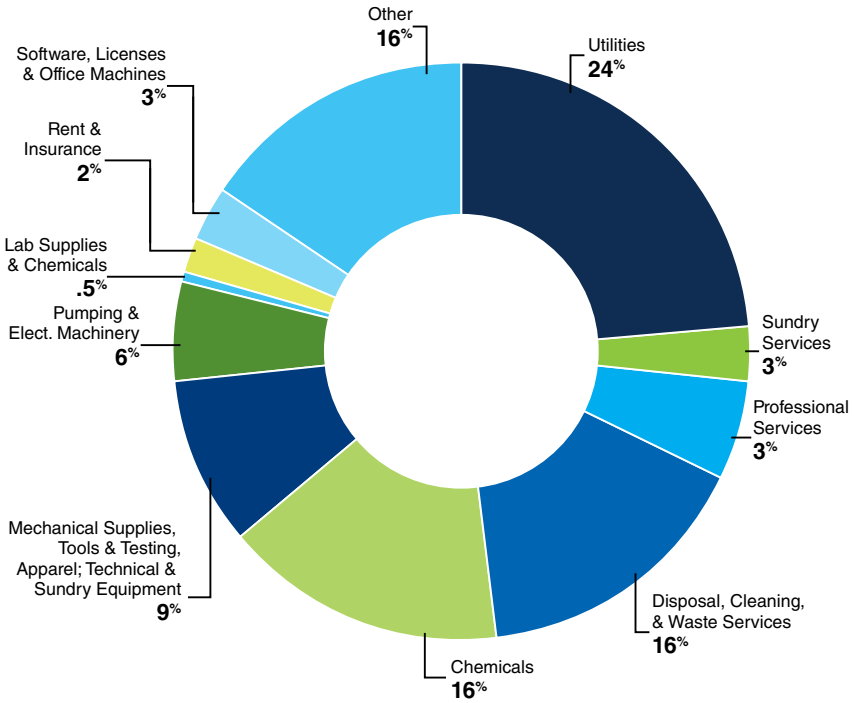
2022 Budget Request by Division

Wastewater Treatment Budget Request



Dept.	2020 Actual	2021 Budget	2022 Request*	Changes From 2020		Changes From 2021	
					%		%
WWT (440)	$46,913,869	$49,761,552	$60,547,881	$13,634,012	29%	$10,786,328	22%
Personnel	$20,466,738	$22,174,453	$25,332,415	$4,865,677	24%	$3,157,962	14%
Non-Personnel	$26,447,131	$27,587,099	$35,215,466	$8,768,335	33%	$7,628,367	28%

WWT Non-Personnel Request



How is WWT Non-personnel spent?

Chemicals

- Polymer (for sludge thickening)
- Sodium hypochlorite (for disinfection/odor control)
- Sodium bisulfate (neutralizes sodium hypochlorite prior to effluent discharge into Ohio River)
- Polyaluminum chloride (for high-rate sludge thickening)
- Ferrous chloride (for sludge thickening/odor control)
- PAA for Supplemental Disinfection

Electrical, Building and Pumping

- Sidewalk and driveway repair
- HVAC installation and repair
- Check valve installation
- Roof repair
- Door installation and repair

Sundry

- Expert advice
- Technical support
- Water quality sampling
- Wet weather facility maintenance

Disposal and Cleaning

- Liquid and solid sludge hauling
- Screening and grit removal
- Skims removal
- Wet well and tank cleaning

Plumbing and Electrical

- Pumps
- Compressors
- Valves
- Motors

Mechanical Tools

- Gear boxes
- Valves, pipes and fittings
- Hand and electrical tools

Subscriptions and Services

- Monthly cellular data
- Monthly radar rainfall data processing


METROPOLITAN
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2022 Budget Request by Division

Wastewater Collection

The Wastewater Collection Division collects and manages wastewater from Greater Cincinnati communities, maintains the sewers and responds to requests for service in a timely manner, providing exceptional customer service in a safe and friendly manner.

Customer Service Section responds to requests for service on sewer backups and various issues and also completes scheduled preventive maintenance and cleaning work orders on all of MSD's Combined Sewer Overflow (CSO) structures to minimize overflows and responds to all overflow alarms generated by MSD's Smart Sewer System, also called the Wet Weather SCADA System.

Asset Management Section coordinates all "Planned" activities of maintenance, condition assessment, cleaning, repair and rehabilitation. Field Investigation work orders and standardized information generate asset-specific cleaning, inspection, repair and rehabilitation work orders prioritized by risk.

Condition Assessment and Cleaning Section is responsible for planned and reactive standardized condition assessments of main sewers, manholes and building sewers in the public ROW utilizing the industry-standard Pipeline Assessment Certification Program (PACP).

Asset Renewal Section is responsible for repair and rehab of all sewers and manholes within the district utilizing the CIP allowances. Along with the allowances, lateral lining within the right of way and vac-a-tee installations are performed within the operating budget.

Stormwater Control Measures Section is responsible for both gray and green stormwater infrastructure to effectively manage them as more assets are brought online and turned over to MSD. This section has been utilizing internal staff, contracts and an ambassador program to assist in the management of Lick Run and other Green Infrastructure assets.

CCTV | interceptors | maintenance | CSO outfalls | sewers | assets | repairs | condition | work orders | inspections | SBUs | mechanical | vehicles | cleaning

2022 Budget Request by Division

Wastewater Collection

Highlights From Last Year

MSD's 2025 Condition Assessment Initiative will lower risk, drive lower repair costs

The adage of "an ounce of prevention is worth a pound of cure", is no truer than in the asset management group of WWC. A high-risk sewer that has not yet failed is much cheaper to fix and repair than something that is failed and quickly becomes exponentially more costly.

Condition Assessment and Cleaning are covered by the Operating Budget as a maintenance cost. Repair and Rehab are budgeted as a capital expense, paid for out of annual allowances for Main Sewers and Prioritized WWC needs. Main Sewers are defined scope projects and are contracted out.

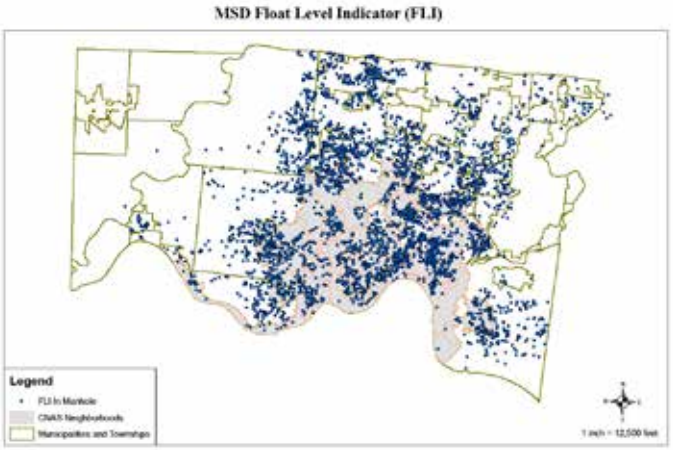
MSD has rigorous Asset Management System and uses a industry standard condition assessment tool to establish the repair, rehab and maintenance needs and determine the likelihood of failure. The MSD CA&C section utilizes many tools to help cost-effectively gather and report on the condition of each sewer asset. Newer technology like the acoustic screening, jetter cameras and 360-degree manhole and pipeline scanners have been incorporated to allow for more assets to be assessed quickly and for a lower cost. The 360-degree camera systems have allowed MSD to leverage in-house staff to perform the field inspection work of large diameter sewers at a fraction of the cost of our previously contracted multi-sensor inspections.

In 2020 WWC condition assessed almost 8,000 sewer segments and cleaned almost 1900 segments, representing a 52% more condition assessments completed and cleaning 51% more respectively. WWCs now tracks the "risk value" of these assets at the time the work is completed to better quantify the benefits and value of work performed. This information will be used in upcoming cycles to put a value on risk reduction associated with the completed work orders.

Full-scale use of FLIs (Float Level Indicators) for better investigations

MSD continues to install FLIs on almost every SBU investigation performed to help provide better evaluation of reported backups to better manage MSD risk and solve issues within MSD areas of responsibility. On average, WWC has installs about 150 FLIs per month and since 2015, MSD has installed over 4,000 FLIs throughout the system.

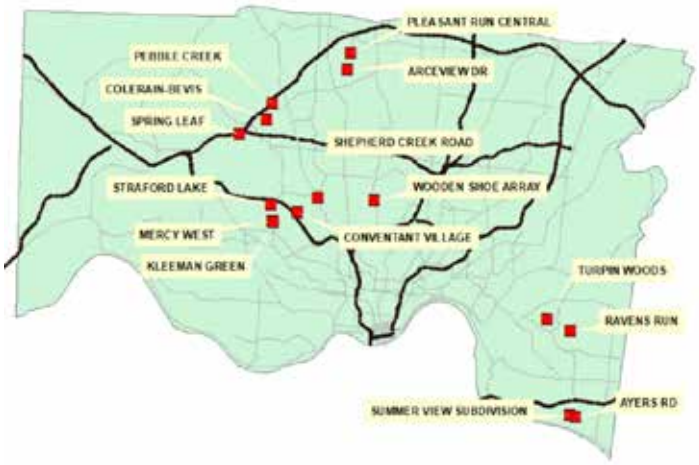
The benefits of installing FLIs results in more accurate determinations of SBU investigations and differentiates



between public and private causes of water in basements. The use of FLIs are customary for each SBU investigation to have installed where feasible and they are important tool to help differentiate between overland flow and an SBU. The use of FLIs reduce MSD liability and staff can perform better customer service to help customers understand the problems better.

Responding and containing Odors within the Collection System

With its Customer Service Hotline at 352-4900, WWC received and investigated almost 357 odor investigations (207 indoor and 150 outdoor). MSD investigates complaints with trained staff to identify the source of the odor and works to mitigate odors in accordance with the Board's "no offsite odors" and "zero tolerance" policy. WWC responds and identifies any MSD odor sources within the collection system, linking odor control strategies with operations and maintenance schedules to reduce complaints. MSD also has odor sensors located throughout the collection system which provides early indications that sources may be present and need attention. In some areas, MSD feeds



chemicals into the collection system to cut back on the hydrogen sulfide generation and to improve odor control.

Responding to Requests for Customer Service

Customer Service Agents/Dispatchers take service requests, manage the creation of field investigation work orders, dispatch work to field crews, and process work returned by field agents. Below are the number of requests ran by year. The number varies depending on many factors.

A look at some Emergency Repairs

In spring of 2021, MSD was called to respond to a large cave-in in the front yard of a residential home. MSD spent months repairing a manhole and rehabilitating a mainline sewer beneath the existing home in North Avondale. To avoid repairing an existing high-risk sewer beneath the home using open cut methods, MSD elected to conduct the emergency repair by rebuilding the manhole 20 feet from the front of the house and then lined the 15" sewer with trench-less technology beneath the home. The rebuilt manhole required a 16 ft diameter liner plate support system to a depth of 22 feet deeming the front yard unusable.

MSD has hundreds of sewers just like this one that runs underneath homes and buildings. The operating budget and capital allowances allow MSD to respond quickly to address emergency issues like these.

Sewer Backups can result in expensive emergency repairs for MSD. As a result of a sewer backup called in by a homeowner, MSD spent approx. six weeks making several repairs on an 8" sewer main that ran in close proximity to several homes and beneath an existing home. Coordination was required with multiple homeowners as the sewer ran through the rear yards and beneath an attached garage, with the lateral connection for the home that was backing up being connected to the mainline beneath a neighbor's new shed as well as a large mature tree.

The operating budget allows MSD to responds thousands of calls from customers or coordinating partners to investigate repairs and emergencies.

Year	Number of Customer Service Requests Ran
2018	6466
2019	6137
2020	5906
2021*	4837

*YTD through November 2021

2022 Budget Request by Division

Wastewater Collection

New Initiatives For Next Year

Mobile Training Simulator for Cranes and Heavy Equipment.

Procured in 2021 with OTEA funds, the training simulator for cranes and heavy equipment will be used in the development of a rigorous, training initiative that will provide tools to help employees improve their skills and ensure staff are job-ready to effectively perform highly technical and skilled tasks. The simulator would be housed and managed by WWC's Fleet Section. MSD Fleet Section will set up a pilot in-house training program with the intent to expand to MSD's 20 Motor Equipment Operators (MEOs) and 50-100 plant operators that use the overhead cranes and heavy equipment. The training plan will be phased in with the pilot group in early 2022 with goal of full implementation in 2022. Opportunities for working with other public partners to utilize the simulator is anticipated for exploration later in 2022-2023.

Lick Run and other large scale green infrastructure (GI)

In 2021 while the project construction was finishing up, MSD is actively managing these assets and will continue monitoring, evaluate performance needs, and identify any additional efforts that can address some of the challenges faced by having new assets such as large-scale GI.

Increased performance and management of Stormwater Control Measures

With Lick Run Greenway and 71,000 linear feet of new storm sewers being turned over to MSD from the construction project, the system is now operational. The number of assets the Stormwater Control Measures Section maintains and is responsible for has tripled in size and scale. The turnover of these assets that are located in communities with public access to use them requires special consideration. MSD community partners represent an important part of the system's success. MSD routinely checks system performance and reliability, performing preventative maintenance on these living systems that help control wet weather and provide CSO reduction benefits. MSD staff have created a green infrastructure maintenance work order system and track performance of some systems in real time.

Enabling more green infrastructure

For 2022, there are a number of significant GI opportunities that are identified for $500K for 2022 for implementation or analysis, including:

- Cincinnati Public Schools' Green School Yard program, which is enhancing school green space to maximize outdoor education opportunities and could, with MSD's participation, also maximize stormwater management.
- Cincinnati Park Board's Urban Forestry Program, which is enhancing the City's tree canopy and could, with MSD's participation, utilize procedures that maximize the amount of stormwater controlled by each tree and each tree vault.
- Placing real time controls on specific MSD stormwater detention basins to maximize the amount of water they retain when sewers are overloaded and release that water when the sewers can handle it.
- Considering stormwater infiltration wells at specific locations to increase the flow of stormwater into the ground and reduce the amount of stormwater entering the sewers.

Evaluation of MSD Facilities for Electric Vehicles

MSD plans to partner with Clean Fuels Ohio to conduct a study of the necessary modifications to the MSD facilities in anticipation of electrification of the fleet. This would include verification of power sources and installation of electric to areas that will be designated as electric charging stations. MSD needs to ensure there is an appropriate power supply to accomodate electric vehicles where feasible.

2022 Budget Request by Division
Wastewater Collection

Year	Maintenance Work Orders	Renewal Work Orders
2015	4743	168
2016	2953	288
2017	6728	687
2018	9877	377
2019	5425	597
2020	6442	659
2021*	4612	491

*YTD through October 2021

Maintenance & Renewal Work Orders (WOs) are used to prioritize work performed, based on the risk profile. In 2021, MSD's 2025 Condition Assessment Initiative was developed to increase the amount of Condition Assessment & Cleaning by $1M as a result of an additinoal allocatation by the Board. The initiative, with an addition $1M above 2020 funding levels will enable MSD to complete most extreme, high and medium risk sewers that are due, overdue or never been assessed by 2025.

With the 2025 Condition Assessment Initiative, MSD will be caught up on condition assessments by 2025. Low or negligible risk sewers, being lower risks of failure or criticality would be assessed as needed or in later years.

Completed Condition Assessments 2020-2021 of Main Sewers

	2020	YTD 2021	2020	YTD 2021	2020	YTD 2021
Risk Bin	Count of Segments		Miles Completed		Condition Assessment Costs	
Extreme	412	331	13.21	12.15	$589,889	$278,920
High	918	469	31.08	16.16	$474,927	$203,568
Medium	1072	751	37.01	24.97	$632,952	$268,053
Low	541	477	17.05	15.48	$231,367	$140,566
Negligible	541	554	15.78	18.70	$180,575	$152,978
Total	**3491**	**2582**	**114.13**	**87.45**	**$2,109,711**	**$1,044,085**

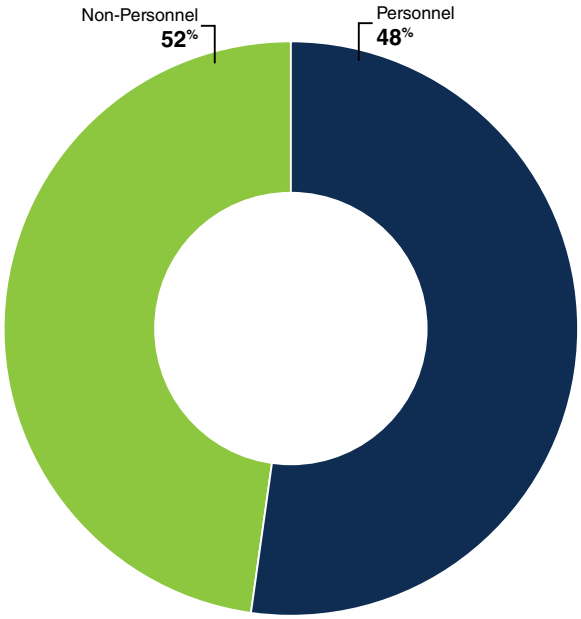
Note: 2020 numbers impacted due to some reduction of crews due to COVID-19 reduced workforce.
* Building sewers are not included above. and $154,073 was spent on condition assessments.

Cleaning & Chemical Root Costs by Asset Risk Bin 2020-YTD

	Negligible	Low	Medium	High	Extreme	TOTAL
Cleaning Cost	$55,944	$258,815	$277,387	$102,919	57,571	**754,657**
Cleaning Miles	2.44	5.50	6.27	3.85	2.31	**20.47**
Chemical Root Treatment Cost	7,196	41,316	37,333	77,488	43,602	**206,935**
Chemical Root Treatment Miles	0	.10	.05	.16	.17	**.47**
Building Sewer Cleaning Cost	-	-	-	-	-	**$16,570**
Building Sewer Cleaning Miles	-	-	-	-	-	**.26**

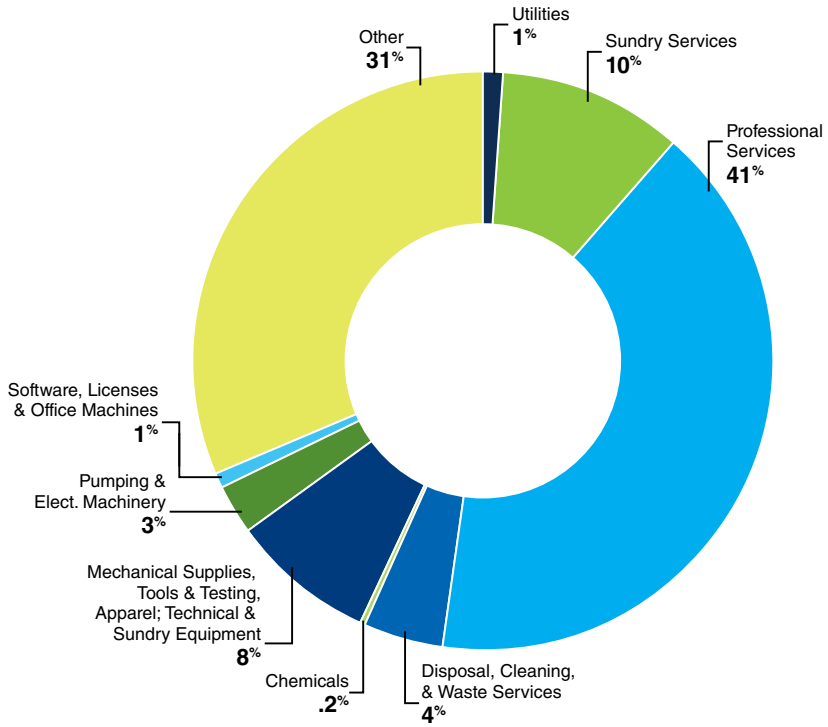
2022 Budget Request by Division

Wastewater Collection Budget Request



Dept.	2020 Actual	2021 Budget	2022 Request	Changes From 2020		Changes From 2021	
					%		%
WWC (450)	$20,728,684	$22,896,030	$25,712,816	$4,984,132	24%	$2,816,786	12%
Personnel	$11,990,068	$12,481,170	$13,431,143	$1,441,075	12%	$949,973	8%
Non-Personnel	$8,738,617	$10,414,860	$12,281,674	$3,543,057	41%	$1,866,814	18%

WWC Non-Personnel Request



2022 Budget Request by Division
Wastewater Collection

How is WWC Non-personnel spent?

Petroleum, Fuel Oil

- Concrete/flashfill
- Asphalt
- Propane

Tools, Wearing Apparel

- Flowfininty Wireless, Inc.
- Uniforms
- Pipe locators
- Tool box dividers
- Gloves
- Plant and mechanical supplies
- Surveying equipment

Professional Services

- Condition assessment
- Collection system support
- Call Center services

Technical Equipment

- Plumbing supplies
- IBAK parts
- Vactor truck parts
- Pipe and fittings
- Aquatech flush/vac parts
- Millwork (shelving, counters)

Office Machine, Auto

- Facility maintenance
- Fire extinguisher maintenance
- Auto maintenance

Sundry Services

- Maintenance for Stormwater Controls Maintenance
- Ambassador Program for Lick Run


METROPOLITAN
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2022 Budget Request by Division

Sewer Backup (SBU) Program

The SBU program response and prevention program is managed by the WWC with close coordination with law and the Director's Office. WWC deploys crews to investigate and assist customers during a very stressful situation.

The federal Consent Decree established MSD's Sewer Backup (SBU) program. Under the SBU program, MSD responds to reports of sewage in basement in a timely manner as defined in the Consent Decree. In large storm events, thousands of service requests for investigation can be requested within hours.

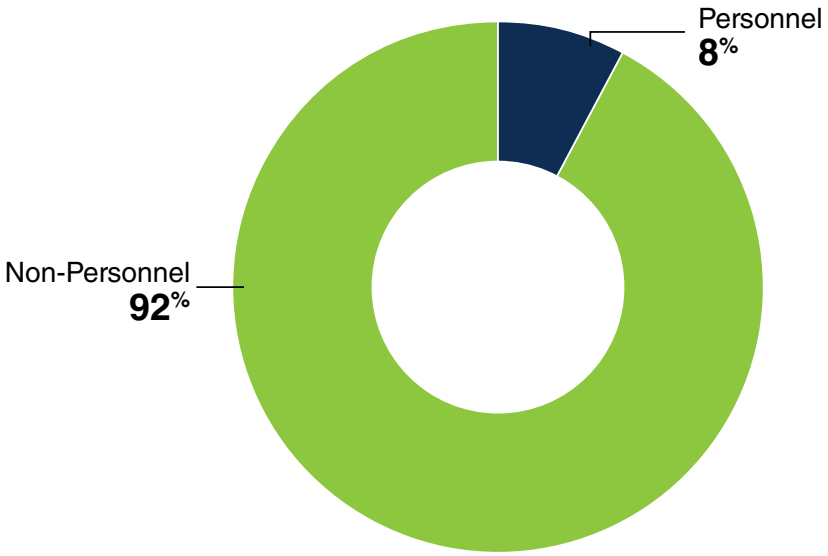
Of all the investigations MSD performs, only about 15% are caused by capacity related mainline sewer issues. The table on the following page lays out all SBU costs incurred by year to respond, investigate and take action on eligible SBUs.

In 2021, MSD began exploring new approaches to be more proactive to reduce the risk of backing up. MSD has developed near term actions and plans to continue these efforts for a recommendation to the Board in 2022.

24/7 | cleaning | customer service | damage claims | reporting | 352-4900 | sewer backups | response | rain prevention |

2022 Budget Request by Division

Sewer Backup (SBU) Program Budget Request



Service Description	2021 through Sept.	2020	2019	2018	2017
Sewer Back Up (SBU)					
Sewer Backup (SBU) Investigation Work Orders	**2,754**	3,773	3,610	3,857	5,135
SBUs Considered for Cleanups	**458**	621	545	648	915
SBU Cleanups Performed/Accepted	**323**	465	422	531	715
Cleanups declined by customer	**135**	145	132	117	200
Cleanouts Installed at ROW (by MSD Repair Section)	**536**	1,010	860	779	851
Prevention Program					
Properties Contacted	**77**	130	162	146	170
Properties Protected	**46**	87	102	100	61
Total SBU Prevention Dollars Spent	**$3,217,614**	$5,855,065	$6,732,106	$7,247,199	$2,899,534
Claims					
Settlement Checks Processed	**80**	165	189	346	1,296
Average Processing Time for Settlements Offered (in days)	28	37	35	68*	59*
Claim Costs- Operating Funds	$473,411	$1,056,667	$2,281,197	$2,786,489	$9,932,467
Expenses to Date					
MSD SBU Labor	$590,732	$694,267	$881,937	$890,407	$957,645
Total Clean Up Costs- Operating Funds *	$1,312,035	$1,923,968	$1,752,050	$2,022,170	$3,278,864
SBU Customer Service- Operating Funds	$418,406	$736,113	$1,064,501	$984,330	$1,942,486
TOTAL FUNDS SPENT	$6,012,198	$10,266,080	$12,711,790	$13,930,596	$19,010,996
Total spent 2004 to date	$139,988,887	$133,976,689	$123,710,610	$110,998,819	$97,068,223
YTD	$6,012,198	$10,266,080	$12,711,790	$13,930,596	$19,010,996

2022 Budget Request by Division

Sewer Backup (SBU) Program

Dept.	2020 Actual	2021 Budget	2022 Request	Changes From 2019		Changes From 2020	
					%		%
SBU (480)	$9,699,922	$11,922,370	$12,166,761	$2,466,839	25%	$244,391	2%
Personnel	$611,726	$928,974	$953,498	$341,772	56%	$24,524	3%
Non-Personnel	$9,088,195	$10,993,396	$11,213,263	$2,125,068	23%	$219,867	2%

2016	2015	2014	2013	2012	2011	2010	2009	2008
5,850	3,419	3,363	4,351	4,250	6,547	5,020	4,806	3,776
2284	199	215	390	422	816	480	416	712
1253	152	110	241	270	572	316	278	366
1031	47	105	149	152	244	164	138	323
1064	1224	1353	1275	1050				
170	32	27	63	70	121	50	90	122
12	15	31	60	53	36	12	22	33
$807,138	$1,353,247	$1,766,399	$2,625,962	$2,567,524	$2,748,636	$1,159,774	$1,253,842	$1,267,096
404	109	106	181	203	307	163	147	187
51*	25	25	14	11	15	13	14	n/a
$1,944,924	$476,659	$638,587	$755,310	$772,019	$1,139,811	$703,983	$618,333	$712,178
$776,263	$288,162	$286,161	$460,746	$474,422	$370,670	$316,838	$300,496	$203,479
$6,556,014	$593,118	$445,337	$1,063,932	$1,130,631	$2,228,966	$1,106,279	$843,556	$1,039,144
$1,237,535	$1,291,962	$832,540	$870,460	$639,099	$1,010,763	$1,009,267	$857,883	$941,640
$11,321,875	$4,003,148	$3,969,023	$5,776,411	$5,583,695	$7,498,847	$4,296,142	$3,874,110	$4,163,537
$78,057,227	$66,735,353	$62,732,205	$58,763,182	$52,986,771	$47,403,076	$39,904,229	$35,608,088	$31,733,978
$11,321,875	$4,003,148	$3,969,023	$5,776,411	$5,583,695	$7,498,847	$4,296,142	$3,874,110	$4,163,537

2022 Budget Request by Division

Sewer Backup (SBU) Program

Reflecting on the last two decades of the SBU Program

MSD has been operating the SBU Program since 2004 and depending on the rainfall, has spent anywhere from $3.8M to $19M in a calendar year. Since inception, MSD has implemented the program as outlined in the Consent Decree. In accordance with the Consent Decree requirements, MSD has spent $140M on investigations and cleaning private property impacted by SBUs, paying damage claims to property owners and installing backup prevention devices.

Of the $140M, 40% is attributed to the SBU prevention program. The remaining is spent on cleaning, investigations and damage claims.

In the last 15 years on average, 15% of the SBUs are determined to be covered under the SBU program. The rest, about 85% of the reports are investigated and determined to be ineligible as they are caused by building lateral failures, blockages stormwater drainage and overland flooding.
After spending $140 million in the last 17 years, the properties protected with prevention devices under MSD's SBUPP program is less than .01% of all MSD accounts. In 2021 MSD began identifying some options to offer more proactive approach to incentivize and supplement the mandated program response.

Considerations:

- Focus on more prevention, in a multi-prong approach vs. the current reactive approach to cleaning up and installing devices after 2 events in 5 years.
- A long term view is needed to understand what the status quo will provide and how to reshape the effectiveness of the efforts of the utility for the benefit of all ratepayers.

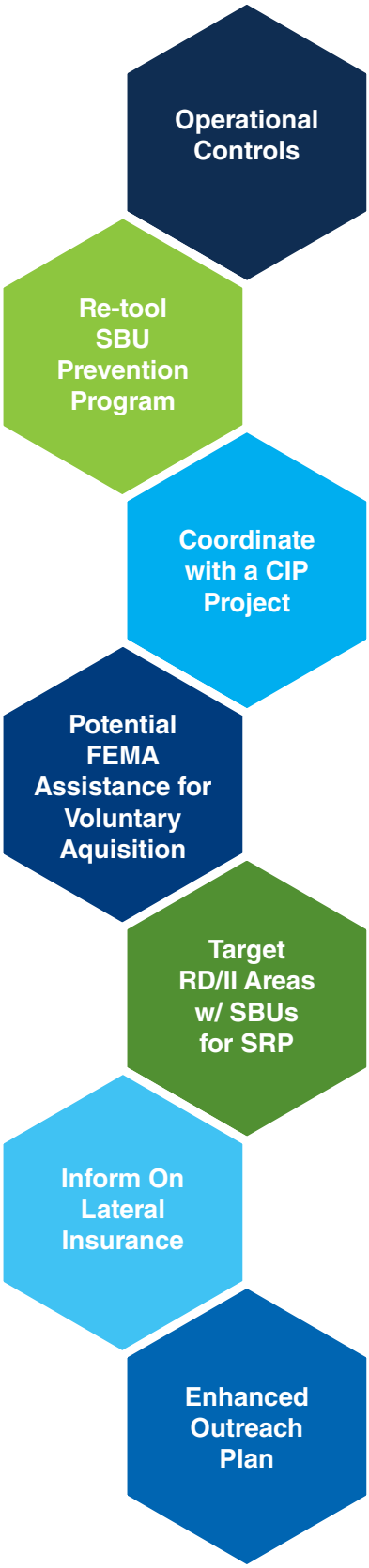
Operational controls were initiated early in 2021 and implemented in 7 areas and remain under evaluation. In 7 areas installed, it was determined that these areas had favorable site conditions to restrict stormwater flows from entering into the combined system.

SBU Program Considerations for Enhancing Protections anticipated in 2022

In 2021 MSD conducted a Low Rainfall Intensity Flooding Analysis (LRIFA) to categorize SBU areas to determine potential options for reducing the risk of continued SBUs.

The LRIFA analysis identified over 550 SBU problem areas in Mill Creek, Little Miami, and Muddy Creek. MSD categorized these areas based on potential "solution type":

- Operational Controls (see photo opposite page)
- SBU Prevention Program - proactive installation of SBUPP
- Adjacent to CIP Project
- Conveyance / Separation Improvements
- Potential FEMA Hazard Mitigation Project
- Overlay with known RD/II areas and flow monitoring scheduled for Spring 2022



Operational controls were initiated early in 2021 and implemented in 7 areas. Operational controls is just one tool to use and is not viable in all locations. The operational controls installed remain under evaluation but preliminarily they have helped to reduce SBUs. In the 7 areas, it was determined that these areas had favorable site conditions to restrict stormwater flows from entering into the combined system. While operational controls will not eliminate all backups, it reduces the liklihood or impact by reserving sewer capacity for sewage but may result in a slight increase in street flooding.

MSD is developing an **SBU Mitigation toolbox** for both MSD and property owners/customers to consider mitigating risk of a sewer backup. The toolbox will provide assistance to customers and highlight approaches that may reduce the impacts of SBUs. The toolbox is not intended to replace the SBUPP requirements outlined in the Consent Decree. The toolbox is intended to provide useful information and potentially incentives or steps that can help property owners reduce SBU risk.

Tools include inform and influence strategies, enhanced communication tactics, lateral insurance options, BMPs that include potential downspout disconnections, proactive backup prevention, and rules and reg updates.

MSD is collecting data to develop viable options for which tools work best and where. MSD will be conducting additional surveys and gather additional information into 2022 which will inform updates and additional recommendations.


METROPOLITAN
SEWER DISTRICT
OF GREATER CINCINNATI

2021 Fleet Replacement Justification

Equip. #	Type	Year	Estimated Replacement Cost	Page*
91466	TV Truck	2008	$425,000	3
91468	TV Truck	2008	$425,000	4
70963	Single axle dump truck	2007	$145,000	5
70967	Single axle dump truck	2007	$145,000	6
907	Sprinter Van	2010	$55,000	7
20890	Sprinter Van	2012	$55,000	8
60914	Utility truck chassis	2006	$65,000	9
	Remount body		$10,000	
30892	Sprinter Van	2009	$55,000	10
843	PickUp Truck W/ Plow & Spreader	2011	$38,000	11
80799	PickUp Truck W/ Plow & Spreader, liftgate	2008	$43,000	12
80819	Pickup Truck	2008	$28,000	13
30870	Pickup Truck	2013	$36,000	14
607	hybrid suv	2010	$29,000	15
611	hybrid suv	2010	$29,000	16
80676	4wd suv	2008	$29,000	17
80680	4wd suv	2008	$29,000	18
40645	Dodge Caravan	2014	$28,000	19
10661	Dodge Caravan	2011	$24,000	20
70802	Ford Transit Van	2007	$33,000	21
70835	Ford Transit Van	2007	$39,000	22
90879	Ford Transit Van	2009	$33,000	23
90888	Substitute van for suv	2009	$29,000	24
175	Passenger Midsize Car	2010	$22,000	25
32812	All Terrain 4W 4WD	2013	$22,000	26
52809	All Terrain 6W 6WD	2005	$22,000	27
52807	All Terrain 4W 4WD	2015	$22,000	28
42830	Zero Turn Mower	2014	$20,000	29
42849	Zero Turn Mower	2014	$20,000	30
	TOTAL		**$1,955,000**	

Fleet Request: $1,777,000

	Replacement or Addition	Repl. No.	Year	Purchase Price	Mileage	L.T.D. Cost	Description	Purpose of Vehicle
1	Replacement	91466	2008	$316,278	53,000	$26,508	TV Truck	CCTV inspections, coding of the condition of sewer pipe
2	Replacement	91468	2008	$674,160	64,168	$31,605	TV Truck	CCTV inspections, coding of the condition of sewer pipe
3	Replacement	70963	2007	$69,374	96,688	$54,292	Single axle dump truck	Truck is used to haul spoils from job site to WWC & l&fill. Also used to haul gravel, pipe, & dirt to job site.
4	Replacement	70967	2007	$69,374	71,005	$39,741	Single axle dump truck	This vehicle is used by the Trucking section @ the Gest St. Plant to haul debris & to haul the trailer & equipment to outlining plant.
5	Replacement	907	2010	$55,686	138,639	$69,155	Sprinter Van	Used by WWC customer service work group to respond to service request & to visit CSO to perform maintenance.
6	Replacement	20890	2012	$59,054	109,714	$44,116	Sprinter Van	Used by WWC customer service work group to respond to service request & to visit CSO to perform maintenance.

Est, Cost	Division 701X	Work Group	Reason	Justification	Impact if not replaced
$425,000	4500000	Cleaning & Assessment	Age & Condition	The chassis will be 14 years old at the time it is scheduled to be replaced. Greater chance of a major repair as the unit ages.	Increased maintenances cost, increase down time for repairs. Delays in the crews assessing sewer pipe in maintenance & emergency situations.
$425,000	4500000	Cleaning & Assessment	Age & Condition	The chassis will be 14 years old at the time it is scheduled to be replaced. Greater chance of a major repair as the unit ages.	Increased maintenances cost, increase down time for repairs. Delays in the crews assessing sewer pipe in maintenance & emergency situations.
$145,000	4500000	Asset Repair	Age & Condition	This vehicle will be 15 years old at the time it is scheduled to be replace. The LTD cost are currently 78% of the original purchase price.	Increased maintenances cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$145,000	4500000	Asset Repair	Age & Condition	This vehicle will be 15 years old at the time it is scheduled to be replace. The LTD cost are currently 57% of the original purchase price. Condition of the body is poor. The mileage is expected to be over 100,000 when it is replaced.	Increased maintenances cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$55,000	4500000	Customer Services	Age & Condition	At the time it is scheduled to be replaced it will be 12 years old & mileage will exceed 145,000 . Current LTD cost is 124% of the original purchase price.	Increased maintenances cost, increase down time for repairs. Could lead to increased time to respond to customer service call if vehicles is not available. With the current high mileage the changes of needing a major repair is amplified. Reduced utilization.
$55,000	4500000	Customer Services	Age & Condition	At the time it is scheduled to be replaced it will be 10 years old & mileage will exceed 120,000 . Current LTD cost is 74% of the original purchase price.	Increased maintenances cost, increase down time for repairs. Could lead to increased time to respond to customer service call if vehicles is not available. With the current high mileage the changes of needing a major repair is amplified. Reduced utilization.

	Replacement or Addition	Repl. No.	Year	Purchase Price	Mileage	L.T.D. Cost	Description	Purpose of Vehicle
7	Replacement	60914	2006	$78,585	27,910	$24,471	Utility truck chassis	Used by Muddy Creek Treatment Plant maintenance to haul personnel, parts & tools to the job site & is also set up with a air compressor & crane used to lift pumps & motor to perform maintenance & repairs.
8							Body	
9	Replacement	30892	2013	$53,677	121,695	$37,418	Sprinter Van	Used by WWC customer service work group to respond to service request & to visit CSO to perform maintenance.
10	Replacement	843	2011	$28,102	84,306	$20,777	PickUp Truck W/ Plow & Spreader	Truck is used by the maintenance crews @ the Sycamore plant. It is also the plant's winter operations truck.
11	Replacement	80799	2008	$27,274	68,399	$35,422	PickUp Truck W/ Plow & Spreader, liftgate	Used by asset renewal as a traffic control unit. Unit is also used for WWC. Winter Operations
12	Replacement	80819	2008	$19,463	63504	26,347	Pickup Truck	The unit is used by the grounds crews for grounds maintenance, pulls trailers & hauls.
13	Replacement	30870	2013	$28,819	72,170	$37,276	Pickup Truck	This unit is used by the pump station crews

Est, Cost	Division 701X	Work Group	Reason	Justification	Impact if not replaced
$65,000	444000	Plant Maintenance/ Muddy Creek	Age & Condition	Truck will be 16 years old at its scheduled replacement time. Chassis only will be replaced. Current LTD is 43% of the original cost.	Increased maintenances cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$50,000					
$55,000	450000	Asset Renewal	Age & Condition	At the time it is scheduled to be replaced it will be 9 years old & mileage will exceed 135,000 . Current LTD cost is 70% of the original purchase price.	Increased maintenances cost, increase down time for repairs. Could lead to increased time to respond to customer service call if vehicles is not available. With the current high mileage the changes of needing a major repair is amplified. Reduced utilization.
$38,000	4450000	Sycamore Plants	Age & Condition	At the time it is scheduled to be replaced it will be 12 years old, the mileage will exceed 90,000 . Current LTD cost is 73% of the original purchase price. Underside of bed severely rusted.	The ability of the truck to haul necessary tools & supplies has been compromised by the beds weakness in the floor.
$43,000	4500000	Asset Renewal	Age & Condition	At the time it is scheduled to be replaced it will be 14 years old, the mileage will exceed 75,000 . Current LTD cost is 130% of the original purchase price. Underside of bed severely rusted.	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties. Including snow operations
$28,000	4490000	Grounds Crews	Age & Condition	At the time it is scheduled to be replaced The truck will be 14 years old & has a LTD cost of 135% of the original cost. The underside of bed is severely rusted	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$36,000	470000	Pump Station	Age & Condition	At the time it is scheduled to be replaced The truck will be 9 years old & has a LTD cost of 130% of the original cost	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.

Fleet Request (continued)

	Replacement or Addition	Repl. No.	Year	Purchase Price	Mileage	L.T.D. Cost	Description	Purpose of Vehicle
14	Replacement	607	2010	$30,685	85,455	$4,628	hybrid suv	Inspection of contractors installation of sewer pipe
15	Replacement	611	2010	$30,498	81,480	$7,327	hybrid suv	Inspection of contractors installation of sewer pipe
16	Replacement	80676	2008	$23,104	58,713	$8,415	4wd suv	used by supervision to bring out tools & supplies & to check on jobs
17	Replacement	80680	2008	$23,077	33,940	$14,148	4wd suv	Eng/RCS Pool
	Replacement	40645	2014	$21,784	82,200	$7,451	Dodge Caravan	Mail Runner
18	Replacement	10661	2011	$18,922	81,689	$16,239	Dodge Caravan	Field Supervisors checking / assisting crews
	Replacement	70802	2007	$19,133	84,340	$14,190	Ford Transit Van	transporting tools & supplies for the maintenance personnel

Est, Cost	Division 701X	Work Group	Reason	Justification	Impact if not replaced
$29,000	4214100	Engineering Management	Age & Condition	At the time it is scheduled to be replaced unit will be 12 years old & will have over 90,000 miles.	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$29,000	4500000	asset renewal	Age & Condition	At the time it is scheduled to be replaced the unit will be 12 years old & will have over 90,000 miles	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$29,000	470000	Pump Stations	Age & Condition	At the time it is scheduled to be replaced unit is 14 years old with the LTD costs are at 36% of original purchase.	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$29,000	4211100	Eng/RCS	Age & Condition	At the time it is scheduled to be replaced unit will be 14 years old with the LTD costs are at 61% of original purchase.	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$28,000	4490000	Grounds Crews	Age & Condition	At the time it is scheduled to be replaced unit will be 8 years old & is used by the mail runner. & the vehicles will accumulates mileage quickly	Increased maintenance cost, increase down time for repairs. Reduced utilization. Slowing down the mail delivery in MSD.
$24,000	4500000	Asset Renewal	Age & Condition	At the time it is scheduled to be replaced unit will be 11 years old with LTD costs @ 90% of the original purchase.	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$42,000	4490000	Equipment Maintenance	Age & Condition	At the time it is scheduled to be replaced unit will be 15 years old & has a LTD cost @74% of the original purchase	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.

Fleet Request (continued)

	Replacement or Addition	Repl. No.	Year	Purchase Price	Mileage	L.T.D. Cost	Description	Purpose of Vehicle
19	Replacement	70835	2007	$22,802	62228	$11,761.00	Ford Transit Van	Transporting tools & supplies for the surveyor personnel
20	Replacement	90879	2009	$17,118	71392	$15,176.00	Ford Transit Van	Transporting tools & supplies for the maintenance personnel
21	Replacement	90888	2009	$17,133	52615	$30,309.00	Substitute van for suv	Transporting tools & supplies for the maintenance personnel
22	Replacement	175	2010	$15,892	53,472	$9,429	Passenger Midsize Car	WWT Planners Group
23	Replacement	32812	2013	$18,249	7,329	$14,731	All Terrain 4W 4WD	Transport maintenance people & tools & supplies for the treatment plants
24	Replacement	52809	2005	$12,246	869	$24,938	All Terrain 6W 6WD	Used by Cleaning & Assessment to support off road crews to transport tool, cctv equipment, hose.
25	Replacement	52807	2015	$17,091	13,836	$23,093	All Terrain 4W 4WD	Transport maintenance people & tools & supplies for the treatment plants

Est, Cost	Division 701X	Work Group	Reason	Justification	Impact if not replaced
$42,000	4213100	Surveying	Age & Condition	At the time it is scheduled to be replaced unit will be 15 years old & has a LTD cost @51% of the original purchase	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$42,000	4500000	Asset Renewal	Age & Condition	At the time it is scheduled to be replaced unit will be 13 years old & has a LTD cost @89% of the original purchase	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$29,000	4420000	Millcreek operations	Age & Condition	At the time it is scheduled to be replaced unit will be 13 years old & has a LTD cost @176% of the original purchase	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$22,000	4490000	WWT Planners Group	Age & Condition	At the time it is scheduled to be replaced unit will be 12 years old with the LTD costs are at 60% of original purchase.	Increased maintenance cost, increase down time for repairs. Reduced utilization.
$22,000	4420000	WWT Plant Maintenance	Age & Condition	At the time it is scheduled to be replaced the unit will be 9 years old & current LDT maintenance cost is at 80% of the purchase price.	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$22,000	4500000	Cleaning & Assessment	Age & Condition	At the time it is scheduled to be replaced unit will be 17 years old & current LDT maintenance cost is at 200% of the purchase price.	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$22,000	4420000	WWT Plant Maintenance	Age & Condition	At the time it is scheduled to be replaced unit will be 7 years old but the LTD costs are at 135% of the original cost	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.

Fleet Request (continued)

	Replacement or Addition	Repl. No.	Year	Purchase Price	Mileage	L.T.D. Cost	Description	Purpose of Vehicle
26	Replacement	42830	2014	$11,459	1,232	$14,676	Zero Turn Mower	Ground maintenance for all MSD. facilities
27	Replacement	42849	2014	$11,401	491	$11,453	Zero Turn Mower	Ground maintenance for all MSD. facilities

TOTAL

Est, Cost	Division 701X	Work Group	Reason	Justification	Impact if not replaced
$20,000	4490000	Grounds Crews	Age & Condition	At the time it is scheduled to be replaced unit will be 8 years old but the LTD costs are at 128% of the original cost	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.
$20,000	4490000	Grounds Crews	Age & Condition	At the time it is scheduled to be replaced unit will be 8 years old but the LTD costs are at 100% of the original cost	Increased maintenance cost, increase down time for repairs. Reduced utilization. Crews not having equipment to perform their duties.

$1,777,000

OTEA Request

DEPT.	DESCRIPTION	2021	2022	2023
420	Carpet Updating & Recycling	$25,000	$25,000	$25,000
	WWE Total	**$25,000**	**$25,000**	**$25,000**
440	SCADA Annual Server Replacement Program	$122,400	$124,848	$127,345
440	SCADA Disaster recovery replacement (from out of warranty/ end of life equipment)	$122,400		
	WWT Total	**$244,800**	**$124,848**	**$127,345**
431	Network Switch Life cycle Replacement	$150,000	$150,000	$150,000
431	Datacenter Improvements	$384,000	$320,000	$250,000
431	Workstation/Laptop Life cycle Replacement	$190,000	$100,000	$100,000
431	Specialty/Security Items	$75,000	$75,000	$75,000
	IT Total	**$799,000**	**$645,000**	**$575,000**
450	CDL Truck & Heavy Equipment Simulator	$225,000		
450	Replacement Sewer Cameras, Launchers & Tractors	$400,000	$400,000	
450	WWC Original Building - Bathroom Renovations	$75,000	$10,000	
450	WWC Yard Equipment Building	$250,000	$250,000	
450	GNSS Rover	$100,000	$250,000	$250,000
450	Replacement Air Release Valves	$15,000	$15,000	
450	Manhole Inspection Equipment-Cleverscan	$5,000	$5,000	
450	Replacement Sewer Cleaning Nozzles/Hydraulic Root Cutters	$50,000	$50,000	
450	JetScan Replacement	$15,000	$15,000	
450	Reusable tunnel liner plates for pipe installation	$155,000	$50,000	$50,000
450	Transmitter, Line Tracer, UG line locater		$9,000	
450	Plumbing tap camera equipment	$10,000	$10,000	
450	Main Office-Replacement of South Carrier HVAC Unit, (Replacement)	$12,000		
450	Security cameras	$25,000		
450	Maintenance Shop Furniture	$40,000	$40,000	
450	Replacement of three (3) entry doors	$25,000		
450	Replacement of (4) interior steel doors		$30,000	
450	Replacement of Main Office (South) HVAC Unit/Add to ALC. Unit purchased in 2021.		$50,000	
450	Annex RTU-1 HVAC Unit Replacement		$150,000	
450	OTEA - Fleet Garage's Shop Tools (Tire changer, used oil tank, misc tools)		$20,000	
	WWC TOTAL	**$1,402,000**	**$1,354,000**	**$300,000**

DEPT.	DESCRIPTION	2021	2022	2023
460	Sampling & Field Analysis Equipment	$100,000	$100,000	
460	Solid Phase Extraction System (BNA)		$140,000	
460	GC/MS with Purge & Trap concentrator		$125,000	
460	BOD analyzer		$48,000	
460	Ion Chromatorgrpahy Instrumentation		$90,000	
460	Lab equipment misc replacements		$100,000	
460	Horizon Replacement Unit	$35,000		
460	Qualtrax-QC online software	$35,000		
460	GC/ECD Instrument	$100,000		
460	Phase contrast microscope w/camera attachment capability	$26,000		
460	Dishwasher	$20,000		
460	Remote Monitoring Telemetry Replacement (EOL)		$250,000	
	CS TOTAL	**$316,000**	**$853,000**	
470	Monitoring equipment life cycle replacement	$100,000	$100,000	
470	Spare pumps	$90,000	$90,000	
	WO TOTAL	**$190,000**		
	TOTAL ANNUAL OTEA NEEDS	**2,976,800**	**$3,001,848**	
	2022 REQUEST (less than identified needs)*		**$1,650,000**	

*MSD will manage within the budget requested, which is less than outined as need.


METROPOLITAN
SEWER DISTRICT
OF GREATER CINCINNATI

Debt Service

2020 Debt Payment	Principal	Interest	Total
Revenue Bond	$31,230,000	$21,939,250	$53,169,250
OWDA	$22,069,245	$7,493,053	$29,562,299
OPWC	$38,777	$1,965	$40,742
Capital Lease (Eng. Bldg.)	$795,000	$321,225	$1,116,225
City	$745,000	$316,300	$1,061,300
TOTAL	**$54,878,023**	**$30,071,793**	**$84,949,816**

Revenue Bond	Principal	Interest	Total
2013 A Bonds	$8,155,000	$7,135,000	$15,290,000
2014 Bonds	$9,330,000	$5,773,500	$15,103,500
2015 Bonds	$1,810,000	$389,500	$2,199,500
2019A Bonds	$5,865,000	$5,116,000	$10,981,000
2020A Bonds	$6,070,000	$3,525,250	$9,595,250
TOTAL	**$31,230,000**	**$21,939,250**	**$53,169,250**