Executive Summary

Louisville and Jefferson County Metropolitan Sewer District (MSD) has identified the need for a systematic process of operating, maintaining, and upgrading assets cost effectively through their Asset Management (AM) program. MSD is using AM methodology to balance system cost, risk, and performance, to achieve optimized levels of service (LOS) in the wastewater collections and treatment, sanitary pump stations, flood pump stations, and stormwater systems.

The approach used to advance the AM effort included establishing specific groups that each play a role in the advancement of MSD's AM program including: establishing a Chartering Team to define program mission, goals, and critical success factors (Figure ES-1); conducting interviews with a broad array of MSD management to assess the current state of MSD's AM program; establishing an interdepartmental Steering Committee to determine desired state and priorities, and to develop the actions needed to address the gaps in AM practices; and through the Core Team providing additional document review and managing the backlog of program initiatives.

The objectives and recommendations developed from the AM program assessment are summarized in Table ES-1, along with the schedule phases to address the recommendations. They are categorized according to the major types of recommendation and will be carried out by MSD AM Development Teams.

Figure ES-1. Asset Management Program Vision, Mission, and Goals

Mission

Collaboratively develop and manage a risk-based approach to sustain quality wastewater, stormwater and flood protection assets for our community.

Goals

- Provide strategic financial planning for the sustainability of our assets and the protection of our community
- Prolong asset life and reduce costs through robust maintenance and planning strategies
- Define renewal and replacement activities through data-driven risk analysis
- Engage stakeholders in MSD's risk-based decisions through strategic outreach
- Invest in employees, practices and technology for sustainable asset management
- Maintain a dynamic asset inventory that supports MSD's Mission and Vision

Critical Success Factors

- Gain support for the asset management program through senior leadership and stakeholder engagement
- Inclusion of the staff in program development
- Creation of value throughout implementation
- Employees are challenged to embrace new roles and responsibilities within the program
- Productive relationships between departments, divisions, and workgroups
- Clear understanding in the organization about asset management
- Priority driven implementation, innovation and continuous improvement
- Sustained Resource allocation (funds, staff, technology, information)

Teams

Brian Bingham, Chief of Operations
Mike Brazel, Collections System & Emergency Response Manager
Will Cunningham, TVI Manager
Heather Dodds, Regulatory Compliance and Asset Management Administrator
Dan French, Regulatory Compliance, Records and GIS Services Manager
Brad Good, Chief Financial Officer
Mike Griffith, Operations Director – Wastewater and Drainage

David Johnson, Chief of Engineering
Stephanie Laughlin, Infrastructure Planning Program Manager
Rene Lindsay, One Water Chief Procurement Officer
John Loechle, Engineering Technical Services Director
Alex Novak, Operations Director – Treatment Facilities
Daymond Talley, Assistant Director – Treatment Facilities
Marc Thomas, Operations Director – Collections, Flood Protection & Emer Response

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Rec ID	AM Category / Topic	AM Practice	Recommendation	Phase			
				QW	1	2	3
Table ES-1. Overview of Asset Management Program Recommendations							
Decision Making and Capital Planning							
DM1	CIP Development and Prioritization	Business Case Evaluation/Project Justification	Refine business case methodology and materials	■			
DM2		Operability and Maintainability	Establish Capital Improvement Project (CIP) business process and Standard Operating Procedure (SOP)		■		
DM3		Growth and Forecasting Needs	Conduct capacity and growth analysis				■
DM4		Rehabilitation and Renewal Process	Establish Rehabilitation and Replacement (R&R) business model, and process or SOP				■
DM5		Project Prioritization	Develop project prioritization business process or SOP				■
DM6		Condition Assessment Evaluation	Condition and performance ratings included in R&R process		■		
DM7	Design & Construction	Design Requirements	Develop design requirements for delivery of new asset information		■		
DM8		Construction Requirements	Develop construction requirements for delivery of new asset information		■		
DM9		Manuals, Procedures, and Warranties	Develop construction requirements for delivery of new asset information		■		
DM10		R&R Costs and Attributes	Develop R&R assumptions and information to be used in developing an R&R schedule for each facility/service				■
DM11	Funding	Forecasting Long-term R&R Needs	Develop R&R schedule for each facility/service				■
DM12		Funding Strategy	Document capital planning and financing strategy to address asset needs		■		
DM13	Risk Management	Risk Policy	Develop a policy for managing risk (policies must be reviewed and approved by the policy review committee, which may take more than 3 months)	■			
DM14		Risk Register - Identification	Develop a risk register	■			
DM15		Risk Register - Mitigation	Develop/update risk mitigation plans		■		
DM16		Risk-Based Prioritization	Identify and document high risk assets	■			
Information Systems and Data Management							
IS1	Data	Asset Definition	Develop asset definition for use by Operation and Maintenance (O&M) and Engineering to support AM	■			
IS2		Required Asset Attribute Data	Develop asset attribute list, by asset class	■			
IS3		Asset Classes	Document asset classes for each facility/service	■			
IS4		Asset Identification/ Hierarchy	Refine asset inventory hierarchy to ensure readiness for support of other AM activities	■			
IS5		Asset Inventory	Refine and document asset inventories		■		
IS6		Asset commissioning and decommissioning	Develop asset commissioning and decommissioning business process		■		
IS7	Systems	Information Systems	Optimize integrations and links between core enterprise systems		■		

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Rec ID	**AM Category / Topic**	**AM Practice**	**Recommendation**	**Phase**			
				QW	**1**	**2**	**3**
IS8		Inventory/Stores/Materials Management	Inventory documented		⟳	⟳	⟳
IS9	Tools	Data Access Methodology	Develop asset data collection business process/SOP				■
IS10		Data Collection Tools	Document asset data collection business process/SOP		■		
Operations and Maintenance							
OM1	Inventory/ Warehouse	Purchasing/Procurement	Inventory and warehousing business processes			■	
OM2	Maintenance Strategy	Asset Class Plans	Document maintenance strategy for assets		■		
OM3		Job Plans/SOPs	Review and refine job plans		■		
OM4		Maintenance Costs	Implement work order costs in CMMS		■		
OM5		CMMS WO Priority Types	Work order priority types	■			
OM6		Preventive Maintenance	PM process/SOPs		■		
OM7		Predictive Maintenance	PdM process/SOPs				■
OM8		Corrective Maintenance	CM process/SOPs		■		
OM9		Work Scheduling	Plan and schedule work in CMMS			■	
OM10		Updating Asset Class Plans	Document maintenance strategy for assets		⟳	⟳	⟳
OM11	Operations Strategy	Operational Procedures	Add operational information to Asset Class Plan		■		
OM12		Operations Costs	Track operational-related work order costs in CMMS			■	
OM13	Optimization	Condition Assessment Data Collection Process	Create assessment workflow			■	
OM14		Condition Assessment Methods	Document condition assessment protocols for all critical assets		■		
			Perform condition assessment				■
OM15		Condition Assessment Ratings	Document condition rating methodology	■			
OM16		Root Cause Failure Analysis (RCFA)	Develop root cause analysis business process/SOP				■
OM17		Problem, Cause, Remedy Codes (Failure Codes)	Review and implement failure hierarchy		■		
Organizational Framework							
OF1	Communications	Communications Plan	Develop and institute AM communication plan	■			
OF2		AM Strategy Awareness	Communicate the status of the AM program	⟳	⟳	⟳	⟳
OF3	Culture and Change Management	Change Management Plan	Develop and institute AM change management plan	■			
OF4		Management of Risks Associated with Change	Execute AM change management plan.		⟳	⟳	⟳
OF5	Document Management	AM Practices Assessment	Revisit to promote Continuous Improvement		⟳	⟳	⟳
OF6		AM Plan	Develop AM Roadmap for utility		⟳	⟳	⟳
			Develop Strategic Asset Management Plan	■			
			Develop Tactical Asset Management Plans		■		

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Rec ID	AM Category / Topic	AM Practice	Recommendation	Phase			
				QW	1	2	3
OF7		General Document Management Practices	Develop document management business process/SOP		■		
OF8	Leadership and Commitment	Support from Policy Body	Provide update to the Board on AM status	■	⮌	⮌	⮌
OF9		Organizational Commitment	Revisit to promote continuous improvement of AM strategy/charter	■	⮌	⮌	⮌
OF10		AM Goals and Objectives	Revisit to promote continuous improvement of AM strategy/charter		⮌	⮌	⮌
OF11	Levels of Service and Performance Evaluation	AM Program Audit	Perform to promote continuous improvement of AM program		⮌	⮌	⮌
OF12		Balanced Levels of Service	Refine established LOS and performance measures	■			
OF13		Performance Measures (aka Key Performance Indicators)	Refine performance measures		■		
OF14		Tracking and Reporting Performance Measures	Develop method to track and analyze for continuous improvement.			■	
OF15		Regulatory Reporting	Develop workflow for regulatory reporting		■		
OF16		Regulatory Compliance Strategy	Revisit to promote continuous improvement		⮌	⮌	⮌
OF17	Resource Management	Roles and Responsibilities	Adopt AM roles outlined in this AM Roadmap	■			
OF18		Allocation of Resources	Identify and allocate appropriate and adequate resources to support AM improvements.		■		
OF19		Employee Development and Training	Establish training plan with business process/SOP			■	
OF20	Business Continuity	Staffing	Develop Staffing Plan, Business Continuity Plan		⮌	⮌	⮌
OF21		Technology and Systems	Develop Technology Master Plan, Business Continuity Plan			■	⮌
OF22		Communication with stakeholders	Develop Communications Plan, Business Continuity Plan		⮌	⮌	⮌
OF23		Financial Procedures	Develop financial procedures, Business Continuity Plan		⮌	⮌	⮌

Table ES-1. Overview of Asset Management Program Recommendations

- Schedule phase
    - Quick win (QW): Start immediately
    - Phase 1: begin activity in Year 1 (November 1)
    - Phase 2: begin activity in Years 2 and 3 (November 1)
    - Phase 3: begin activity in Years 4 and 5 (November 1)
    - Continuous improvement activity ⮌