



# **Our Community Impact & Accountability**

December 2022

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**#3UtilitiesInOne**

Wastewater



Stormwater



Flood Protection



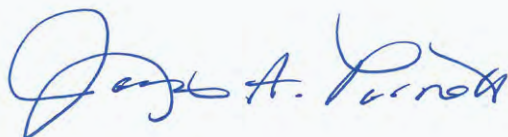
Louisville MSD operates as three utilities in one, united by a common purpose: to ensure safe, clean waterways for the people we serve. This purpose-driven approach touches all aspects of our operations and day-to-day work. It's what enables us to make a positive impact on our community through our core responsibilities of wastewater treatment, stormwater management and flood protection.

In many communities, multiple service agencies perform those duties separately, yet MSD is responsible for all three functions for hundreds of thousands of households. As one agency, we are able to share “back office” and administrative duties across these three areas in order to efficiently and professionally provide high-quality service and response to our customers.

Large portions of our budget continue to go to system improvements and projects designed to meet the environmental requirements of our federal consent decree to reduce sewer overflows that occur during periods of heavy rain. MSD also must face head-on the challenge of aging infrastructure. Across our community, we continue to see underground pipes – some built 100 years ago or more – that are at risk or that fail and require emergency repair. Similarly, there are vital MSD facilities that have reached the end of their functional lifespan. The challenges are great, yet MSD stands ready for the task.

This report outlines the breadth and scope of our services, as well as highlights several key initiatives and programs that are helping us effectively meet our objectives. In addition, it recaps our long-term strategic plan – Blueprint 2025 – that guides our ongoing work to achieve our vision, while also tracking measurable outcomes.

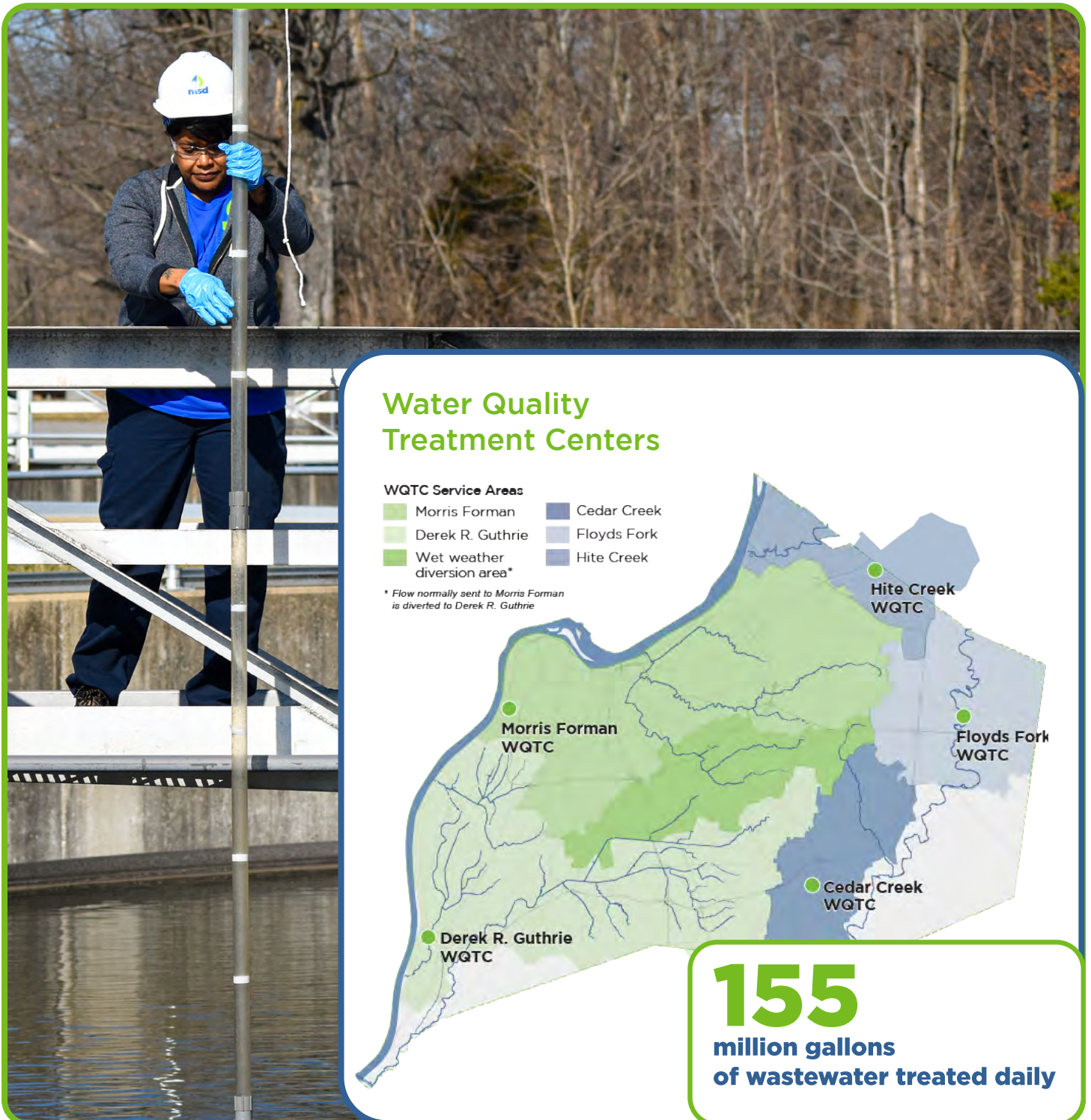
On behalf of MSD's board and our 650 employees, I am pleased to share this report of our impact and accountability to the community, as we move forward as #3UtilitiesInOne to achieve safe, clean waterways across our region.



James A. Parrott  
Executive Director



# WASTEWATER



What happens when you pour something down the drain, flush the toilet or take a shower? Or when manufacturing and industrial companies have water-borne discharges? MSD takes care of all that used water. Wastewater collection operates largely beneath your feet as miles of pipes transport wastewater—and, in older sections of our city, rainwater also—to one of our Water Quality Treatment Centers where it is treated and returned to area waterways cleaner than the water that’s already there, helping foster quality of life and economic development.



## Upgrading a Critical Facility

The Morris Forman Water Quality Treatment Center manages wastewater treatment for roughly two-thirds of our community, designed to treat 120 million gallons per day (MGD). While this is one of our most vital assets, it also is one of our most dated, after more than 64 years in service.

MSD is investing \$198 million in Kentucky's largest wastewater treatment facility, to replace the outdated biosolids processing system with a modern facility to process greater volume and reduce pollutants discharged into the Ohio River. The resulting capacity will produce 40,000 dry tons of exceptional quality biosolids per year for beneficial reuse, reducing reliance on landfills. This critical project received a boost of a \$97 million loan under the Water Infrastructure Finance and Innovation Act. Completion is expected by 2026, well ahead of the Consent Decree's 2030 deadline.



Morris Forman Water Quality Treatment Center

## Reducing Sewer Overflows and Complying With Federal Regulations

Over two decades, MSD has invested \$1.2 billion in underground storage facilities, green infrastructure and other gray infrastructure projects across the community to comply with the Consent Decree with the U.S. EPA under the Clean Water Act.

Most recently, we completed the \$221 million Waterway Protection Tunnel, MSD's largest ever capital project to date. At four miles long and 18 stories underground, the tunnel helps prevent sewer overflows from polluting the Ohio River and Beargrass Creek during heavy rain, by storing up to 55 million gallons of stormwater and wastewater per rain cycle - reducing sewer overflows by 500 million gallons annually.

To date, MSD Consent Decree projects have reduced combined sewer overflows into local waterways by 5.85 billion gallons in the typical rainfall year.



## Expanding Capacity for Sustainable Community Growth

MSD completed an improvement project at Hite Creek Water Quality Treatment Center to support development in this growing area. Replacing aging equipment with current technology has increased energy efficiency and reduced maintenance costs, while improving the quality of effluent released into Hite Creek and reducing odor. Plus, expanding peak wet-weather treatment capacity to 24 MGD is eliminating sewer overflows upstream.

We also continued our focus on improving biosolids management, as the Hite Creek facility can now dewater sludge on-site, eliminating the monthly transfer of more than 312 truckloads of liquid sludge to the Morris Forman facility on the other side of the county.



Hite Creek Water Quality Treatment Center



# STORMWATER



When it rains, all that stormwater has to go somewhere. MSD manages Louisville's 376-square mile stormwater drainage area\* that moves stormwater as quickly as possible from neighborhoods and business districts during and after rainstorms.

*\*MSD does not manage stormwater within Anchorage, Jeffersontown, Shively and St. Matthews*

## Louisville's Stormwater/Drainage System:

**69,777**  
catch basins

**1,475** miles  
in roadside ditches

**1,102** miles  
of drainage pipe

**675**  
detention basins





## Helping Customers Reduce Flood Insurance

MSD participates in the Federal Emergency Management Agency's Community Rating System (CRS) for the benefit of residents living in floodplains. This voluntary rating system provides discounts to flood insurance for communities that meet defined criteria for comprehensive floodplain management and other activities to lower flood risk.

MSD's diligence in drainage and floodplain management systematic improvements help improve Louisville's rating. Our credited activities include: maintaining and upgrading the drainage system, providing regulatory standards for development, acquiring flood-prone homes, tracking floodplain elevation certificates, engaging with realtors and lenders regarding flood hazards, and community outreach.

As a result, MSD has helped Louisville earn a Class 3 rating, which provides a 35% discount on flood insurance premiums, saving community residents more than \$2 million each year. Of the 1,520 communities participating nationally, Louisville's class is among the 1% best-rated communities.



## Solving Neighborhood-level Drainage Challenges

Project DRI (Drainage Response Initiative) focuses on resolving customer drainage challenges of residential flooding, erosion, standing water and more. MSD has invested more than \$100 million in Project DRI efforts since 2003, resolving approximately 10,000 customer service requests and completing more than 1,500 drainage projects – including adding more than 1 billion gallons of stormwater storage in the low-lying Pond Creek watershed.



## Upgrading Catch Basins to Reduce Odor

Catch basins play an important role in collecting stormwater. Yet, during extended periods of dry weather, these basins can be a source of odor that naturally occurs when materials decompose – particularly in the older parts of the city where stormwater and wastewater flows through the same underground pipes.

MSD launched the cIAIRity program to educate and inform area residents about odor-reduction efforts and encourage residents to report odors so that MSD can address them.

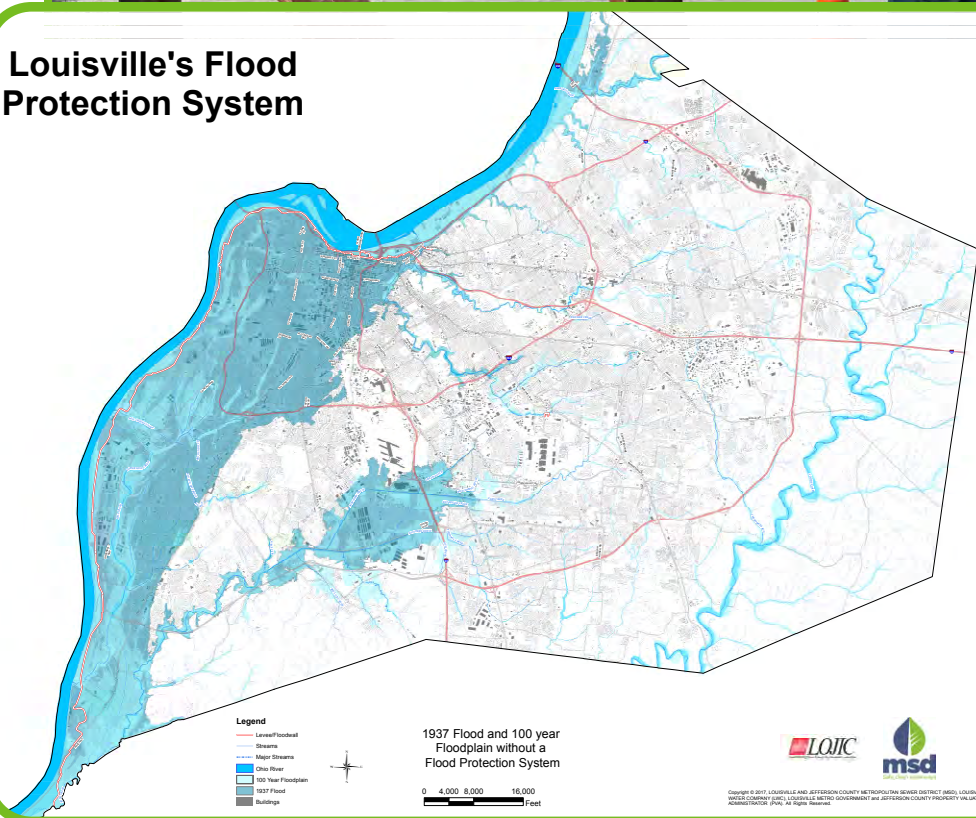
As part of this, MSD is systematically updating catch basins built without traps (think about the curved pipe under a kitchen sink that uses water to prevent odors from escaping) to help reduce odor. Repairs at 20 Park DuValle catch basins are complete with 75 repairs slated next for the California neighborhood, with Chickasaw, Shawnee and Taylor Berry to follow.



# FLOOD PROTECTION



## Louisville's Flood Protection System



Being a river city has advantages, but it also comes with the challenges of protecting homes and businesses from Ohio River flooding. With 38 miles of Ohio River shoreline under our watch, MSD has a big job in keeping the river contained during heavy rain events.

## Louisville's Flood Protection System Protects:



More than 200,000 people



137,000 structures



\$34 billion in property

**150**  
floodgates

**79**  
floodwall structures

**16**  
flood pumping stations

**26.1**  
miles of floodwall and levee





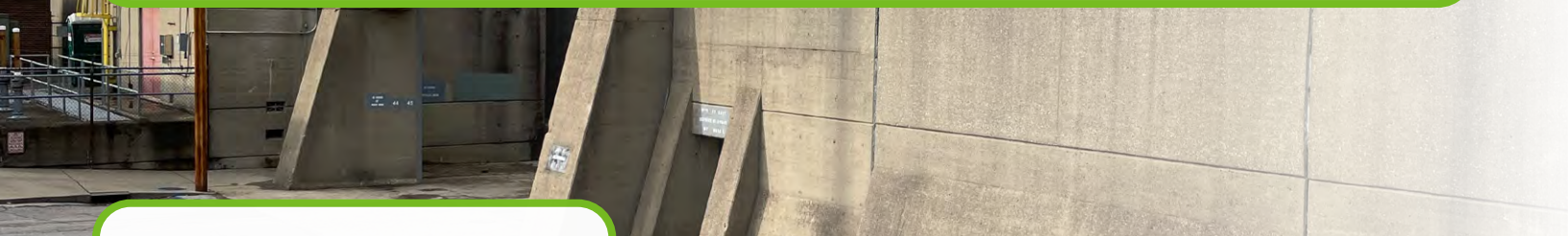
## Replacing a Key Asset Protecting 40 Neighborhoods

The Paddy's Run Flood Pumping Station in West Louisville helps protect 200,000 properties and a large portion of West Louisville. A nearly 70-year-old facility, MSD has kept Paddy's Run in service through constant maintenance, as it operates with original parts that are no longer available for replacement. It is doing a 21st century job with 1950s technology.

MSD is planning a \$230 million project to replace Paddy's Run with a new, modern pump station doubling pumping capacity from the current 875 million gallons per day to 1.9 billion gallons per day, to meet a projected 10-year, 24-hour storm event. Significant benefits will include:

Increasing capacity to reduce flood risk for 63,000 residents, improving resilience and delivering a measure of environmental justice to the predominantly Black neighborhoods of West Louisville. Reducing combined sewer overflows that occur during flood conditions, also helping prevent catastrophic environmental harm by protecting the Rubbertown industrial area from flooding. Aligning with the federal government's Justice40 priorities, ensuring that at least 40% of federal climate investments go directly to frontline communities most affected by poverty and pollution.

MSD successfully pursued a \$12 million Cleaner Water grant under the American Rescue Plan Act to assist in funding this crucial project.



## Ensuring Viability of the Community Levee System

The U.S. Army Corps of Engineers originally built our flood-protection system, and MSD took responsibility for management in 1987. The levee earned an overall score of 98% in the Army Corps' most recent inspection. Not only does this rating indicate the levee will perform as intended, it also meets the requirements to maintain Louisville's eligibility to receive rehabilitation assistance under Public Law 84-99.





# Effective Utility Management

## MSD's path toward becoming a utility of the future

From important issues of affordability amid rising costs, to aging infrastructure and ongoing regulatory requirements, today's water sector utilities face many complex challenges. And, the enhanced responsibilities and customer expectations of operating a public utility are quite different from a private, for-profit company that some communities have providing similar utility functions.

That's why, since 2020, MSD has systematically advanced through a regimented process known as "Effective Utility Management" or EUM. Now the most widely recognized water-sector utility management program in the country, EUM is supported by the U.S Environmental Protection Agency and the major water sector associations, including: American Water Works Association, the Association of Metropolitan Water Agencies, National Association of Clean Water Agencies, Water Environment Federation, and more. EUM's goal is to help public water utilities around the country implement proven and effective practices over time to improve their critical business activities required to deliver core services and move towards sustainability; at a pace consistent with their needs and the needs of their communities.

MSD's Blueprint 2025 is our organization-wide, purpose-driven initiative to refine and enhance our daily work and deliver quality services to our customers – all while we strive towards becoming a utility of the future and achieving our vision to become the innovative regional utility for safe, clean waterways.

We have a massive job and, to tackle it, MSD pursues five areas of focus we call "critical success factors" (CSF). We have established progressive goals for our critical business functions, as well as a number of transformational initiatives, and we are updating and tracking progress toward each on a regular basis to ensure accountability. The following pages highlight each critical success factor under MSD's Blueprint 2025 Initiative.

### CSF 1:

#### Sustain Quality and Compliant Services

This is championing the protection of public health and safety – and the environment – through sustainable solutions, operations, support systems and management practices across our three core functions of wastewater, stormwater and flood protection service.

##### Areas of focus:

- Operational management optimization
- Regulatory compliance
- Chemical use management
- Operational technology
- Operational management optimization
- Labor/equipment utilization and fleet management
- Asset management
- Procurement support and inventory management



## CSF 1 Key Metrics

(Fiscal 2021/22)

### Permit Compliance for Quality of Treated Water Released Back into Waterways

Rating: 5/5



18+

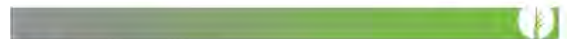
permit exceedance mos.

0-2

One permit exceedance month, across five facilities, 12 months

### Maintaining Flood Pump Readiness

Rating: 5/5



<70%

90%+

98.4% cumulative pump service availability during flood season

### Assessing Wastewater Pumping Capacity

Rating: 5/5



<75%

90%+

96.7% completed assessments and resulting action plans to restore capacity if warranted

### Structured maintenance across pump stations, water quality treatment centers and flood-protection systems

Rating: 5/5



<58%

88%+

89.7% work orders completed by the target date

### Inspections of sanitary sewers, air relief valves, force mains floodwall/levee, catch basins, and overflow infrastructure

Rating: 5/5



<60%

90%+

85.3% inspections completed by target date

## Science and Innovation Lead Technology Implementations

Seeking to implement leading edge technology and industry-best services helps MSD meet our vision to be the innovative regional utility for safe, clean waterways. One such example is MSD's internationally recognized implementation of Csoft® Real-Time Control technology.

This innovation allows MSD to remotely manage the flow of underground sewer networks in real-time, based on rain forecasts and in-pipe sensor readings. The technology responds to rainfall and actual system conditions with the software interfacing with facilities in the ground to determine how to optimize flow across MSD systems that manage excess water. The network also ties into our Waterway Protection Tunnel and 15 storage flow basins across the city to reduce sewer overflows during periods of heavy rain.

Implementing real-time controls dramatically changed the way we operate the system and has saved the community more than \$200 million in infrastructure costs. MSD earned the internationally acclaimed Franz Edelman Award for its real-time controls technology, over other nominees including IBM, Microsoft, Boston Public Schools, and the Spanish National Aviation Authority.



## CSF 2:

### Earn Community Trust Daily

Consistent delivery of quality services on a day-in, day-out basis is critical to earning community trust in the value of MSD. Additionally, how we engage the public, as well as our responsive and respectful interactions with our customers, contribute greatly to success.

#### Areas of focus:

- Community education and involvement
- Stakeholder engagement and governmental stewardship
- Customer commitment and support
- Community impact and social stewardship
- Economic impact and stewardship

### Increasing Opportunities Through Supplier Diversity

MSD has been a community leader in increasing opportunities for minority and woman business enterprises since 1985, and recently enhanced our Supplier Diversity Program, to broaden the firms that receive contract opportunities on MSD construction, engineering, or other projects.

During bid evaluations on projects between \$30,000 and \$500,000, certified businesses representing ethnic and gender groups of Black, Hispanic, Asian Pacific, Asian Indian, and Female Caucasian receive a discount on their prime contractor bid. For subcontracting, construction contracts above \$150,000 have goals of at least 35% to businesses representing various ethnic and gender categories.

In the past five years, MSD has spent more than \$157 million with minority and women contractors.

## CSF 2 Key Metrics

(Fiscal 2021/22)

### Customer service request responsiveness to cave-ins, backups or discharges

Rating: 5/5



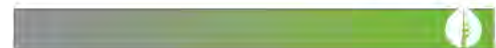
12+ hours

<4.5 hours

4 hours 19 minutes average response time from initial customer call to MSD arriving on-site, assessing the situation and communicating response plan with customer

### Customer service call quality

Rating: 5/5



<80%

95%+

96.9% average survey scored for adequate and accurate information provided, professionalism and politeness

### Timely vendor invoice payment

Rating: 3/5



<85%

97%+

94.9% monthly percent of invoices paid per terms

### Timely review of private development construction plans

Rating: 5/5



31+ calendar days

<8 calendar days

Averaged 7.42 days to review plans across eight months of data, totaling 1,554 development plan reviews

### Minority and women-owned business participation in contracting

Rating: 2/5



<12.79%

23%+

14.25% cumulative percentage of total contract spend awarded to MWBE



## Together, the Community Benefits

MSD strives to be a good neighbor and we invite our partners to use their resources to provide a positive impact as well. Our Community Benefits Program encourages contractors on construction projects over \$2 million or professional service contracts over \$200,000 to voluntarily submit community initiatives they will pursue if awarded the project.

To date, MSD contractors have invested more than \$2.5 million back into the community through: supporting weekend meals for more than 290 students; volunteer hours to build and rehab homes; improvements to Chickasaw Park; playground and classroom experiences; and planting more than 125 trees throughout the community. Since the program's inception, our Community Benefits Program has impacted more than 4,700 rate payers throughout our service area.



## Taking the Safe, Clean Waterways Message to the Community

MSD prioritizes community engagement to ensure residents understand our services and their role in safe, clean waterways.

Our PSA campaign, "The Bowl Patrol," features MSD's friendly cast of characters who take a light-hearted yet memorable approach. Their pointed advice helps residents understand what not to flush, to prevent damage to your pipes and pocketbook. The video and printed education series takes customers on a journey through the Three Ps of toilet etiquette and all of the "friends" that shouldn't join the Bowl Patrol for their porcelain party - like Zippy the goldfish, floss, wipes and more.

MSD's mascot, Mandy, is our very own Eastern Tiger Salamander. Because salamanders are found in Louisville's clean creeks and streams, Mandy shares how to protect waterways through her children's storybook, community events, videos and more.

## CSF 3 Key Metrics

(Fiscal 2021/22)

### Timeliness of non-union employee performance appraisals

Rating: 5/5



97.2% on time, across 354 appraisals

### Completion of required training per role

Rating: 5/5



98.4% composite score for training completion

### Timeliness of union employee performance appraisals

Rating: 5/5



98.4% on time, across 2,190 appraisals

### Minimize number of days required to fill positions

Rating: 3/5



Cumulative average 49.5 total days to fill positions

### Assignment of organizational, team and individual goals

Rating: 5/5



97.2% of 357 individual and team goals assigned by deadline

## CSF 3:

### Be an Employer of Purpose with Opportunities to Thrive

MSD employs approximately 650 community members and we strive to attract, equip and retain each to contribute to an effective and efficient workforce, reflective and supportive of our community, which delivers high-quality services to customers.

#### Areas of focus:

- Market, attract and employ talent
- Manage workplace culture and communication
- Equip, train and retain talent
- Plan leadership and management talent succession
- Manage workplace health and safety

### Fostering a Pipeline of Talent

To address a labor shortage in skilled trades, MSD launched a four-year apprenticeship program with Jefferson Community & Technical College to teach and train Registered Maintenance Mechanics through a combination of classroom instruction and on-the-job training. We are readying to launch a second apprenticeship program for Registered Maintenance Electricians as well.

MSD also has focused on removing barriers to employment for individuals with criminal records who have completed their sentences - and, recognizing that some of Kentucky's prisons train inmates to run their wastewater treatment facilities, have participated in correctional facility job fairs to source talent.



# CSF 4:

## Ensure Financial Stewardship and Sustainability of Community Resources

As MSD is directly accountable for managing our ratepayers' funds, we must responsibly meet today's operating and capital investment needs, while managing risk and long-term affordability for our customers.

Areas of focus:

- Accounting, auditing and financial reporting
- Budget and fiscal policy
- Debt management
- Risk management and emergency response planning
- Recovery and mitigation
- Energy management and materials recovery

### Proactive Financial Management

MSD's approved FY23 budget encompasses \$176.6 million in operating expenses, and a \$195 million capital plan to support 190 projects.

While our Critical Repair & Reinvestment Plan has identified \$4.3 billion in capital improvements to be made across our system over several years, we must constantly balance the mandated requirements of our federal Consent Decree with the EPA to significantly reduce sewer overflows during heavy rains. In fact, approximately 70% of FY23's capital improvement plan, and a projected 83% of the five-year plan, is dedicated to Consent Decree work, state-agreed orders and other regulatory requirements.

Proactive financial management is helping MSD balance the critical capital needs across our system with the realities of our budget. We recently negotiated an amendment to the Consent Decree, extending the timeframe for those projects – and allowing MSD more flexibility to begin key improvement projects that previously were several years down the priority list.

We also are pursuing a number of innovative financing programs such as the Water Infrastructure Finance and Innovation Act (WIFIA) low-interest loan program will enable MSD to replace and upgrade the biosolids processing system at Morris Forman Water Quality Treatment Center, and we're actively pursuing other new funding programs through The American Rescue Plan and innovative tools like climate bonds and commercial paper that help us maximize our budget and resources in serving the community.

### Credit Rating

A strong credit rating allows MSD to obtain lower interest rates when we borrow money, thereby reducing our cost of borrowing over the lifetime of the debt.

The FY23 budget includes 79% of MSD's capital program financed with debt, which makes maintaining or improving our credit ratings a key objective of our financial plan. Our proactive financial management has helped maintain stable ratings, despite the financial market turbulence over the past few years.

**Aa3**

Moody's

**AA**

S&P

**AA-**

Fitch

### CSF 4 Key Metrics

(Fiscal 2021/22)



#### Attainment of capital project schedule milestones

Rating: 4/5



92.1% of scheduled milestones of capital improvement plan achieved

#### Adherence to capital project spend compared to approved budget

Rating: 4/5



84.4% cumulative rolling projected annual budget spend

#### Ensuring construction change orders remain within industry standards

Rating: 5/5



0.9% percentage increase to total contract costs due to change orders

#### Management of operating expenditures against approved budget

Rating: 5/5

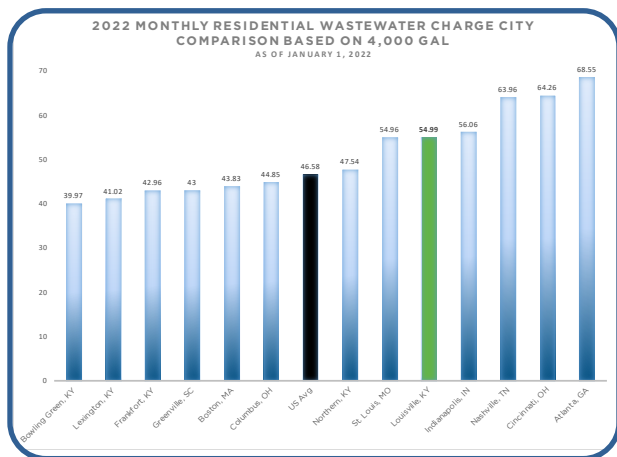


98.4% cumulative annual spend as a percent of budget



## Affordability

The U.S. Environmental Protection Agency (EPA) has established affordability guidelines for the cost of wastewater service based on the median household income (MHI) of the service area. EPA considers a wastewater rate of 1% of MHI low while a rate of 2% is considered high. Based on the MHI within Jefferson County, MSD's average annual wastewater rate for Jefferson County during FY22 was 1.13% of MHI, remaining in the low category.



## Rate Assistance

MSD recognizes that the affordability of the essential services it provides is a concern for many. We have implemented the following programs to provide assistance to the most vulnerable in our community. MSD expects to provide over \$1.8 million in total customer assistance in FY23.

### EWRAP



MSD implemented the Emergency Wastewater Rate Assistance Program (EWRAP) in 2020, and the FY23 budget effectively triples this discount program. EWRAP now provides a 30% discount on MSD wastewater services to customers with a total household income at or below 150 percent of the federal poverty line.

### Senior Citizens Discount

MSD offers a Senior Citizens Discount program for customers who are 65 years or older with an annual income of \$35,000 or less. Qualifying customers receive a 30% discount on wastewater services. This program provides about \$1 million in assistance to qualifying seniors annually. Customers cannot qualify for both the Senior Discount and EWRAP.

### Drops of Kindness



MSD frequently contributes to the Louisville Water Foundation's Drops of Kindness program to further assist community members, including a \$150,000 allocation for FY23. This funding is distributed to the Association of Community Ministries to provide customer bill assistance to families in need.

## CSF 5:

### Realize Operational Efficiencies and Revenue Generation Through Innovation

To become a utility of the future, we must foster a culture of innovation. MSD is exploring, developing and implementing new approaches and creative partnerships to drive organizational resiliency and sustainability.

MSD established a cross-functional Innovation Team that engages with the water utility industry, research organizations, public health institutions, and universities to learn about new innovations and identify potential opportunities. It then applies those findings in collaborating across MSD teams to support project development and implementation. Some initiatives include:

- Piloting artificial intelligence at Derek Guthrie Water Quality Treatment Center to assist with predictive pump maintenance. Rolling out soon to Cedar Creek facility.
- Facilitating the OneWater partnership with Louisville Water to refine collaborative billing and affordability programs.
- Implementing fees to cover development plan review and inspections, as well as the Unusual Discharge Request permitting program, so that the private sector carries those costs, not the general public ratepayer.
- Exploring efficiencies with services in Oldham and Bullitt counties to provide a more holistic, regional view of watershed management

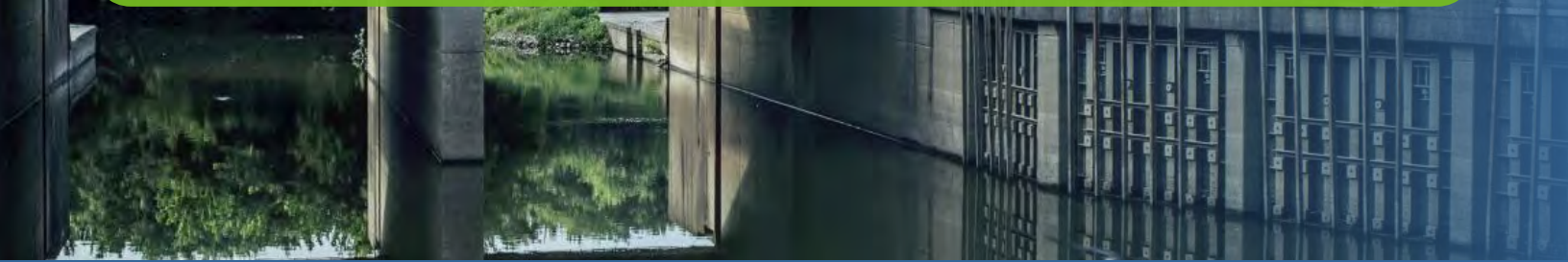


## **MSD Vision:**

The innovative, regional utility for safe, clean waterways

## **MSD Mission:**

Provide quality wastewater, stormwater and flood protection services to protect public health and safety through sustainable solutions, fiscal stewardship and strategic partnerships.



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