

FY2021

Capital Improvement Plan Overview Report



June 18, 2020

Louisville MSD FY21 CIP Overview

DISCLAIMER: This document was prepared to provide a perspective of MSD's recommended FY21. The overview is based upon the best available information as of June 2020. The projects included in this overview may shift among fiscal years; change in scope; or be replaced with higher priority needs. This document presents a reasonable representation of MSD's CIP. It adequately demonstrates the level of investment warranted for MSD's wastewater, stormwater, flood protection, and support systems assets. The costs presented in this document have been escalated to future dollars when appropriate.

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Executive Summary

The Louisville-Jefferson County Metropolitan Sewer District (MSD) developed a draft Capital Improvement Plan (CIP) for Fiscal Year 2021 (FY21). MSD has several programs requiring capital investment during FY21.

- Consent Decree Mandated and Support Projects
- District-Wide Biosolids Management Program
- Flood Protection Program
- Asset Management & Regulatory Programs
- Regionalization Program
- Stormwater Management Program
- Capital Program Support

After consideration of CIP scenarios assuming 6.9%, 3%, and 0% rate increase, the MSD Board approved a suite of projects supported by a 5% rate increase for FY21. These projects were identified and vetted internally to confirm they are a high priority for MSD. Additionally, starting in FY21 MSD will assist with the CIP for Oldham County's utility infrastructure. The following was recommended by MSD staff to the Infrastructure Committee and were subsequently approved by the MSD Board.

- FY21 5% rate increase
- FY21 CIP for Jefferson County \$190.46M
- FY21 CIP for Oldham County \$3.64M
- Total FY21 CIP \$194.1M

The projects included in the FY21 CIP fit into a 5-year capital program. Many of MSD's projects span multiple years and will continue spending beyond FY21. This report provides an overview of the priorities MSD recommends be funded with the FY21 and 5-Year CIP.

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Development of the FY21 CIP

MSD developed a draft CIP for FY21 based upon evaluating the four concurrent data tracks shown in Figure 1. MSD's Finance Division provided annual spend targets based on three potential rate increase scenarios evaluated for FY21 (6.9%, 3%, 0%). Further discussion regarding the scenarios is presented in this document.

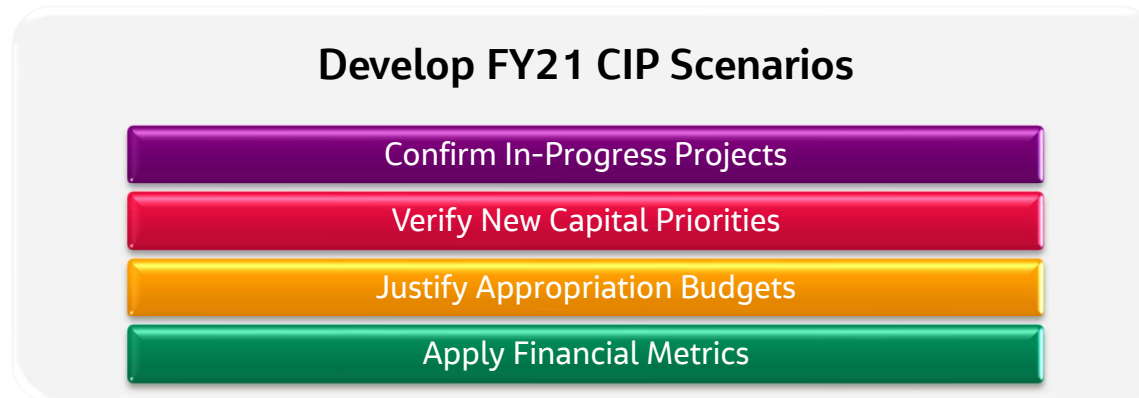


Figure 1: FY21 CIP Development Process Overview

In-Progress Projects

A project that is in design or construction is considered "In Progress." MSD's projects tend to span multiple years from start through substantial completion. Many projects that are in progress now are forecasting future spend. In fact, a total of 71 projects that are in progress during FY20 are forecasting nearly \$270M in expenditures during the FY21-FY25 CIP. The actual expenditures will depend on the FY20 final spend and whether construction is delayed. Delaying construction may help level the year to year CIP, but future estimates are higher due to escalation factors.

New Capital Priorities

To determine CIP needs beyond in-progress projects, the projects in the FY20 – FY24 Capital Program were discussed with asset owners to confirm they remain of highest priority. Additional needs were also identified and discussed.

A Working Group comprised of the Enterprise Program Manager, Project Controls, Planning, Operations, and Engineering staff, held a series of workshops to discuss capital priorities for FY21. The following CIP development meetings were held:

- Biosolids CIP Workshop – January 15, 2020
- Morris Forman WQTC CIP Workshop – January 31, 2020
- MS4 Program CIP Workshop – February 3, 2020
- Regional WQTCs CIP Workshop – February 10, 2020

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- Wastewater Collection System CIP Workshop – February 12, 2020
- IT CIP Workshop – February 19, 2020
- Development & Regionalization CIP Workshop – February 21, 2020
- Flood Protection System CIP Workshop – February 24, 2020
- Asset Management Program CIP Workshop – February 24, 2020

Annual Appropriations

For the first round of budget forecasting, appropriation budgets were developed using a “zero-based budgeting” approach based on the needs provided by the PMs and managers. They also included a risk analysis and an estimated quarter for using the funding. Two new CIP development spreadsheets were created for appropriations: 1) service-based appropriations and 2) asset-based appropriations. A snapshot of the asset appropriations form is shown in Figure 2.

Capital-Budget Planning Sheet							
FY21 CCWQTC EQUIPMENT RR							
Fiscal Year: 2021							
Facility where funds will be spent.	Asset to be replaced or improved.	Short description of work to be done.	Indicate if engineering is required or simply an in-kind replacement.	magnitude estimate	Quarter that you expect to issue a P.O.	Low: Working well but inefficient. Medium: Frequent repairs necessary. High: Imminent failure	Low: Inconvenience. Medium: Requires more operating budget. High: Regulatory/Safety impact.
EX. CCWQTC	Bar screen	screens.	Direct replacement	\$ 150,000	2nd	Medium	Medium
<u>Location</u>	<u>Asset</u>	<u>Description</u>	<u>Purpose</u>	<u>Estimate</u>	<u>Quarter</u>	<u>Likelihood of Failure</u>	<u>Consequence of Failure</u>

Figure 2: Snapshot of Asset Appropriation Budget Development Spreadsheet

Financial Metrics

MSD Finance provided annual and 5-year CIP targets based on FY21 6.9%, 3%, and 0% rate increases. A comparison of the financial targets for the CIP scenarios is presented in Table 1. The 5-Year CIP targets are based upon the 2019 Financial Capability Analysis and the associated updates of MSD’s rate model.

Table 1: Comparison of 5-Year CIP totals for Scenarios Considered

Scenario	FY21 Rate Increase	FY21	FY22	FY23	FY24	FY25	5-Year
1	6.9%	\$ 196	\$ 183	\$ 193	\$ 218	\$ 222	\$ 1,012
2	3%	\$ 191	\$ 182	\$ 186	\$ 213	\$ 213	\$ 985
3	0%	\$ 175	\$ 184	\$ 181	\$ 205	\$ 209	\$ 954

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FY21 CIP Scenarios

Subsequent to the CIP development workshops, draft FY21 CIP preliminary scenarios were developed by the Enterprise Program Manager, Project Controls, and Planning staff. All scenarios were based on the financial targets provided by the CFO and shown in Table 1.

1. Scenario 1: \$196.3M FY21

This scenario maximizes the amount of work MSD could deliver to address aging assets. New projects were prioritized based on: 1) mitigating risk associated with the current condition of infrastructure; 2) regionalization of MSD's service area and adding more future customers; and 3) coordination with third parties (green infrastructure and USACE Flood Protection System).

2. Scenario 2: \$190.5M FY21

This scenario requires a \$5M reduction as compared to Scenario 1. Multiple projects were removed from the Scenario 1 FY21 budget to accommodate this reduced rate increase. Some projects were delayed to future years. The total budget for appropriations was reduced.

- Bells Lane PAA System construction deferred to FY22
- Bells Lane Polymer Feed System construction deferred to FY22
- Floyds Fork Interceptor deferred to start construction in FY22
- MFWQTC Sodium Hypochlorite Building Relocation deferred to FY22
- FY21 overall Appropriation budget cut by \$2.5M

This scenario was developed based upon a 3% rate increase. The same CIP was assumed for a 5% rate increase scenario. The 5% rate increase affords MSD additional Management Reserve funds that will be managed by the Chief Financial Officer (CFO) to balance capital and operating needs.

3. Scenario 3: \$184.6M FY21

This scenario requires a \$6M reduction as compared to Scenario 2 and a total reduction of \$12M as compared to Scenario 1. This scenario was subsequently abandoned and not developed further. The preliminary scenario evaluation deferred the following projects in addition to the actions noted under Scenario 2.

- CCWQTC Sodium Aluminate Building construction deferred to FY22
- DRGWQTC WWPS WW Screen Bldg HVAC deferred to FY22

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- FY21 overall Appropriation budget cut by \$2.2M
 - Main Office Improvements deferred to FY23
 - MFWQTC FEPS MCC Replacement deferred to FY22
 - MFWQTC OGA PTO & Chlorine Rail Car Demo construction delayed to FY22
 - MFWQTC Manhole & Sewer Rehab delayed to FY22
 - Odor Management Plan deferred to FY22
 - SGC RTC Enhancements construction deferred to FY22
 - SWPS Site Security construction deferred to FY22
4. Additional COVID-19 Scenario (FY21 \$170.4M): Given the uncertain financial impact MSD may have in FY21 due to COVID-19, a scenario was developed to represent only essential projects. Financial targets were not provided for this scenario. The COVID-19 scenario deferred the following projects in addition to the actions noted under Scenario 3.
- CCWQTC SA Feed Automation construction deferred to FY23
 - CMF Floor Replacement deferred to FY22
 - DRGWQTC PAA Pilot deferred to FY22
 - DRGWQTC Paving deferred to FY22
 - DRGWQTC WWPS WW Screen Bldg HVAC deferred to FY23
 - Additional \$3.5M Unbudgeted Carryover added to FY21
 - Reduced overall FY21 Appropriation budget to \$13.4M
 - MFWQTC Biosolids Facility Replacement deferred start to FY22 vs. FY21
 - MFWQTC Clarifier Floor Repairs deferred to FY22
 - MFWQTC FEPS MCC Replacement deferred construction deferred to FY23
 - MFWQTC Headworks & Blower Bldg Repair construction delayed to FY22
 - Production Infrastructure Rehab deferred to FY22
 - SGC RTC Enhancements construction deferred to FY23
 - Starkey FPS Generator deferred to FY22
 - SWPS Site Security construction deferred to FY23
 - Tycoon Way DRI deferred to FY22
5. Regulatory Mandates Only Scenario (FY21 \$99M): A scenario was developed that identified spending related exclusively to regulatory mandates. This scenario includes the following spending forecasts.
- FY21 Consent Decree spending forecast, \$43.6M
 - FY21 IOAP support projects spending forecast, \$1.2M
 - FY21 MFWQTC Agreed Orders spending forecast, \$48.6M

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- FY21 Other Agreed Orders spending forecast, \$3.5M
- MS4 Program spending forecast, \$2.5M

This scenario excludes the \$12.8M in projects that have third party funding coordination as well as excluding \$14M of in-progress projects with spending forecasted during FY21 (would require suspending construction contracts in some cases). This scenario was for discussion purposes only and was not vetted or refined further.

The scenarios presented to MSD's CIP Management Team on April 28th are presented in the table below.

Table 2: Overview of FY21 CIP Scenarios by CIP Program Categories

CAPITAL PROGRAM	FY21 FORECAST BY SCENARIO			
	1	2	3	COVID
BIOSOLIDS	\$ 58,300,000	\$ 55,600,000	\$ 55,600,000	\$ 55,600,000
FACILITIES	\$ 3,700,000	\$ 3,600,000	\$ 2,600,000	\$ 1,400,000
FACILITIES - EQUIP	\$ 2,200,000	\$ 2,100,000	\$ 2,100,000	\$ 1,000,000
FACILITIES - IT	\$ 6,200,000	\$ 6,000,000	\$ 6,000,000	\$ 900,000
FLOOD PROTECTION	\$ 9,000,000	\$ 8,000,000	\$ 9,000,000	\$ 3,500,000
LARGE DIAMETER	\$ 47,600,000	\$ 47,600,000	\$ 47,600,000	\$ 47,600,000
MANAGEMENT RESERVE	\$ 1,000,000	\$ 1,460,000	\$ 1,400,000	\$ 2,500,000
REGIONALIZATION	\$ 6,000,000	\$ 6,300,000	\$ 4,700,000	\$ 6,400,000
REGULATORY SUPPORT	\$ 1,300,000	\$ 1,200,000	\$ 1,200,000	\$ 1,300,000
STORMWATER	\$ 8,000,000	\$ 7,700,000	\$ 7,300,000	\$ 5,400,000
SUPPORT SERVICE	\$ 4,400,000	\$ 4,100,000	\$ 4,100,000	\$ 3,700,000
WASTEWATER TREATMENT	\$ 33,400,000	\$ 33,000,000	\$ 30,100,000	\$ 28,500,000
COLLECTION SYSTEM	\$ 15,200,000	\$ 13,800,000	\$ 12,900,000	\$ 12,600,000
TOTAL	\$ 196,300,000	\$ 190,460,000	\$ 184,600,000	\$ 170,400,000

The CIP Management Team directed the team to further evaluate Scenarios 2 and COVID to verify critical needs were addressed. Scenario 2 was presented to the Infrastructure Committee in May and was subsequently approved by the MSD Board. A "FY21 CIP Development" Notice of Advisement (NOA) will be prepared after the FY21 CIP prior to the start of the fiscal year. The NOA will document program and project changes made during the CIP planning efforts.

Final Budget Refresh

Final budget adjustments were made following the June PM Portfolio Review meetings and the issuance of the June Available Funds Report. This allowed for the most up-to-date project information to be included in the FY21 final budget load into SAP and the Baseline Budget that will be utilized for performance metrics. All of the remaining sections of this report are based on the results of the final budget refresh. See table below:

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Table 3 - FY21 Baseline Budget after Final Budget Refresh (excludes Oldham County)

Capital Program	FY21
Biosolids	48,699,000
Collection System	12,239,000
Facilities	4,633,000
Facilities - Equip	2,239,000
Facilities - It	5,540,000
Flood Protection	6,315,000
Large Diameter	53,491,000
Management Reserve	3,600,000
Regionalization	6,415,000
Regulatory Support	300,000
Stormwater	5,929,000
Support Service	4,303,000
Wastewater Treatment	36,757,000
Total	190,460,000

Cashflow Forecast Tool

A complex spreadsheet system was developed by Wolffie Miller that utilizes the estimate, start and finish dates to determine the monthly forecast at a project level. This tool makes it possible to maintain an evolving forecast for the entire fiscal year as project estimates and schedules change.

There are several additional factors that help refine this forecast – the “spend geometry”, escalation, lifetime actuals. The forecast also makes assumptions regarding the length of the design and construction phases. A series of mathematical formulas produces the Baseline Budget, and the performance of the capital program against baseline is measured by the invoices paid (actuals) each month throughout the year.

FY21 CIP Plan Elements

MSD has several programs requiring capital investment during FY21. A summary of each program is provided herein.

- Consent Decree Mandated and Support Projects
- District-Wide Biosolids Management Program
- Flood Protection Program
- Asset Management & Regulatory Programs
- Regionalization Program
- Stormwater Management Program

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- Capital Program Support

Note: The remaining data and discussions are based on the final refresh of the Scenario 2 slate of projects that comprise the FY21 Baseline Budget.

Consent Decree Mandated and Support Projects

In 2009 MSD entered into an Amended Consent Decree with the Commonwealth of Kentucky, the United States Environmental Protection Agency (USEPA), and the United States Department of Justice. MSD has completed most Consent Decree projects and has spent approximately \$1B to-date. The remaining Consent Decree work to be completed includes the following projects.

- Ohio River Tunnel (\$55M remaining): The last Long-Term Control Plan project (Waterway Protection Tunnel) remains under construction with an estimated completion date in FY22.
- Sanitary Sewer Discharge Plan (SSDP) Projects (\$144M remaining): MSD must complete 13 remaining projects identified in the SSDP. The schedule for completion of these projects is currently under discussion with the Regulators given other urgent needs that have developed over the past few years related to Biosolids Management and the Ohio River Flood Protection System.
- Upper Middle Fork Pump Station (\$86M remaining): The largest remaining SSDP project is the Upper Middle Fork bundle. This project includes replacement of the existing Upper Middle Fork Pump Station, which has a current capacity of 9 mgd, with a new efficient 30 mgd Pump Station. A relief interceptor will convey flows in excess of the current interceptor capacity, and a diversion gate will be installed on the existing interceptor to force flows into the pump station. This timing for completing this project is under discussion with the Regulators.
- IOAP Support Projects (approximately \$500k per year): Annual support for post construction compliance monitoring and external resources to assist with IOAP modifications is included in this investment.

The following Consent Decree projects totaling \$45.1M are included in the FY21 CIP:

- Downtown CSO Interceptor RPR & CA Services – finish construction, \$420k
- I-64 and Grinstead CSO Interceptor - finish construction, \$5.3M
- Idlewood Inline Storage – begin design, \$400k
- Lexington and Payne CSO Interceptor - finish construction, \$1.6M
- Rowan Pump Station & Downtown CSO Interceptor - finish construction, \$2.3M

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- Ohio River Tunnel – continue construction, \$35M
- Raintree Court & Marian Court Pump Station Eliminations Phase 1A- finish construction, \$120K

District-Wide Biosolids Management

The Morris Forman Water Quality Treatment Center (WQTC) processes, markets (Louisville Green), and disposes of biosolids generated from all of MSD 's wastewater treatment facilities. The existing dewatering and drying equipment have reached the end of their useful life. Replacement of the biosolids infrastructure with a modern facility has been reviewed by two independent consulting engineers. MSD is ready to proceed with a design-build procurement for the \$198M project to replace the existing biosolids system with a modern facility.

Due to the cost of the project, in 2018 MSD submitted a Letter of Interest to USEPA's Water Infrastructure Finance and Innovation Act Program (WIFIA) to request participation in a low-interest loan program for the Morris Forman New Biosolids Facility. The project was accepted and the WIFIA loan closing date is scheduled for the summer of 2020.

In the meantime, the biosolids facilities have continued to deteriorate at an escalated rate. This has resulted with a situation in which MSD is able to process only 35% of the biosolids such that the Morris Forman WQTC effluent permit limits for total dissolved solids (TSS) and biochemical oxygen demand (BOD₅) are not consistently met. MSD received Notice of Violations for these permit exceedances and KDOW issued Agreed Order requiring MSD to remedy the situation. In order to meet effluent permit water quality, MSD needs to process fewer biosolids at the Morris Forman WQTC. This challenge will continue until the new Biosolids Facility is operational in approximately five years.

In 2019, MSD commissioned Black & Veatch to prepare a District-Wide Biosolids Master Plan. The Master Plan confirmed the new Biosolids Facility to be constructed via the WIFIA loan program is the recommended long-term solution. The Master Plan identified short-term improvements that would help MSD achieve permit compliance and support construction of the new facility. The short-term improvements include replacing outdated equipment at Morris Forman (centrifuges and dryers) and offloading regional biosolids. During FY20, all six centrifuges were sent to the manufacturer for refurbishment in a phased approach. An emergency certification project was issued in 2019 to replace the Morris Forman dryers.

To sufficiently offload regional biosolids from the Morris Forman WQTC, the Biosolids Master Plan recommended MSD construct dewatering facilities for the regional WQTCs. This approach will significantly increase MSD's reliability for processing biosolids. Staff and Black & Veatch confirmed the Derek R. Guthrie WQTC has adequate space to accommodate construction and operation of a regional dewatering facility. An emergency certification project was issued in 2019 to expedite

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off-loading the regional biosolids from Morris Forman by constructing a dewatering facility at the Derek R. Guthrie WQTC.

Brief descriptions of the major biosolids projects included in the 5-Year CIP are listed below.

- New Biosolids Facility (\$198M): This project will construct a modern biosolids processing facility at the Morris Forman WQTC that utilizes a thermal hydrolysis process (THP) to create a useable biogas. Benefits of the new facility include improved effluent quality; production of 4 MW of power; decreased consumption of natural gas; and reduced landfill utilization capacity.
- Drying of Morris Forman WQTC Biosolids (\$48M): The dryers at the Morris Forman WQTC have been systematically failing over the past few years. In 2019, the last dryer failed and significantly impaired MSD's ability to process biosolids. Under an emergency certification, MSD is demolishing the outdated drying systems and replacing them with two state-of-the-art dryers. This investment will ensure continuous biosolids processing during construction of the new Biosolids Facility and will provide added future system reliability. Construction began in 2019 and will be fully completed in 2022.
- Dewatering of Regional Biosolids (\$50M): Under an emergency certification, MSD is constructing a dewatering facility at the Derek R. Guthrie WQTC to process biosolids from all the regional WQTCs. The project includes an interim and permanent solution so regional biosolids could be immediately off-loaded from the Morris Forman WQTC. The dewatered biosolids are being landfilled in lieu of being pumped/hailed to the Morris Forman WQTC. Construction began in 2019 and will be fully completed in 2022. Regional biosolids were offloaded from the Morris Forman WQTC in February 2020.

Forecasted spending for the following biosolids projects totaling approximately \$48.7M is included in the FY21 CIP:

- DRGWQTC Emergency Project* (Facilities) – continue construction, \$17.8M
- DRGWQTC Emergency Project* (Phase 1 and 2 Contracts) – continue operations, \$10.5M
- MFWQTC New Biosolids Facility, begin design-build delivery, \$1.5M
- MFWQTC Cake Pump Phase 2* - continue construction*, \$1M
- MFWQTC Centrifuge Replacement* - finish construction*, \$400k
- MFWQTC Dryer Replacements* - continue construction, \$17.4M
- MFWQTC Sodium Hypochlorite Bldg Relocation* - start design, \$130k

MSD is working with the Commonwealth of Kentucky Energy and Environment Cabinet to develop/execute a Corrective Action Plan (CAP) to address the deficiencies at the Morris Forman

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WQTC that are contributing or have the potential to contribute to permit exceedances. Projects listed above with an * represent potential projects to be incorporated into the Morris Forman WQTC CAP as part of the Agreed Order with the State.

Flood Protection Program

MSD is responsible for ensuring all components of the Ohio River Flood Protection System (ORFPS) are fully operational when they are needed. The existing system is more than 60 years old and most components are original parts. In many cases, the original equipment is no longer available for replacement.

Since 2018, MSD has been working with the United States Army Corps of Engineers (USACE) to identify reliability improvements needed for the ORFPS. The ORFPS is comprised of 22.2 miles of earthen levee, 3.9 miles of concrete wall, 16 pump stations (73 pumps), and 152 gates. The system protects 240,000 people and \$60 billion in property located within the levee area.

In 2019, the USACE completed its Feasibility Study and recommended projects needed to ensure flood protection levels meet today's standards. These projects may be eligible for federal dollars through USACE construction appropriation dollars. The improvements are restricted for RELIABILITY purposes and exclude any capacity upgrades. The study indicated the following flood protection system needs:

- Pumps & Motors: Approximately 75% of the pumps and motors need rebuilt or replaced. The original pumps, motors, and ancillary systems are still in service and have not had a major rebuild since they were originally installed.
- Control Systems: 80% of the control systems at the flood pump stations are outdated. The control systems are rudimentary by today's standards, requiring the stations to be fully staffed at all times during flood pumping operations.
- Transformers & Motor Control Centers: 88% of the electrical components need to be replaced. The electrical system is original equipment, which cannot be repaired with currently available components.
- Gates and Floodwalls: 25% of the system needs to be replaced or refurbished: 15 new actuators, 13 new gates, and 10 gates to be refurbished. Most of the 152 gates are 65 years old.

The USACE identified \$167M of improvements needed to increase the reliability of the Flood Pump Stations (FPS) along the Ohio River as well as other components, such as gates and flood walls. The USACE will contribute \$109M and MSD will contribute \$58M toward the total cost. MSD

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does not have any control regarding the timing of projects completed by USACE. Therefore, MSD must be ready with its cost share portion at the USACE's schedule. Preliminary discussions have indicated design for the FPS Reliability Improvements Projects could begin in FY21 with construction advancing FY23 through FY 25. The following USACE related ORFPS projects are included in the FY21 CIP:

- Canal Street Floodwall - begin design, \$290k
- FPS USACE Participation - design services, \$1M

In addition to these reliability improvements, the CRRP completed multiple evaluations of the 16 flood pump stations and identified additional needs that will not be addressed by the USACE's Reliability Improvements Program. The following ORFPS asset management projects are included in the FY 21 CIP totaling \$5M.

- Beargrass Creek FPS Wetwell Relief Gate – finish construction, \$140k
- Beargrass FPS Pump 8 Replacement – finish construction, \$150k
- Floodgate 1 Replacement – finish construction, \$50k
- FPS Auto Grease Systems Upgrades – finish construction, \$350k
- Gate 102 Replacement – design and construction, \$540k
- Paddy's Run FPS Pumps 1,2 and 6 Rehab – finish construction, \$330k
- Pond Creek Emergency Pump Repairs – finish construction, \$490k
- Starkey FPS Transformer Replacement and Generator – design and start construction, \$1.2M
- Annual Structures and Equipment Repair and Replace Appropriations - \$1.8M

Asset Management and Regulatory Programs

Asset management programs are required to ensure assets perform as intended and are available when needed. While the Consent Decree focused on constructing new assets to address wet weather and mitigate resulting overflows, asset management focuses on minimizing the risk of failure for existing assets. USEPA recognizes the importance of asset management and requires utilities to comply with programs intended to keep existing infrastructure fit for purpose.

The following asset management and regulatory programs totaling approximately \$68.7M are included in the FY21 CIP:

- Large Diameter Interceptor Rehabilitation - \$8.4M
- WQTC Asset Management (including MF CAP) – \$20.2M
- WQTC Regulatory Program (NMC) - \$16.5M
- Wastewater Collection System Asset Management - \$5.4M
- Wastewater Collection System Regulatory Programs (CMOM and NMC) - \$5.8M

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- MSD Facilities Asset Management - \$12.4M

Large Diameter Sewer Rehabilitation

Sewers represent some of the oldest components of the wastewater system. Some of MSD's sewers are 150 years old. MSD utilizes an industry-standard risk scoring system for the sewers. In total MSD estimates \$2.2B is needed to address all sewer rehabilitation and known structural deficiencies.

MSD is focusing on large diameter interceptors for rehabilitation. Significant major interceptor failure has occurred in the past two years due to severe deterioration of large pipe segments. USEPA noted in its 2019 Inspection Report¹ that MSD had 12 major pipe collapses in a 15-month period. The following large diameter sewers are included in the FY21 CIP:

- Large Diameter Sewer Rehabilitation Stage 1 – field inspections (find & fix), \$5.9M
- Nightingale Rehabilitation - begin construction, \$2.5M

WQTC Asset Management

MSD provides wastewater treatment at five regional WQTC. The WQTCs range in age from 1956 (Morris Forman) to 2001 (Floyds Fork). The Bells Lane Wet Weather Treatment Facility was brought on-line in 2018. Annual capital investments are required to mitigate operator safety risks; maintain reliable system operations; and upgrade to new more energy efficient technologies.

A high-level summary of the projects included in the FY21 CIP to improve existing assets at treatment plants is presented below. Of the \$21M of funding budgeted in FY21, approximately, over 65% is for in progress projects; 10% for annual as-needed appropriations; 20% for initiating new projects.

Bells Lane Wet Weather Treatment Facility

- Bar Screen Study, \$110k
- Grit Classifier Drain Line - finish construction, \$30k

Cedar Creek WQTC

- Effluent Parshall Flume Upgrades - start construction, \$1.1M
- Influent PS MCC Upgrades - finish construction, \$550k
- Sodium Aluminate Bldg - start construction, \$650k

¹ United States Environmental Protection Agency, Region 4, Water Protection Division, NPDES Permitting and Enforcement Branch, Compliance Evaluation Inspection Report, Louisville & Jefferson County Metropolitan Sewer District, June 25, 2019.

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Derek R. Guthrie WQTC

- Finite Element Analysis Phase 2 – finish study, \$10k
- Admin & RAS Buildings HVAC - finish construction, \$650k
- Clarifier Grout Repair & RAS Gate Replacement - continue construction, \$1.3M
- RAS Building Electrical Modification - finish construction, \$120k
- Substation U-13 Modification - finish construction, \$120k
- Artificial Intelligence - conduct pilot testing, \$180k
- PAA – finish construction, \$425k
- *Emergency Dewatering Project included under biosolids*

Floyds Fork WQTC

- FFWQTC Regional Facilities Plan Update, \$300k

Hite Creek WQTC

- *WQTC Expansion Project is noted under the Nine Minimum Controls Program*

Morris Forman WQTC

- MFWQTC Primary Sludge Line Replacement – finish construction, \$20k
- Sedimentation Basin RR – finish design, start construction, \$3.5M
- MFWQTC Headworks and Blower Building Repairs – start construction, \$200k
- Chiller Replacement - finish construction, \$320k
- MFWQTC East Headworks HVAC - construction, \$100k
- MFWQTC FEPS MCC Replacement - construction, \$500k
- MFWQTC FEPS VFD Replacement – finish construction, \$320k
- OGA PTO & Chlorine Rail Car Facility Dem - finish construction, \$1.5M
- Radio Repeater - continue construction, \$340k
- Sewer & Manhole Rehab - continue construction, \$390k
- MFWQTC Groundwater Wells Study/Repair – finish study and make repairs, \$200k
- MFWQTC Equipment RR - as-needed appropriation, \$660k
- Miscellaneous Facility Repairs - as-needed appropriation, \$90k
- MFWQTC Asset Management Plan – start plan, \$860k
- *Excludes projects noted for biosolids*

Multiple WQTCs

- WQTC Elevator Repairs - continue construction, \$2.9M
- 2 project, as-needed annual renewal & replacement appropriations, \$2.7M
- Odor Management Plan, \$250k

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WQTC Regulatory Program - Nine Minimum Controls (NMC)

MSD's Consent Decree requires compliance with the USEPA's NMC Program that was initially developed as part of the Clean Water Act CSO Policy to address combined sewer system best management practices that do not require significant construction. NMC projects tend to be technology based. NMC programmatic compliance is required in the Morris Forman WQTC KPDES Permit. The 20-year CRRP includes projects focused on NMC including 1) real-time control (RTC) of assets in the combined sewer system (discussed under the Collection System investments) and 2) capacity upgrades for WQTCs to maximize the flow able to be received and processes at the treatment plants.

NMC # 4 – Maximize Flow to WQTC

- Hite Creek WQTC Expansion - continue construction, \$16M

Wastewater Collection System Asset Management Program

MSD's collection system includes approximately 600 miles of combined sewers; 2,700 miles of sanitary sewers; 1,400 miles of lateral connections to buildings; and 260 wastewater pumping stations. In addition to the Large Diameter Interceptor Rehabilitation Program, MSD continues to improve sewers and pump stations throughout the District. The following wastewater collection system asset management projects totaling \$6.1M are included in the FY21 CIP:

- Bluegrass Fields Pump Station Renovation - start construction, \$290k
- Broadfern Pump Station Elimination - finish construction, \$250k
- Gorham Way Pump Station Elimination - begin design, \$60k
- Harrods Creek Force Main Repair - finish construction, \$2M
- ORFM Odor & Corrosion Control - continue construction, \$910k
- Sonne Avenue PS Elimination - begin design, \$330k
- Rosa Terrace PS Elimination – begin design, \$330k
- Sanders Lane PS Rehabilitation – begin design, \$150k
- Wathen Lane PS Rehabilitation – being design, \$150k
- SWPS Gas Monitoring - finish construction, \$550k
- SWPS Site Security – continue construction, \$680k
- SWPS Flood Repair – continue construction, \$210k
- Wastewater Pump Stations Facility Asset Management Plan, \$230k

Capacity, Management, Operation, and Maintenance Program (CMOM)

CMOM compliance is required as a component in each WQTC's KPDES permit. The CMOM Program provides proactive asset management of sewers, pump stations, and major interceptors that make up most of MSD's collection system.

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The following CMOM projects totaling \$3.8M are included in the FY21 CIP:

- Operations Renewal & Replacement As-Needed Appropriation, \$1.9M
- Collection System Pump Station Repair & Replacement, \$500k
- Gravity Line Cleaning and Inspection, \$680k
- Instrumentation & Controls Implementation, \$290k
- Program Management Assistance, \$140k
- System Capacity Assurance Plan, Advanced Asset Management, and Fats, Oils, and Grease Programs, \$250k

Wastewater Collection System Nine Minimum Controls (NMC)

The following NMC projects totaling \$2M are included in the FY21 CIP:

NMC #3 – Maximize Collection System Storage (RTCs)

- NMC Real Time Control Appropriation, \$680k
- SGC Real Time Control Enhancements, \$1.2M

NMC # 9 – Monitor CSO Controls

- NMC Support Appropriation, \$90k
- NMC CSO Inspection Cameras Appropriation, \$50k

MSD Facilities Asset Management

The CRRP recommended a series of corrective actions following comprehensive condition assessments of more than 200 buildings. MSD continues to address facility needs with each annual CIP. The FY21 CIP includes \$4.6M for improvements related to buildings, paving, and security needs.

Building, 7 projects

- CMF Floor Replacement - finish construction, \$60k
- DRGWQTC WW Screen Bldg HVAC - finish construction, \$1M
- MFWQTC Admin. Building Roof Replacement – finish construction, \$250k
- MSD Owned Building Roof Replacements – per prioritized report findings, \$1M
- Main Offices New Offices & Conference Rooms - \$25k
- Main Office New Windows - \$56k

Paving, 4 projects

- CMF Parking Surface - finish construction, \$1.5M
- DRGWQTC Paving - finish construction, \$370k
- Parking Log Milling & Resurfacing, \$160k

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Security, 1 projects

- Facility Security Upgrades - as-needed, \$230k

The FY21 CIP also includes 16 projects totaling \$5.5M to address projects necessary for Information Technology (IT) systems. IT hardware and software assets provide electronic communication, digital data generation, and the components required for the systems controlling MSD assets.

IT Hardware, 9 projects

- Mobile Communications Replacement, \$500k
- Production Infrastructure Refresh, \$3.8M
- Various annual as-needed projects, \$310k
- LOJIC annual commitments, \$150k

IT Software, 6 projects

- Project WIN Website Re-write, \$40k
- Asset Wide (eB) Upgrade, \$150k
- Information Governance Architecture, \$240k
- Project Management Information System Support, \$80k
- Operating Budget Software, \$250k
- Transactional Analysis, \$40k

Fleet and Equipment

The FY21 CIP includes spending for three projects for upgrading capital equipment.

- Fleet, 3 projects, \$2.2M

Regionalization Program

Portions of Jefferson County remain unsewered. Over the past ten years, MSD has extended sewer service to many areas and eliminated hundreds of small package treatment plants and more than 40,000 septic tanks. The primary driver for eliminating these systems is to improve water quality of local rivers, creeks, and streams. The CRRP identified potential regionalization corridors where MSD can further extend sewers to improve surface water quality and add new sewer customers.

Current development patterns suggest private investment is picking up in the Floyds Fork sewershed. MSD continues to coordinate with developers to streamline how to incorporate new assets into its existing sewer network. It is important to coordinate these new developments to ensure consistency of construction and reliable service.

MSD has identified the following interceptor/sewer extension projects for inclusion in the FY21 CIP along with various support services:

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- Fairmont Road Pump Station Force Main Extension Phase 1 – start construction, \$380k
- Floyds Fork Interceptor – start design, \$2.3M
- Mud Lane Interceptor – finish construction, \$650k
- Upper Floyds Fork Interceptor – finish construction, \$2.9M
- Various Support Services – as needed, \$210k

Stormwater Management Program

Stormwater management is a vital component of MSD's system, because it directly impacts the health and safety of all Louisville and Jefferson County residents. The CRRP included a number of programs related to drainage and floodplain management.

- Municipal Separate Storm Sewer System Program (MS4): The MS4 Program is a drainage-related program to improve the quality of surface waters through controls on stormwater runoff quality in Jefferson County and to protect the public health, safety, and welfare by reducing the introduction of harmful materials into the MS4s that discharge into community streams. The CRRP identified several large stormwater retention basins with the potential for conversion of all or part of the basin to provide infiltration of stormwater. The FY21 CIP includes MS4 projects totaling approximately \$2M.
- Drainage Response Initiative Program (DRI): Since 2003, MSD has been implementing an aggressive program to address a wide variety of drainage issues that were pointed out by customers to address problems ranging from structural flooding to alleviating minor standing water problems. The FY21 CIP includes DRI projects totaling approximately \$1.9M.
- Floodplain Management Program: Since 1997, MSD has purchased homes located in flood prone areas through federal grant programs. Following a number of spring flooding events in 2015, the Mayor formed a multiagency Flood Mitigation Workgroup to address impacted residents who were unable, for a variety of reasons, to get back in their homes after the floodwaters receded. The Flood Mitigation Workgroup recommended several mitigation approaches, including establishment of a "quick-buy" program to allow property owners to sell flood-impacted property in a much shorter time than would typically be possible. The Workgroup recommended annual fund be established to provide timely relief to property owners impacted by future extreme storm events. The projects continue to be advanced but are not part of the CIP due to the reimbursement portion of the program.

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- Stormwater Master Plan Implementation Program: MSD has begun an extensive 5-year stormwater asset inventory project. The FY21 work will continue collecting field inventory data and the CIP includes \$230k to support this effort.
- Green Infrastructure Program: The Consent Decree and subsequent Integrated Overflow Abatement Plan (IOAP) included a Green Infrastructure Program. Where appropriate, localized stormwater improvement projects using green approaches help to reduce sewer overflows. The FY21 CIP includes Green Infrastructure projects estimated to total \$1.3M. These projects represent the final elements of the Green Infrastructure Program.

Capital Program Support

Implementing a capital program of this size and complexity requires support services. Support services are generally contracted resources that provide specialized expertise; address program specific deliverables; supplement field staff; or support MSD staff as-needed. The following capital support projects are included in the FY21 CIP.

- CIP Task Assistance - \$2M
- Construction Inspection - \$500k
- Emergency Preparedness Plan - \$180k
- FOG Program Support - \$90k
- Modeling - \$1.2M
- Plumbing Modification Program - \$230k
- WQTC Engineering Support - \$100k

FY21 Interrupted Projects

During the FY21 CIP development MSD determined some projects that were under design or slated to start construction in FY21 needed to defer construction to accommodate budget priorities. The following projects will finish design and then be “shovel ready”. Construction has been deferred to FY22 vs. FY21.

- Bells Lane PAA: finish design then construction start FY 22 (September 2022)
- Bells Lane WWTF: finish design then construction start FY 22 (September 2022)
- MFWTQC Sodium Hypochlorite Building Relocation: finish design then construction FY22 (January 2022)

FY21 Capital Program Management

During the fiscal year, Project Controls will continue to capture the changes to the program (estimates, schedules, risks and issues) through monthly communications with the project managers, supervisors and managers. Program challenges and opportunities will be discussed

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among supervisors and managers during monthly Variance meetings, as well as during CIP Management Team meetings. Additionally, major changes will be approved through the NOA process by the Engineering Director, and the CIP Management Team, as appropriate. Project managers of appropriations can request additional budget if appropriate – also through the NOA process. Additional training will be provided regarding the utilization of the equipment repair and replace appropriations.

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5-Year CIP Plan Highlights

The 5-year CIP by major capital program, based on the final budget refresh of projects, is summarized in the table below. The risks and capital priorities will be revisited during the annual CIP development process. It is envisioned the Asset Management Program will better inform the CIP for specific asset needs at the conclusion of the 5-year CIP.

Table 4: Overview of 5-Year CIP (FY21 Scenario 2)

Capital Program	FY21	FY22	FY23	FY24	FY25	5-Year
Biosolids	48,699,000	25,564,000	38,958,000	59,082,000	69,806,000	242,109,000
Collection System	12,239,000	17,837,000	20,822,000	13,344,000	44,950,000	109,192,000
Facilities	4,633,000	10,900,000	400,000	1,043,000	434,000	17,410,000
Facilities - Equip	2,239,000	3,000,000	3,000,000	3,000,000	3,000,000	14,239,000
Facilities - It	5,540,000	3,558,000	2,258,000	1,465,000	350,000	13,171,000
Flood Protection	6,315,000	18,753,000	36,416,000	58,132,000	27,378,000	146,994,000
Large Diameter	53,491,000	32,874,000	46,608,000	15,743,000	15,929,000	164,645,000
Management Reserve	3,600,000	-	-	3,200,000	5,000,000	11,800,000
Misc	-	-	-	-	392,000	392,000
Regionalization	6,415,000	6,302,000	10,617,000	20,948,000	23,232,000	67,514,000
Regulatory Support	300,000	400,000	400,000	400,000	-	1,500,000
Stormwater	5,929,000	6,834,000	5,083,000	5,085,000	6,690,000	29,621,000
Support Service	4,303,000	4,200,000	4,200,000	4,200,000	4,700,000	21,603,000
Wastewater Treatment	36,757,000	29,382,000	29,833,000	15,364,000	13,351,000	124,687,000
Grand Total	190,460,000	159,604,000	198,595,000	201,006,000	215,212,000	964,877,000

Highlights of the five-year program are presented below.

Consent Decree/Morris Forman Agreed Order Program

During the 5-year CIP, construction for the Ohio River Tunnel bundle will be completed. The remaining SSDP projects will be phased over time. The specific timing for each remaining project is currently under discussion with the federal and state Regulators.

- Cinderella Pump Station Elimination, \$1.5M
- Downtown CSO Interceptor RPR & CA Services, \$420k
- Gunpowder Pump Station, \$800k
- I-64 and Grinstead CSO Interceptor, \$5.3M
- Idlewood Inline Storage, \$4.8M
- Kavanaugh Road Pump Station Improvements, \$4.3M
- Leven Pump Station Elimination, \$720k
- Lexington and Payne CSO Interceptor, \$1.6M
- Little Cedar Creek Interceptor Improvements, \$2.4M
- Lucas Ln Pump Station Inline Storage, \$320k

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- Monticello Pump Station Elimination, \$460k
- Ohio River Tunnel, \$55M
- Raintree Court and Marian Court Pump Station Elimination - Phase 1A, \$120k
- Rowan Pump Station & Downtown CSO Interceptor, \$2.3M
- Upper Middle Fork #2 PS Replacements, \$730k
- Bardstown Rd PS Improvements, \$350k
- Raintree & Marian Ct. 2 – Pipe Upgrades, \$150k
- Dell Road & Charlene Pkwy Interceptor - \$500k
- Morris Forman WQTC Agreed Order, \$102M

The MFWQTC experienced multiple non-compliance events due to the deterioration of the biosolids system. The State Regulators are negotiating a Corrective Action Plan (CAP) as part of an Agreed Order² with MSD for construction of improvements at the aging WQTC to resolve conditions potentially impairing performance. The projects are included in the 5-Year CIP that have been suggested as candidates for the CAP are listed in Table 4.

Table 5: MFWQTC Projects Under Agreed Order CAP Consideration

MFWQTC Treatment Process	Morris Forman Agreed Order Projects	Estimated Completion Date
Primary Treatment	D17042 MFWQTC Sedimentation Basin Rehabilitation	June 30, 2024
	D19227 MFWQTC Primary Sludge Line Replacement	July 31, 2020
	New_BD096 MFWQTC Primary Sludge Line Replacement Phase 2	June 30, 2022
Secondary Treatment	D18160 MFWQTC Secondary Clarifiers Structural Repairs	June 30, 2024
	D20229 MFWQTC Clarifier Floor Repairs	January 31, 2021
Disinfection	D18159 MFWQTC HPO Tanks Structural Repairs	June 30, 2024
	D18161 MFWQTC Chlorine Contact Tanks Structural Repairs	June 30, 2024
Final Effluent Pump Station (FEPS)	D18130 MFWQTC FEPS MCC Replacement	June 30, 2021
	D18162 MFWQTC FEPS Structural Repairs	June 30, 2024
	D19307 MFWQTC FEPS VFD Replacement	Sept 30, 2020
	Multiple MFWQTC FEPS Pump and Motor Repair	June 30, 2024
Biosolids	D18158 MFWQTC Digester Control Building Structural Repairs	June 30, 2024
	D19045 MFWQTC Sodium Hypochlorite Building Relocation	Dec 31, 2022
	D20228 MFWQTC Centrifuge Replacement/Rehabilitation	August 31, 2020
	D20285 MFWQTC LG Dryer Replacements	November 5, 2021
	D20284 DRGWQTC Dewatering	October 5, 2021

² Commonwealth of Kentucky Energy and Environment Cabinet Division of Enforcement, Agreed Order, Morris Forman WWTP, May 3, 2018.

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MFWQTC Treatment Process	Morris Forman Agreed Order Projects	Estimated Completion Date
	D20249 District-Wide Biosolids Master Plan	Completed
	H14126 HCWQTC Dewatering Improvements	January 21, 2022
	D20291 DRGWQTC Phase 1 Dewatering	January 4, 2021
Other	New_BD106 MFWQTC Asset Management Plan	Dec 31, 2021
Electrical	D18156 MFWQTC Service & Blower Building Structural Repairs	June 30, 2022
	D20167 MFWQTC East Headworks HVAC	October 29, 2020

Facilities Asset Management Program

During the 5-year CIP, improvements will continue to be phased for MSD's existing buildings including but not limited to: elevator upgrades, roof replacements, paving, and security enhancements. IT budgets will continue to be requested annually for assets related to system reconfiguration, cable management, network server upgrades, network switch replacements, desktop computers, and software programs needed to better manage MSD's assets and systems. Capital equipment budgets for updating MSD's fleet vehicles, heavy construction equipment, and portable equipment used by multiple working groups will be vetted annually. During the 5-year CIP, the following facilities improvement projects will be partially or wholly budgeted.

Table 6: Overview of 5-Year Forecasted Spending for Facilities

Facilities Priorities		5-Year CIP Forecast Spending
Facilities Improvements	Building Improvements	\$17.4M
	Paving Improvements	
	Security Enhancements	
	Roof Inspections, Repairs and Replacements	
Information Technology	Hardware Related Projects	\$13.1M
	Software Related Projects	
Equipment	Fleet Vehicles	\$14.2M
	Large Equipment	
Total 5-Year CIP Forecast for Facilities		\$44.7M

Flood Protection System

As noted with the FY21 CIP summary, a portion of MSD's ORFPS asset improvements may qualify for federal funding through the USACE. A preliminary breakdown of the projects qualifying for the

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USACE Reliability Improvements Program and other CRRP projects not covered by USACE are listed in the table below. The 5-Year CIP includes MSD's full share of the USACE Reliability Improvements Program.

Table 7: Summary of Flood Protection System CIP Needs

Flood Protection System Project	Estimated USACE Participation for Reliability Improvements	Estimated MSD Participation for Reliability Improvements	CRRP FPS Improvements Not Included in Reliability Program
Paddy's Run FPS Improvements	\$12,194,300	\$6,566,000	\$44,260,000
10 th Street FPS Improvements	\$2,131,200	\$1,147,600	\$750,000
17 th Street FPS Improvements	\$1,368,400	\$736,800	\$4,313,200
27 th Street FPS Improvements	\$3,701,300	\$1,993,000	\$10,027,000
34 th Street FPS Improvements	\$1,827,700	\$984,200	\$1,020,000
4 th Street FPS Improvements	\$0	\$0	\$12,920,000
5 th Street FPS Improvements	\$1,403,800	\$755,900	\$700,000
Beargrass Creek FPS Improvements	\$16,009,000	\$8,620,200	\$88,259,800
Bingham Way FPS Improvements	\$0	\$0	\$6,590,000
Lower Mill Creek FPS Improvements	\$3,481,000	\$1,874,400	\$11,575,700
Pond Creek FPS Improvements	\$15,434,200	\$8,310,700	\$9,750,000
Riverport FPS Improvements	\$1,358,200	\$731,300	\$5,378,700
Shawnee Park FPS Improvements	\$7,832,600	\$4,217,500	\$38,512,500
Starkey FPS Improvements	\$3,500,00	\$1,885,100	\$4,360,000
Upper Middle Creek FPS Improvements	\$7,647,400	\$4,117,900	\$44,922,200
Western Parkway FPS Improvements	\$1,183,300	\$637,200	\$21,832,900
Levees, Floodwalls, Gates & Closures	\$19,846,400	\$8,201,500	\$1,049,700
Cultural Mitigation & Engineering	\$13,529,200	\$7,885,000	\$0
TOTAL	\$108,948,000	\$58,664,300	\$306,221,700
<i>Note: The projects and preliminary costs presented in this table are for informational purposes only and are subject to change as discussions continue between MSD and the USACE. They represent a level of capital investment for each location. However, the actual costs are likely to vary from these preliminary values as projects are further planned and vetted.</i>			

MSD is forecasting to spend \$109M of the \$306M of flood protection needs during the 5-year CIP. These projects are not part of the USACE Reliability Improvements Program. The ORFPS system has received minimal investment over the past 20 years. It is a critical component for public protection and as such has become a priority for the capital program.

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The \$79M Paddy's Run Flood Protection Station Capacity Improvements project is MSD's highest ranked capital priority to mitigate flood pump station public health protection risk. MSD completed an alternatives analysis for increasing the capacity of the station to 975 mgd. The CRRP recommended two equally important project phases for the Paddy's Run FPS. The first phase will improve the reliability of the existing Paddy's Run FPS (originally constructed in 1953) by removing, inspecting, and rehabilitating or replacing the station's existing pumps and motors to maintain the station's current total pumping capacity of 925 mgd. The reliability improvements will be implemented through the USACE Program. MSD must construct the capacity improvements project independent of the USACE project.

During the 5-year CIP, the following flood protection system projects will be partially or wholly budgeted.

Table 8: Overview of 5-Year CIP Forecasted Spending for ORFPS

CIP Program	Flood Protection System Project	5-Year CIP Forecasted Spending
Capacity or Electrical Improvements	10th Street FPS - Generator Improvements	\$91.3M
	17th Street FPS - Capacity and Generator Improvements	
	27th Street FPS - Capacity and Generator Improvements	
	34th Street FPS - Generator Improvements	
	4th Street FPS - Capacity and Electrical Service	
	5th Street FPS - Generator Improvements	
	Bingham Way FPS - Capacity and Generator Improvements	
	Paddys Run FPS Capacity Upgrade	
	Pond Creek FPS - Electrical Service Improvements	
	Starkey FPS Transformer Replacement and Generator	
	Upper Mill Creek FPS Transformer Replacement	
Asset Management Improvements	Beargrass Creek FPS Wetwell Relief Gate & FPS Pump 8	\$55.7M
	Flood Gate 1 Replacement	
	FPS Auto Grease System Upgrades	
	Flood Structures & Flood Pump Station Equipment R&R	
	Gate 102 Replacement	
	Paddy's Run FPS Pumps 1, 2, and 6 Rehab	
	Pond Creek Emergency Pump Repairs	
	Canal Street Floodwall	
	Investment in USACE Projects	
Total 5-Year CIP Forecast for Flood Protection System		\$147M

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Wastewater Collection System

During the 5-year CIP, the following wastewater collection system projects will be partially or wholly budgeted.

Table 9: Overview of 5-Year Forecasted Spending for Wastewater Collection System

Wastewater Collection System Priorities		5-Year CIP Forecasted Spending
Pump Station Projects	Enhanced Odor Control for Pump Stations	CMOM Program Pump Stations \$17M
	Back-Up Power for Critical Pump Stations	
	Inventory for Critical Pump Stations	
	Upgrade Critical Pump Stations with Inadequate Capacity	
	CMOM Collection System Pump R&R	
	CMOM I&C Implementation	
	PS Replacement or Overhaul Projects	Asset Management PS Program \$21.3M
	Northern Ditch Pump Station Replacement & Odor Control	
	Prospect Phase II PS Rehabilitation	
	Shively Area Suite PS Rehabilitation (Sanders Ln & Wathen Ln)	
	Sneads Branch Pump Replacement	
	Southwestern Pump Station Improvements	
	Bluegrass Fields PS Renovation	
	Floodproofing PS for 100-Yr Storm	
	Admiral Way PS Foundation Repairs	
Sewer Projects	Gravity Line Cleaning and Inspection	CMOM Program Sewers \$23.2M
	Program Management Assistance	
	CMOM SCAP, AAM, & FOG Programs	
	Annual Renewal & Replacement Appropriations	
	Broadfern Pump Station Elimination	Pump Station Eliminations \$16.9M
	Gorham Way Pump Station Elimination	
	Kirby Lane Pump Station Elimination	
	Lake Forest Pump Station Eliminations	
	Lea Ann Way Pump Station Eliminations	
	Modesto Pump Station Elimination	
	Pirogue Pump Station Elimination	
	Shady Villa Pump Station Elimination	
	Shively Area Suite PS Eliminations (Rosa Terrace & Sonne Ave)	
	Rehl Road East SSES	Sewer Projects \$12.1M
	Harrods Creek Force Main Repair	
	KTC Greenwood Road Assessment	
	Middle Fork Beargrass Creek SSR Phase 1	

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Wastewater Collection System Priorities		5-Year CIP Forecasted Spending
	ORFM Odor and Corrosion Control	
Large Diameter Interceptor Projects	Broadway Interceptor Rehabilitation	Interceptor Rehabilitation Projects \$92.5M
	Buechel Branch Interceptor Rehabilitation	
	I-64 and Grinstead Interceptor Rehabilitation	
	Interceptors Rehabilitation and Replacement	
	Western Outfall Infrastructure Rehabilitation	
	Large Diameter Interceptor Rehabilitation Program	
	Nightingale Interceptor Rehabilitation	
	Rudd Avenue Sewer Rehabilitation	
Nine Minimum Control Projects	CSO Inspection Cameras	NMC Projects \$6.5M
	RTC Support Services	
	SGC RTC Enhancements	
Total 5-Year CIP Forecast for Wastewater Collection System		\$189.5M

Note: excludes projects listed in the Consent Decree

Wastewater Treatment System

As discussed under the FY21 CIP section, MSD will continue spending on the two biosolids emergency certification projects started in 2019 and completing in 2022. The majority of the 5-Year CIP related to biosolids is for the New Biosolids Facility to be located at the Morris Forman WQTC. Additional placeholder projects have been added to incorporate dewatering processes at the Cedar Creek and Floyds Fork WQTCs. During the 5-year CIP, the following WQTC projects will be partially or wholly budgeted.

Table 10: Overview of 5-Year Forecasted Spending for Regional WQTCs

Wastewater Treatment Priorities		5-Year CIP Forecasted Spending
Bells Lane Wet Weather Facility	Bells Lane Grit System Improvements	\$1M
	Bells Lane WWTF Chemical Feed System Improvements	
Cedar Creek WQTC	CCWQTC Admin Building Expansion & Painting	\$14.8M
	CCWQTC Power & MCC Upgrades	
	CCWQTC Oxidation Ditch Mods	
	CCWQTC Chemical Feed System Improvements	
	CCWQTC Effluent Parshall Flume Upgrade	
	CCWQTC Tertiary Filtration	
	CCWQTC WAS Improvements & Dewatering Facility	

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Wastewater Treatment Priorities		5-Year CIP Forecasted Spending
	CCWQTC Expansion Project	
Derek R. Guthrie WQTC	DRGWQTC Artificial Intelligence Pilot	\$41.3M
	DRGWQTC Clarifier Replacements & Grout Repair	
	DRGWQTC Disinfection Upgrades	
	DRGWQTC Substation U-13 Modifications	
	DRGWQTC Alternate Outfall	
	DRGWQTC Dewatering Facility	
Floyds Fork WQTC	FFWQTC Chemical Feed System Improvements	\$1.9M
	FFWQTC Dewatering Facility	
	FFWQTC Enhanced Biological Phosphorous Removal Study	
Hite Creek WQTC	HCWQTC Chemical Feed System Improvements	\$20.9M
	HCWQTC Expansion Project	
General WQTCs	WQTC Elevator Repairs	\$23.5M
	WQTC General R&R	
Total 5-Year CIP Forecast for Regional WQTCs		\$103M

The following projects are forecasted for the Morris Forman WQTC in the 5-Year CIP.

Table 11: Overview of 5-Year Forecasted Spending for Morris Forman WQTC

Treatment Process	Morris Forman WQTC Priorities	5-Year CIP Forecasted Spending
Primary Treatment	MFWQTC Sedimentation Basin Rehabilitation*	\$37M
	MFWQTC Primary Sludge Line Replacement*	
	MFWQTC Primary Sludge Line Replacement Phase 2*	
	MFWQTC Daft Rehab & TWAS Piping Replacement	
	MFWQTC Headworks and Blower Building Repairs	
	MFWQTC Primary Sludge Pump Station Structural Repairs	
Secondary Treatment	MFWQTC Secondary Clarifiers Structural Repairs*	\$0.2M
	MFWQTC Clarifier Floor Repairs*	
Disinfection	MFWQTC HPO Tanks Structural Repairs*	\$2.7M
	MFWQTC Chlorine Contact Tanks Structural Repairs*	
Final Effluent Pump Station (FEPS)	MFWQTC FEPS MCC Replacement*	\$0.9M
	MFWQTC FEPS Structural Repairs*	
	MFWQTC FEPS VFD Replacement*	

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Treatment Process	Morris Forman WQTC Priorities	5-Year CIP Forecasted Spending
Biosolids	MFWQTC Digester Control Building Structural Repairs*	\$204M
	MFWQTC Sodium Hypochlorite Building Relocation*	
	MFWQTC Centrifuge Replacement/Rehabilitation*	
	MFWQTC LG Dryer Replacements*	
	MFWQTC New Biosolids Facility	
	MFWQTC Cake Pump Phase 2	
Other	MFWQTC General R&R	\$16.6M
	MFWQTC Radio Repeater	
	MFWQTC Heat Polymer Water	
	MFWQTC Groundwater Wells Study/Repair	
	MFWQTC Sewer and Manhole Rehabilitation	
	MFWQTC OGA PTO & Chlorine Rail Car Demolition	
	MFWQTC Process Water Pump & VFD	
	MFWQTC Facility Repairs	
	MFWQTC Service & Blower Building Structural Repairs*	
Electrical	MFWQTC Chiller Replacement	\$0.4M
	MFWQTC East Headworks HVAC*	
Total 5-Year CIP Forecast for Morris Forman WQTC		\$262M

*project under consideration as part of the Agreed Order CAP.

Planning

The 5-year CIP includes the following Planning initiatives, totaling \$8M. These plans will be utilized to implement a comprehensive asset management program, prioritize capital needs, and update the CRRP.

- Bells Lane Asset Management Plan, \$300k
- CCWQTC Asset Management Plan, \$300k
- Comprehensive Facility Plan – Five Year Update, \$400k
- DRGWQTC Asset Management Plan, \$500k
- FFWQTC Asset Management Plan, \$300k
- Floyds Fork Regional Facilities Plan Update, \$300k
- HCWQTC Asset Management Plan, \$460k
- High Strength Waste Market Evaluation, \$250k
- MFWQTC Asset Management Plan, \$1.5M
- Odor Management Plan, \$250k
- SCADA Master Plan, \$750k

Louisville MSD FY21 CIP Overview

- Stormwater Master Plan, \$2M
- Wastewater Pump Stations Facility Asset Management Plan, \$750k

Regionalization & Economic Development

In 2016, high profile failures of “package” treatment plants led to the passage of Kentucky House Joint Resolution 56, to initiate a study of regionalization opportunities to limit the risk of future failures. As a result of this Joint Resolution, a study was performed in 2017 to provide an inventory of small “package” facilities and emergency risk mitigation.

During the 2018 Legislative Session in Kentucky, Senate Bill 151 (SB151) was filed to enable utility ownership of sewer assets outside of jurisdictional boundaries through inter-local agreements. House Bill 513 (HB513) was filed to require additional insurance, as well as regulatory and financial accountability for small “package” treatment facility operators/builders. These two bills were combined and passed under HB513 and signed by the Governor on April 25, 2018.

A few key potential regionalization needs involving MSD are noted below. Depending on the timing of system improvements needed in these areas for public health protection, capital projects required to interconnect with MSD’s wastewater system may need to be accelerated to the 5-year CIP.

- In 2019, Bullitt County Sanitation District and Bullitt County Fiscal Court requested a proposal from MSD for acquisition and regional solutions. This proposal is currently in the due diligence phase.
- The City of Crestwood lobbied for enabling legislation, to allow MSD to acquire their system. This was accomplished in early 2019. Subsequent to the Crestwood acquisition, Oldham County Environmental Authority and Oldham County Fiscal Court requested MSD to submit a proposal to acquire their system.

The CRRP identified various interceptor, gravity sewer collection systems, and a new treatment plant for accommodating future regionalization and/or growth. During FY21 MSD will complete the Floyds Fork WQTC Regional Facilities Plan Update. This project will assist MSD with addressing how regionalization with Bullitt and Oldham Counties will interconnect with MSD’s assets. Current development trends suggest strong growth in the Floyds Fork and/or Cedar Creek watersheds. The following potential major CIP needs have been budgeted in 5-year CIP.

- Cedar Creek Collection Systems, \$4.5M
- Floyds Fork Collection Systems, \$2.7M
- Floyds Fork Interceptor, \$50M

Louisville MSD FY21 CIP Overview

MSD has worked with Oldham County staff to develop a preliminary 5-year CIP to address known and immediate system capital needs. The FY21 CIP includes \$3.64M for the following needs:

- Collection System Inspection, Cleaning, Rehab, Modeling
- Gravity Sewer & Pump Station Rehab/Repair
- Pump Station Eliminations & Interceptor Projects
- WQTC R&R & Eliminations
- SCADA System & Rain Gauge Expansion
- Oldham County CMF/Collections Facility

During the 5-year CIP, the following Oldham County projects will be partially or wholly budgeted.

Table 12: Overview of 5-Year Forecasted Spending for Oldham County

Oldham County Capital Priorities		5-Year CIP Forecasted Spending
Collection System Sewer Improvements	Sewer Inspection & Cleaning	\$6M
	Gravity Sewer Rehabilitation	
	Ash Avenue Interceptor	
	Collection System Modeling	
Collection System Pump Station Improvements	Pump Station R&R	\$4.6M
	Pump Elimination Project	
	SCADA System, Rain Gauge Expansion	
WQTC Improvements	WWTP Elimination Project	\$1.4M
	WQTC R&R	
System-Wide	Unplanned R&R	\$3M
	Oldham County CMF/Collection System Facility	
	Facility Plan Update	
Total 5-Year CIP Forecast for Oldham County		\$15M

Development Program

The 20-Year CRRP includes recommended projects to ensure adequate conveyance and treatment capacity is available in advance of development and population growth. This program is particularly important for avoiding community development initiatives facing moratoriums due to the rated capacity of the WQTCs being exceeded. The development program includes a combination of phased WQTC capacity upgrades and under capacity sewers and pump stations. The following development related projects have been incorporated into the 5-year CIP.

Louisville MSD FY21 CIP Overview

- Fairmount Road Force Main Pump Station Improvements Phases 1 & 2, \$5.6M
- Development Coordination, \$1.1M

Stormwater Management Program

During the 5-year CIP, the following stormwater and drainage projects will be partially or wholly budgeted.

Table 13: Overview of 5-Year Forecasted Spending for Stormwater

Stormwater Priorities		5-Year CIP Forecasted Spending
Stormwater & Drainage Improvements	Local Drainage Improvements	Stormwater \$5.3M
	3-Forks BGC USACE General Investigation	
	Stormwater Master Plan	
MS4 Program	Environmental Data Collection	MS4 \$9.5M
	MS4 Program Support	
	Tree Program	
	USGS Stream Monitoring	
Drainage Response Initiative (DRI)	DRI Projects	DRI \$13M
	DRI Field Inspections	
Green Infrastructure Projects	GI Projects with Signed Agreements	GI \$1.6M
	Future GI Projects	
Land Use Planning	Maple Street Land Use Planning	Land Use \$60,000
	Other Future Projects	
Total 5-Year CIP Forecast for Stormwater & Drainage		\$29.5M

State Revolving Fund Program Candidates

During the CIP development and review process, the following projects were identified as potential candidates for SRF funding. The year a specific project may advance remains under discussion. The intent of this list is to confirm the 5-year CIP includes projects appropriate for consideration with the SRF Program. Projects must start construction within one year of the approved application.

Project funding requests may be submitted for future projects, but to move forward with an application in any given funding cycle, MSD must be able to commit to starting within 1 year of our application. KIA's typical SRF cycle is noted below:

- **Spring:** KIA publishes their Intended Use Plan (IUP) and issues invitations to apply for funding ~May (identification of projects)

Louisville MSD FY21 CIP Overview

- ~3-4 weeks to accept/decline invitation to apply
- **Summer:** MSD prepares project applications
 - profile development; MHI analysis (if needed)
 - submit loan application (with MSD board's authorization to execute and submit)
- **Fall:** formal submittal and scoring timeframe
 - September: preliminary project profiles submitted in coordination with KIPDA
 - October: Clean Water Mgmt Council scoring/voting
- **Winter:** loan closing
 - November/December: final edits, review, GIS and scoring updates, and load project profiles into SRF portal
 - Request MSD Board approval for entering into Assistance Agreement (typically done 2-3 months before construction starts and drawing on loan.

For KIA's FY21 SRF financing, MSD needs to target projects starting construction between September 2021 and June 2022.

- If a project needs to start sooner, costs incurred prior to loan closing would not be eligible.
- If a project needs to start later or schedule is deferred, we can hold off on submitting the project profile or submit and then decline (defer) the loan acceptance until a future year.
- Similar types of projects and schedules (within ~3 year window) are ideal for bundling into a single loan.
- If loan administration includes multiple contracts, KIA prefers that those contracts run as concurrently as possible. If construction starts stretch over multiple years for the ones we're talking about bundling, we may need to reevaluate.

Louisville MSD FY21 CIP Overview

Table 14: SRF Program Candidate Projects

Budget ID	Project	SRF Funding Consideration Cycle
A19208	Broadway Interceptor Infrastructure Rehabilitation	FY 21
H09164	Idlewood In-Line Storage	FY 21
H09171	Kavanaugh Road Pump Station Improvements	FY 21
H09182	Monticello Pump Station Elimination	FY 21
H09192	Cinderella PS Elimination	FY 22
H09196	Leven Pump Station Elimination	FY 22
E15036	Broad Fern Pump Station Elimination	FY 22
A14135	Sneads Branch	FY 23
A18485	Shady Villa Pump Station Elimination	FY 23
E15035	Lake Forest Pump Station Eliminations	FY 23
H09242	Gunpowder Pump Station Inline Storage	FY 23
D20011	Northern Ditch Pump Station Replacement and Odor Control	FY 24
A20006	Lea Ann Way Pump Station Elimination	FY 24
D20008	Kirby Lane Pump Station Elimination	FY 24
H16075	Prospect Phase II Rehab	FY 25
H17057	Floydsburg Road I&I Investigation And Rehabilitation	FY 25

END OF REPORT

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of new budget ids:

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of projects:

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Budget ID	Project Name	FY Budget
FY21MGTRES	FY21 Management Reserve	\$ 3,600,000
New_BD004	1301 W. Main GI	\$ 12,773
New_BD092	MFWQTC Asset Management Plan	\$ 857,143
New_BD104	Clifton Heights Storage Basin Sump Pump Improvements	\$ 50,000
New_BD106	Odor Management Plan	\$ 250,000
New_BD108	Passport Health GI	\$ 109,957
New_BD112	Production Infrastructure Refresh	\$ 3,800,000
New_BD120	Rosa Terrace PS Elimination	\$ 327,600
New_BD121	Wathen Lane PS Rehabilitation	\$ 146,381
New_BD124	Transactional Analysis	\$ 35,000
New_BD125	Tycoon Way DRI	\$ 400,000
New_BD138	CSO 190 PCCM	\$ 160,000
New_BD158	Wastewater Pump Stations Facility Asset Management Plan	\$ 230,769
New_BD162	DRGWQTC PAA System	\$ 425,000
New_BD188	FPS USACE Payment FY21	\$ 1,000,000
New_BD189	FY21 319 Grant	\$ 50,000
New_BD194	FY21 Flood Structures RR	\$ 900,000
New_BD198	Operating Budget Software	\$ 250,000
New_BD199	FY21 Maple Street Land Use Planning	\$ 60,000
New_BD1X1	Sonne Avenue PS Elimination	\$ 327,600
New_BD1XX	Sanders Lane PS Rehabilitation	\$ 146,381
New_BD201	FY21 WQTC Engineering Support	\$ 108,000
New_BD244	Parking Lot Milling and Resurfacing	\$ 157,800
New_BD245	Main Office New Windows	\$ 55,900
New_BD246	CMF Floor Replacement	\$ 55,000
New_BD247	Main Office New Offices and Conference Rooms	\$ 25,000
New_BD248	MFWQTC Sewer and Manhole Rehab	\$ 390,000
New_BD251	DRGWQTC Dewatering Emergency Phase 2	\$ 8,250,000
New_BD259	FY21 FOG Program Support	\$ 90,000
A14129	Gorham Way Pump Station Elimination	\$ 64,628
A16073	Mud Lane Interceptor	\$ 649,692
A18354	Raintree Court and Marian Court Pump Station Elimination - P	\$ 116,002
A19098	FY21 Construction Inspection	\$ 500,000
A20244	Large Diameter Sewer Rehabilitation - Stage 1	\$ 5,983,330
A20280	Harrods Creek Force Main Repair	\$ 2,023,813
A20320	Broadfern PS Elimination	\$ 250,425
C19099	FY21 DRI	\$ 1,440,000
C20091	FY21 Stormwater Asset Inventory & Analysis	\$ 230,000
C20332	10005 Cedar Creek Drive DIP	\$ 46,154
D15020	MFWQTC Cake Pump Phase II	\$ 1,038,222
D15024	MFWQTC Chiller Replacement	\$ 317,222

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D16272	CCWQTC Influent PS MCC Upgrades	\$ 553,982
D17042	MFWQTC Sedimentation Basin RR	\$ 3,455,671
D18116	MFWQTC Biosolids Facility Replacement FY21	\$ 1,500,000
D18128	DRGWQTC Paving	\$ 371,589
D18130	MFWQTC FEPS MCC Replacement	\$ 500,000
D18132	DRGWQTC WWPS WW Screen Bldg HVAC	\$ 1,030,000
D18285	ORFM Odor and Corrosion Control	\$ 914,494
D18292	DRGWQTC Clarifier Grout Repair and RAS Gate Replacement	\$ 1,256,163
D18453	FY21 MFWQTC Equipment RR	\$ 663,800
D18489	Fairmont Road Pump Station Force Main Extension - Phase 1	\$ 382,579
D19039	CCWQTC Effluent Parshall Flume Upgrade	\$ 1,103,511
D19043	MFWQTC OGA PTO and Chlorine Rail Car Facility Demolition	\$ 1,458,741
D19045	MFWQTC Sodium Hypochlorite Building Relocation - Design	\$ 129,697
D19048	MFWQTC Radio Repeater	\$ 344,586
D19223	DRGWQPS Finite Element Analysis Phase 2	\$ 9,166
D19227	MFWQTC Primary Sludge Line Replacement	\$ 17,717
D19275	MDS Downstream Flow Meter	\$ 17,742
D19286	SWPS Gas Monitoring	\$ 550,075
D19307	MFWQTC FEPS VFD Replacement	\$ 319,428
D20012	SGC RTC Enhancements	\$ 1,193,552
D20016	DRG Admin and RAS Buildings HVAC	\$ 649,020
D20017	CCWQTC Sodium Aluminate Building	\$ 650,872
D20033	FY21 Regional WQTC Equipment RR	\$ 1,500,000
D20148	FFWQTC Regional Facilities Plan Update	\$ 300,000
D20167	MFWQTC East Headworks HVAC	\$ 97,600
D20222	Bells Lane Grit Classifier Drain Line	\$ 27,589
D20226	Bells Lane & MF HW Bar Screen Grit Study	\$ 112,889
D20228	MFWQTC Centrifuge Replacement	\$ 388,025
D20262	MFWQTC Groundwater Wells Study/Repair	\$ 200,072
D20278	DRGWQTC RAS Building Electrical Modifications	\$ 117,150
D20284	DRGWQTC Dewatering Emergency Contract	\$ 17,830,685
D20285	MFWQTC LG Dryer Replacements FY21	\$ 17,362,297
D20286	DRGWQTC Substation U-13 Modifications	\$ 120,000
D20291	DRGWQTC Dewatering Emergency Phase 1	\$ 2,200,000
D20298	DRGWQTC Artificial Intelligence Pilot	\$ 176,571
D20304	MFWQTC Headworks and Blower Building Repairs	\$ 202,050
D20351	Floyds Fork Interceptor - Design	\$ 2,317,234
E18468	FY21 CMOM Collection System PS RR	\$ 500,000
E19212	FY21 Operations Renewal & Replacement	\$ 1,185,000
F15010	Gate 102 Replacement	\$ 539,191
F16004	Canal Street Floodwall	\$ 287,237
F18302	Paddy's Run FPS Pumps 1, 2 and 6 Rehab	\$ 333,828
F19100	FY21 Emergency Preparedness Plan	\$ 180,000

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F19245	Flood Gate 1 Replacement	\$	52,494
F19267	Pond Creek Emergency Pump Repairs	\$	488,746
F19276	FPS Auto Grease Systems Upgrades	\$	353,220
F19277	Beargrass Creek FPS Wetwell Relief Gate	\$	136,599
F20013	Beargrass FPS Pump 8	\$	147,177
F20107	Starkey FPS Transformer Replacement and Generator	\$	1,176,054
F20321	Bluegrass Fields PS Renovation	\$	285,496
G09535	CMF Parking Surface	\$	1,462,609
G17015	FY21 Development Infrastructure Support	\$	85,000
G18417	MFQTC Admin. Building Roof Replacement	\$	250,000
G18433	FY21 Development Infrastructure Excess Cost Reimbursement	\$	125,000
G18444	FY21 Plumbing Modification Program	\$	225,000
G18458	FY21 Miscellaneous Facility Repairs	\$	90,000
G18477	FY21 MSD Owned Building Roof Replacements	\$	1,000,000
G20018	SWPS Site Security - Construction	\$	681,131
G20028	WQTC Elevator Repairs	\$	2,882,877
G20067	FY21 Facility Security Upgrades	\$	225,000
G21001	FY21 Renewal & Replacement	\$	1,949,000
H09127	Rowan Pump Station & Downtown CSO Interceptor	\$	2,276,394
H09133	Ohio River Tunnel	\$	35,000,000
H09141	Lexington and Payne CSO Interceptor	\$	1,634,187
H09164	Idlewood Inline Storage	\$	396,954
H14126	HCWQTC Expansion	\$	16,505,487
H16074	Nightingale Rehab	\$	2,473,755
H17016	FY21 MS4 Program	\$	575,000
H17018	FY21 Env'l Data Collection – MS4 & IOAP	\$	875,000
H17019	FY21 IOAP Post Const Compliance Assmt	\$	50,000
H17020	FY21 NMC Support	\$	90,000
H17023	FY21 USGS Stream Monitoring	\$	400,000
H18096	FY21 CMOM Program Management Assistance	\$	135,000
H18097	FY21 CMOM SCAP, AAM And FOG	\$	250,000
H18173	FY21 Information Governance Architecture	\$	235,000
H18176	Downtown CSO Interceptor RPR & CA Services	\$	422,084
H18443	FY21 NMC RTC	\$	675,000
H18483	FY21 Modeling	\$	1,200,000
H19060	Brown Forman Distillery	\$	1,250,000
H19142	Upper Floyds Fork Interceptor	\$	2,855,291
H19247	I-64 and Grinstead CSO Interceptor	\$	5,304,567
H20041	FY21 CIP Task Assistance	\$	2,000,000
H20048	FY21 NMC CSO Inspection Cameras	\$	45,000
H20056	FY21 CMOM I&C Implementation	\$	292,500
H20062	FY21 CMOM Gravity Line Cleaning & Inspection	\$	675,000
H20087	FY21 Tree Program	\$	150,000

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# of projects:	152		
H20136	IOAP Major Modification Development Assistance	\$	250,000
H20138	FY21 PMIS	\$	75,000
H20153	SWPS Flood Repair	\$	208,895
H20164	346 S Peterson Ave Stream Restoration	\$	280,259
J17036	FY21 LOJIC Hw Upgrades & Replacements	\$	100,000
J20023	FY21 LOJIC Survey Control Maintenance	\$	50,000
K15053	FY19 Vehicles & Equip	\$	196,559
K16060	FY20 Vehicles & Equipment	\$	917,850
K18003	FY21 Vehicles & Equipment	\$	1,125,000
K18265	FY21 FPS Equipment RR	\$	900,000
N20075	FY21 IT Infrastructure Initiatives	\$	307,500
N20078	Mobile Communications Replacement	\$	500,000
N20318	Project WIN Website Re-write	\$	40,000
N20328	Asset Wise (eB) Upgrade	\$	147,200
New_W1	OC Ash Avenue Interceptor	\$	400,000
New_W2	OC SCADA System, Rain Gauge Expansion	\$	350,000
New_W3	OC PS Elimination Project	\$	290,000
New_W4	OC FY21 PS R&R	\$	200,000
New_W5	OC FY21 Collection System Modeling	\$	100,000
New_W6	OC FY21 OC WQTC R&R	\$	100,000
New_W7	OC FY21 OC Collection System Gravity Sewer Rehab	\$	50,000
New_W8	OC PS & Treatment Plant Initial Repair	\$	50,000
New_W9	OC CMF/Collections Facility	\$	1,700,000
New_W10	OC WWTP Eliminations	\$	250,000
New_W11	OC FY21 OCEA R&R	\$	150,000

\$ 194,099,478