CAPACITY, MANAGEMENT, OPERATION AND MAINTENANCE PROGRAMS (CMOM) SELF-ASSESMENT SUMMARY AND PLAN OF ACTION

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Section 1 – Executive Summary

As a condition of a KPDES permit for a wastewater treatment plant, sewer operators are required to complete a *Capacity Management Operation and Maintenance (CMOM) Self-Assessment Checklist*. The purpose of the checklist is to review potential components of a CMOM program, determine what is applicable to the sewer operator, and then determine if there are any gaps between the desired CMOM program and what is currently being performed. MSD last completed the *Self-Assessment Checklist* in 2006 as part of the development of its Consent Decree. The 2006 checklist and summary report included numerous recommendations which have been gradually implemented and updated since 2006.

The *Self-Assessment Checklist* consists of 572 questions related to the sanitary sewer and combined collection system. Some of the questions specifically ask for data (e.g. how many miles of sewer), while other questions are related to processes that are performed. The majority of questions are specifically about operations, maintenance, and capital construction of the system. However, several of the questions are related to training, inventory, funding and legal as these items relate to the collection system.

In 2024, MSD contracted with Heritage Engineering to assist with completing a new *Self-Assessment Checklist* to provide a review of the status of MSD programs relative to CMOM. A Core Team was developed to provide oversight and direction for the process. The Core Team answered over 330 of the overall questions based on institutional knowledge of the system and organizations and identified relevant staff members to interview for each question. In total, Heritage interviewed 30 staff members over a 3-month period. For each item that was answered positively, interviewees provided documentation for the process and/or the data. Heritage reviewed each document to validate that it was sufficient for the question asked. Overall, over 200 documents were reviewed.

Upon completion of the gap analysis, findings were reviewed with Core Team to validate gaps. Once the gaps were validated, activities were developed that would mitigate each gap. These activities were summarized and presented at the MSD Regulatory Compliance Accountability Team (RCAT) meeting on June 11, 2025 for review and feedback related to the findings and direction for accountable executives and assigned leads. Overall, of the 572 original questions, 62 gaps (approximately 11% of total questions) and 29 mitigation activities were identified.

In FY26, 23 tasks were initiated that will mitigate 53 gaps. By the end of FY26, 12 of these tasks are anticipated to be completed, and 11 of these tasks are expected to be partially completed. Six additional tasks were identified and will be performed in future years. The remaining tasks are more complex, often involving multiple divisions and requiring significant internal and/or external resources to complete. Prior to the end of each fiscal year, MSD will review the remaining tasks and prioritize these tasks against other agency priorities. Furthermore, the proposed tasks will be reviewed to determine if each task is still the optimal alternative when considering new technology and any structural changes withing the organization. This will continue each year and MSD will maintain a 'running list' of mitigation tasks meant to allow for flexibility relative to agency priorities and agency and technology changes.

MSD intends to continuously improve its CMOM program and strives to incorporate new technology when available. Before the end of FY31, MSD intends to fill out and review the questionnaire in its entirety. Additional gaps or improvements may be identified through this process. Any new mitigation tasks will be incorporated into the running list for future prioritization.

Section 2 – Methodology

At the onset of the *Self-Assessment*, a Core Team was formed, consisting of the Chief Strategy Officer for Business Transformation and Regulatory Compliance, Chief Operations Officer, Chief Engineer, Infrastructure Planning Manager, Infrastructure Planning Program Administrator, and assistance by Heritage Engineering.

Each answer for the *Self-Assessment* requires documentation to support activities stated to be in practice. Documentation in this assessment is defined as any document or database that maintains or tracks the data or provides process/workflow or Standard Operation Procedure relative to support the answer provided for each assessment question.

The *Self-Assessment Checklist* from KDOW was converted into an interactive Excel worksheet that was utilized to track the responses to each assessment question. The Excel checklist has additional categories which tracks the progress of the question completeness, references supporting documentation, recognizes responsible divisions, and identifies interviewees for each applicable question. Within each of the assessment questions, three primary responses were sought. The first response was to determine if the activity discussed in the question was performed, or if the data readily exists (for data-based questions). The second response was to determine if documentation exists outlining the workflow for the process. The final response was to confirm that data is stored providing evidence of the data.

The Core Team consisted of individuals with extensive institutional knowledge regarding the overall organization and the component of the CMOM program. Below is a summary of the steps used to complete the CMOM checklist

1. Review each question with the Core Team. The Core Team either provided an answer to the question based on the Team's collective knowledge, or they determined the staff member(s) that would best be able to respond to each question.
2. Interview each staff member identified in Step 1 for preliminary responses to each question. For documentation, staff members either referenced where information could easily be obtained or provided relevant documentation for review.
3. Heritage reviewed the documentation to validate that it adequately documented the response to each question.
4. If the documentation were insufficient, Heritage requested additional documentation or scheduled follow-up interviews with each staff member.
5. Based on the interview and the documentation, each sub-question was initially categorized using the following categories
    a. Good – This means that the data readily exists and/or the process is currently being performed, as stated by staff. For documentation, this means adequate and current documentation exists outlining the process and/or that there is evidence of stored data.
    b. Potential Gap – For process or data questions, this indicates that MSD is potentially not performing the process, or the data is not readily available. For documentation

questions, a potential gap means that either documentation of the process doesn't exist, is more than 5 years old, or is in some other way potentially insufficient.

c. Unsuitable – The process or data requested is not and will not be performed by MSD. These are typically processes that MSD previously determined they would not perform, or the question asks for data categorized in a manner in which MSD does not intend to categorize data.
d. N/A – The question is not applicable to MSD. This response was also used as a response for documentation for large-scale subjective questions.

6. The initial categorizations of items that were identified as "Potential Gap" or "Unsuitable" were reviewed with the Core Team. Items that were unsuitable were validated as unsuitable or identified as gaps. Potential gaps were reviewed to validate that the item was a gap that would be beneficial for MSD to mitigate.
7. Once the gaps were finalized, they were categorized using the definitions in Table 1

Table 1.

Gap Classification/Mitigation	
ID	**Definition**
1	Programmatic critical business activity does not occur. Workflow and procedural documentation does not exist. Create/submit/implement/train PRC procedure (Inf Mgmt. Policy – parent). If needed, develop/implement/train WI
2	Programmatic critical business activity performed to some degree - additional elements may be necessary to meet minimum requirements. Workflow and procedure documentation does not exist, is insufficient or is more than 5 years old. Specific programmatic critical business activity elements to be designed and/or implemented. Workflow and procedural documentation to be developed, specific component added and/or made current.
3	Programmatic critical business activity performed. Workflow and procedure documentation does not exist, is insufficient or is more than 5 years old. Workflow and procedural documentation to be developed and/or made current

8. After the gap classification was performed, mitigation activities were developed. Some mitigation activities filled multiple gaps while some would only fill a single gap.
9. Mitigation activities were classified by the expected complexity of the proposed activity and the current status of the activity, as defined in Tables 2 and 3 below.

Table 2.

Effort Complexity	
ID	**Definition**
H	Significant amount of strategic decision making involved to define scope, path forward and deliverables. Potential for significant resource demands.
M	Scope, path forward and deliverables mostly known, some strategic decision making involved. Resource demands moderate.
L	Scope, path forward and deliverables known. Resource demands minimal.

Table 3.

Gap Mitigation Status	
ID	**Definition**
NS	Gap mitigation activity not yet started
A	Gap mitigation activity is already actively underway

10. Tasks were sequenced and assigned by the Core Team. Project leads and accountable executives were assigned for each task. A preliminary schedule was developed for activities in the Fiscal Year 26. The remainder of the mitigation tasks were assigned to future years.
11. The final list was presented at the RCAT meeting for review. Minor modifications were made to some of the responsible staff.

Summaries of the gaps and mitigation activities are included in this document. The completed *Self-Assessment Checklist* will be stored on a SharePoint site and updated with data as necessary.

Section 3 – Gap Analysis

Gaps were determined as outlined in Section 2. Table 4 below is a condensed version of the Gap Analysis, which consists of 62 identified gaps. See **Appendix I** for the complete Gap Analysis.

Table 4.

Gap Analysis									
Gap ID	**Critical Business Activity Required under CMOM aspect of KPDES Permits**	**CMOM Self-Assessment Category**	**Findings as reported by Staff**	**Gap Summary**	**Staff Reported Activity Occurrence**	**Workflow Procedure Documented**	**Evidence through Data**	**Lead Division**	**Mitigation ID**
1	Does the owner or operator provide training in pump station operations and maintenance?	Training	There are on the job training, videos, and PowerPoints for laborer positions. A performance criteria sheet is kept for each employee in their department. New employees are on a 6-month probation hire, at the end of this time, performance is assessed.	There is no formal documentation of the training (knowledge, skills, abilities) required for positions responsible for pump station operations and maintenance - front line staff nor their supervisors. There is also no SOP for training administration (who, when, how) and content delivery (how to present the info).	Yes	No	Yes	Operations	1
2	Is there a documented formal training program?	Training	There is a master spreadsheet maintained by HR that contains all required trainings (according to policies/procedures, regulatory compliance, permits, etc.) and which department title is responsible for implementing the training. There is a training program with a database known as the "Training Tracker" which records/stores training required/completed by position. This program does not store the training or training materials. Each training is assigned to the department responsible for implementing the required training. There is also a Utility Training Program that provides the basic fundamentals for maintenance utility workers which includes the linear collections system staff. However, there is no overall document describing the program (and how it delivers CMOM related training).	There is not an overall training strategy or subsequent comprehensive training delivery framework for ensuring positions across the organization responsible for managing/operating/maintaining a CMOM compliant sanitary collection system have the knowledge, skills and abilities required. The training strategy needs to address content delineation for management staff and non-management, front line staff. The current training content being delivered needs to be evaluated against the strategic framework to determine if gaps exist and if the content needs to be freshened/modernized. Each training program needs an SOP for training administration (who, when, how) and content delivery (how to present the info).	Yes	No	Yes	Operations, Engineering	1
3	Does On-the-Job (OJT) training use Standard Operating and Standard Maintenance Procedures (SOPs & SMPs)	Training	On-the-job training for positions varies between departments and is based on performance criteria. There are several programmatic trainings, however there are not necessarily any SOP's to document OTJ requirements and completion relative to CMOM.	Written Standard Operating and Maintenance Procedures are not currently used for training.	No	No	No	Operations	1
4	Do customer service records include feedback to the customer?	Communication and Customer Service	Feedback to customers submitting sanitary service requests is not consistently provided. Some departments within Operations follow protocols, some do not. No formalized procedure in place to determine when/what/how feedback is provided to the customer and how to document that feedback was given.	There is not a standard process for providing and documenting feedback to customers.	No	No	No	Operations	2
5	Does the owner or operator have a formal procedure in place to evaluate and respond to complaints?	Communication and Customer Service	Customer complaints are received and processed through IPS workflow to assign the complaint for follow-up. The complaint doesn't always make it to the correct division/team at first attempt which delays response. Once at the correct group, it is put into a queue to respond to the complaint depending on criticality and other factors. Historically there has been a lack of clarity in this area as evidenced by involvement of elected officials. Many times, the comments state that the call receipt script did not work properly, which contributes to service requests not getting to the correct department nor inspected and planning of follow-up activities in a timely manner. Also, MSD only has defined standard metrics/goals for providing initial response to 4 types of customer requests (backups, discharge, cave-in, odors).	There is not an overarching framework that defines utility approach/metrics for resolving customer complaints/service requests. The process and scripting for assigning service requests to staff for follow-up needs to be evaluated to determine opportunities for refinement to reduce the rate of incorrectly assigning service requests. The correct division does not always receive the work order and therefore affects response time.	Yes	No	Yes	Operations	2

6	Does the owner or operator provide training in record keeping?	Training	MSD has implemented a records and information governance program over the last several years. General records keeping training is occurring as part of that program. This is a utility-wide issue overall. Currently the determination of "records" to keep is directed by division staff and/or through historical justification without a master, vetted list of records required for KPDES. Certain aspects of KPDES permit record-keeping happens to a great deal with data/document kept in separate information management systems (i.e., LIMS, IPS, PI) and other areas are not documented at all.	There is not a comprehensive listing of records related to CMOM to be kept, department/position responsible for record-keeping, identifying the record appropriately on the records retention schedule, marking the record as a "compliance hold-do not destroy" according to the 2ACD provision related to record keeping, assessing current state of record keeping (do we keep, have we destroyed) the required compliance hold records and reviewing the list of required records to maintain on a recurring basis.	No	No	No	Operations	3
7	Does the owner or operator have a goal for how quickly customer complaints (or emergency calls) are resolved?	Communication and Customer Service	MSD only has defined standard metrics/goals for providing initial response to 4 types of customer requests (backups, discharge, cave-in, odors). There is not an overarching framework that defines utility approach/metrics for resolving customer complaints/requests. This would be difficult to implement as more complex complaints will take a significant amount of time to investigate and develop solutions.	The only goal is to make initial response/contact on 4 types of service requests. There are no goals for timeliness of resolving service requests. A goal to provide a final response for other issues could be created, but this would be a long-term gap to mitigate. "Resolution" would need to be defined as part of the goal.	No	No	No	TBD	2
8	What percentage of customer complaints (or emergency calls) are resolved within the timeline goals?	Communication and Customer Service	There is not a timeline completion goal for resolving customer complaints. There is not an overarching framework that defines utility approach/metrics for resolving customer complaints/requests.	Once goals are established for resolving service requests and procedures developed/implemented, only then can metrics be implemented to track how often service requests are resolved withing established timeframes.	No	No	No	TBD	2
9	Does the owner or operator provide training in public relations?	Training	There is media training for certain individuals to address the public in instances such as crisis communication plan and emergency response and preparedness. The organization does not provide training to staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, how to answer questions when approached on jobsites, talking to customers via phone, etc.	No general training is provided for staff that may come in contact with customers as ambassadors of the organization. Develop and implement training framework for all staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, how to answer questions when approached on jobsites, talking to customers via phone, etc.	No	No	No	Government & Public Affairs	4
10	Are the employees of the collection system trained in public relations?	Communication and Customer Service	There is media training for certain individuals to address the public in instances such as crisis communication plan and emergency response and preparedness. The organization does not provide training to staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, when approached on jobsites, talking to customers via phone,etc.	No specific training is provided for staff that come in contact with customers (as described in findings)	No	No	No	Government & Public Affairs	4
11	Does the owner or operator have a process for customer evaluation of the services provided?	Communication and Customer Service	MSD has restarted the annual CSI process to randomly assess perceived quality of services from rate paying customers, not necessarily those that have had requests submitted to resolve. This general CSI initiative is in year 2. At one time there was discussion relative to establishing survey option specifically for customers calling MSD to be able to opt in to complete a voluntary survey at the end of their call to evaluate their call experience. No formal opportunities exist for customers to evaluate their experience with MSD staff or the resolution of service requests on their property.	The CSI evaluation does not specifically filter through customers that have had service experience with MSD such as through a customer complaint. No formal opportunities for customers that have submitted requests to evaluate service/experience.	Yes	No	No	TBD	5
12	Is the plan for continuing sewer assessment regularly updated?	Continuing Sewer Assessment Plan	The current CSSA was completed in 2020 - it does not contain any guidelines for how often the overall CSSA should be reviewed and updated. Information from the plan is incorporated into IPS - and the components of the plan are updated and revised using a preventative maintenance and workflow process. The plan is risk based and takes into account previous inspection results. Various workflows exist to incorporate the components of the CSSA.	The frequency of review for the CSSA is not defined. The review should consider any potential updates to the CSSA based on changed conditions or new technology.	Yes	Yes - Outdated	Yes	Engineering	6

13	Do the records for manhole/pipe inspection include conditions of the frame and cover?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6
14	Do the records for manhole/pipe inspection include evidence of surcharge; offsets or misalignments?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6
15	Do the records for manhole/pipe inspection include atmospheric hazards measurements?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6
16	Do the records for manhole/pipe inspection include details on the root cause of cracks or breaks in the manhole or pope including blockages?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6
17	Do the records for manhole/pipe inspection include recording conditions of corbel, walls, bench, trough, and pipe seals?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6
18	Do the records for manhole/pipe inspection include presence of corrosion if repair is necessary?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6
19	Do the records for manhole/pipe inspection include manhole identifying number/location?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6
20	Do the records for manhole/pipe inspection include accumulations of grease, debris, or grit?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6

21	Do the records for manhole/pipe inspection include presence of infiltration, location, and estimated quantity?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6
22	Do the records for manhole/pipe inspection include inflow from manhole covers?	(SSES) Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall, there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is no explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	6
23	Approximately, what percent of SSO discharge were caused by vandalism in the last 5 years?	Management Information Systems: Performance Indicators	This data point is not currently tracked, but fields are being added into IPS to allow for this to be tracked.	Vandalism is not currently an option for the cause of SSOs.	No	No	No	Engineering	7
24	What are the average annual labor hours spent on pump station inspections?	Pump Stations Inspection	The data to respond to this question is tracked separately in SAP and IPS but an analysis cannot be easily performed because the IPS/SAP interface tool that allows this analysis is inoperable. The analysis could be performed but would require a consultant to perform the analysis. Efforts are currently underway to re-establish the interface.	The data to respond to this question cannot accurately be tracked because the interface tool between SAP and IPS isn't working.	Yes	No	No	Engineering	8
25	What percent of repair funds are spent on emergency repairs?	Maintenance Scheduling	The data to respond to this question is tracked separately in SAP and IPS but an analysis cannot be easily performed because the IPS/SAP interface tool that allows this analysis is inoperable. The analysis could be performed but would require a consultant to perform the analysis. Efforts are currently underway to re-establish the interface.	The data to respond to this question cannot accurately be tracked because the interface tool between SAP and IPS isn't working.	Yes	No	No	Engineering	8
26	Does the owner or operator attempt to standardize equipment and sewer system components?	Engineering Design	Yes, there have been previous attempts to standardize equipment. It has not been reviewed recently based on new technology and recent construction projects. Staff have reported that attempts to maintain/update it occurred, but they were abandoned because implementation was difficult due to procurement requirements.	There is not currently a standardized equipment list and nor is there a process for updating the list based on new technologies or operational experience.	No	No	No	Engineering	9
27	Are there written instructions for managing and tracking scheduled monitoring/sampling?	Management Information Systems	For the collection system, flow monitoring is managed through Telog. There is no formal documentation on the overall procedure for the use of temporary flow monitors within the collection system. There are SOP's for flow monitoring at each CSO.	There are no written instructions for managing and tracking scheduled monitoring/sampling within the sanitary collection system.	Yes	No	Yes	Operations-Treatment	10
28	How frequently are flow meters checked?	(SSES) Flow Monitoring	Flow meters are typically checked every 2-3 months when the batteries have to be changed or if abnormal activity is detected at flow monitors. Flow meter data is regularly checked, but flow meters are only inspected if necessary. This activity is not documented.	There is no formal procedure or documentation for checking flow monitors including frequency.	Yes	No	Yes	Operations-Treatment	10
29	Do the flow meter checks include independent water level?	(SSES) Flow Monitoring	This is measured but not documented.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	10
30	Do the flow meter checks include checking the desiccant?	(SSES) Flow Monitoring	This is measured but not documented.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	10
31	Do the flow meter checks include cleaning away debris?	(SSES) Flow Monitoring	Debris are cleaned away from the sensors, especially in "low flow" conditions when debris can block sensor. When entering into a confined space, sensors are cleaned if necessary. This activity is not documented.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	10

32	Do the flow meter checks include battery condition?	(SSES) Flow Monitoring	Yes, but this is not documented. Battery conditions can be determined using Telog data.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	Yes	Operations-Treatment	10
33	Are records maintained for each flow meter inspection?	(SSES) Flow Monitoring	No. If batteries are changed or levels are adjusted, these can be seen in Telog.	Flow meter inspections are not recorded into an MSD database.	No	No	No	Operations-Treatment	10
34	Do the flow monitoring records include frequency of flow meter inspection?	(SSES) Flow Monitoring	There is no set frequency for inspections. Inspections are typically done when there is abnormal data or if a battery needs to be changed. If the battery was changed, it can be inferred that the flow monitors were inspected.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	No	No	No	Operations-Treatment	10
35	Do the flow monitoring records include frequency of flow meter calibration?	(SSES) Flow Monitoring	There is calibration on the initial site setup. If the levels are off during inspection, the meters will be calibrated. The level adjustments should be annotated in Telog.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	10
36	How is the new gravity sewer construction tested? (Air, water, weirs, etc.)	Engineering - Construction	Testing is done using air test, CCTV, and mandrel deflection test. Air and mandrel testing are currently in the standard specifications. CCTV is not currently in the Standard Specifications but is planned to be added.	CCTV is not included in the Standard Specifications or Design Manual.	Yes	No	Yes	Engineering	11
37	Are new gravity sewers televised?	Engineering - Construction	Yes, but CCTV is not currently in the Standard Specifications. Specification for CCTV is currently planned to be added to Standard Specifications	CCTV is not included in the Standard Specifications or Design Manual.	Yes	No	Yes	Engineering	11
38	Is there a warranty for new construction? If so, is there a warranty inspection done at the end of this period?	Engineering - Construction	Warranty inspections are currently being performed. There is a warranty for new construction in place. A formal process for new construction inspection is currently being developed.	The warranty process is new and is being developed - no formal process or documentation exists.	Yes	No	Yes	Engineering	12
39-43	What methods are used to notify the public of major construction or maintenance work (door hangers, newspaper, fliers, signs, etc.)? **Capital Projects**	Communication and Customer Service	There are various methods to notify the public such as door hangers, newspaper, fliers, signs, social media, community meetings, and letters for different types of capital projects. There currently is no formal documentation to determine which types of communication should be used for various projects.	There is not documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction work.	Yes	No	Yes	Engineering	13
39-43	What methods are used to notify the public of major construction or maintenance work (door hangers, newspaper, fliers, signs, etc.)? **Maintenance Activities**	Communication and Customer Service	There are various methods to notify the public such as door hangers, newspaper, fliers, signs, social media, community meetings, and letters for different types of capital projects. There currently is no formal documentation to determine which types of communication should be used for various projects.	There is no documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction and maintenance work.	Yes	No	No	Operations	24
44	Is the homeowner notified prior to construction that his/her property may be affected? **Capital Projects**	Communication and Customer Service	Homeowners are notified prior to construction for both capital and maintenance projects. Methods differ depending on the type of project. The documentation on the type and timing for notifications for capital projects is not updated.	There is no documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction and maintenance work.	Yes	No	Yes	Engineering	13
44	Is the homeowner notified prior to construction that his/her property may be affected? **Maintenance Activities**	Communication and Customer Service	Homeowners are notified prior to construction for both capital and maintenance projects. Methods differ depending on the type of project. The documentation on the type and timing for notifications for capital projects is not updated.	There is no documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction and maintenance work.	Yes	No	Yes	Operations	24
45	Is there a document that describes the procedures that the owner or operator follows in conducting design review? Are there any standard forms that are used as a guide?	Engineering - Design	There are documents and checklists for new construction associated with new development. For new capital projects there are procedures in place but not formalized for all types of capital projects.	There is not a documented formal procedure for conducting design review on all capital project types. Add to the handbook in appendix or an addendum.	Yes	No	Yes	Engineering	14

46	Is post rehabilitation flow monitoring used to assess the success of the rehabilitation?	(SSES) Survey and Rehabilitation (General)	If rehab was associated with reducing or eliminating a 'gray' capital project or IOAP required project, then post rehab flow monitoring is performed. In some areas where Inflow and Infiltration is considered high, post rehabilitation flow monitoring is typically performed to evaluate the impacts. Many of the current rehab projects are for structural reasons where flow monitoring is irrelevant and not performed. There is no overall document determining when /how flow monitoring should be performed.	There is not an overall procedure/standard determining when flow monitoring after rehabilitation should be performed or specifications on how to perform and compare pre- and post-rehab flow monitoring.	Yes	No	Yes	Engineering	15
47	Are main line and lateral repairs checked by internal TV inspection after the repair(s) have been made? **Contractors**	(SSES) Internal TV Inspection	Yes, contractors TVI main lines after point repair, but it is not necessarily a consistent process. Specification for I&I rehabilitation includes TVI Data. Video is not always saved in IPS.	1) Verification that TVI is consistently used. 2) Incorporation of results into IPS - potential IT issues with space	Yes	No	Yes	Engineering	16
48	What uses does the model serve (predicting flow capacity, peak flows, force main pressures, etc.)?	Modeling	The models aid in determining capacity, evaluating new projects, assessing CIPs, mitigating overflows, and supporting operational requests. Documentation for this was developed in 2009 and updated in 2012. Various additional documents have been created for additional uses but have not been incorporated into the overall guidelines.	The overall guidelines have not been updated since 2012 and should be reviewed and updated to include enhancements, revisions, or changes to model use.	Yes	Yes - Outdated	Yes	Engineering	17
49	Does the model produce results consistent with observed conditions?	Modeling	To ensure models produce results consistent with observed conditions, the models are calibrated using flow monitoring data, SCADA Information, and field observations. Models are adjusted such that the results fall within metrics specified in the guidelines. Flow monitoring data is constantly reviewed for accuracy. As individual models are updated, calibration reports are created.	The overall guidelines have not been updated since 2012 and should be reviewed and updated to include any enhancements or revisions.	Yes	Yes - Outdated	Yes	Engineering	17
50	Is the model kept up to date with respect to new construction and repairs that may affect hydraulic capacity?	Modeling	Models are periodically updated to add new geometry as the system grows. New capital projects are added to the models during the design process and are finalized once the projects are constructed. Memorandums describing the updates and impacts to the updates are typically produced. Overall guidelines that summarize frequencies and procedures for updates should be updated.	The overall guidelines have not been updated since 2012 and should be reviewed and updated to include any enhancements or revisions.	Yes	Yes - Outdated	Yes	Engineering	17
51	Does the owner or operator provide training in confined space entry?	Training	confined space training occurs, and a PowerPoint presentation is used for training, which is based on the 2012 confined space entry safety program documentation.	The program framework needs to be updated, and the training program needs to be updated accordingly. Also need to document protocols for administering the training program, maintaining the training materials, and delivering the training itself.	Yes	No	Yes	Facilities & Security	18
52	Does the owner or operator have written procedures for the confined spaces permit program?	Safety	There is a written 'MSD-Permit Required Confined Space Safety Program (2012)'. Appendix B of this document lists the confined space facilities, as they existed in 2012.	The Permit Required confined space safety program framework documentation needs to be reviewed and expanded to include all facilities owned and operated today and include training related to implementation of written confined space entry procedures.	Yes	Yes - Outdated	Yes	Facilities & Security	18
53	Is there a permit required confined space entry procedure for manholes, wet wells, etc.? Are confined spaces clearly marked?	Safety	There is a confined space permit required when entering into a confined space. Permits must be called into Base 1 when entering and leaving a confined space. There is training on confined space entry for certain departments as well as some third-party training. Confined spaces are marked for larger structures but not smaller assets such as manholes.	Need to determine protocols for clearly marking confined spaces across all MSD facilities, documenting the locations of those spaces and then ensure all required areas are marked. need to ensure process in place as part of the design, construction and commissioning of new facilities appropriately identify and mark confined spaces. Need to ensure process in place to assess, identify and mark confined spaces when MSD assumes facilities. Written procedures related to all aspects of implementing the confined space program need to be reviewed and refined.	Yes	No	Yes	Health & Safety	19
54	Is there a Safety Committee with participation by O&M staff? How often does it meet?	Safety	There are safety committees at all major facilities including flood protection, main office, CMF, MF, and Treatment 2. Meetings vary by facility but meet at a minimum once a quarter.	No written procedure exists covering the assignment of members, the responsibilities, and frequencies of meetings for each safety committee.	Yes	No	Yes	Health & Safety	20

55	Are there Standard Operating Procedures (SOPs) and Standard Maintenance Procedures (SMPs) for each station?	Pump Stations Inspection	For pump stations in Jefferson County, O&M manuals were produced for facilities installed prior to 2017. New facilities constructed after 2017 should have manuals as part of the commissioning process. O&M manuals have not been developed for Bullitt and Oldham County pump stations.	1) O&M Manuals for newly acquired assets in BC and OC should be developed. 2)O&M Manuals for JC constructed since 2017 should be confirmed. 3) Verify process exists and is being implemented for newly commissioned facilities.	No	No	No	Operations	21
56	Is there an Emergency Operating Procedure for each pump station?	Pump Stations Emergencies	Some pump stations have written emergency operating procedures, but each pump station does not have its own written procedures. Staff generally has procedures based upon the type of station and the nature of the emergency. There is not a documented procedure applicable to all pump stations in emergency situations.	There is no global document covering emergency operation procedures for pump stations.	Yes	No	Yes	Operations	22
57	What process is used to investigate the cause of pump station failure and take necessary action to prevent future failures?	Pump Stations Emergencies	Pump station failure root cause analyses are performed by experienced staff. The staff relies on prior experience and knowledge of each individual station to determine the potential cause. There is no formal process in place.	There is no written procedure to follow for investigating the cause of pump station failures.	Yes	No	No	Operations	23
58	Is there a process in place to investigate the cause of force main failures?	Pump Stations Force Mains and Air/Vacuum Valves	After an emergency, force main failure root cause analyses are investigated to conduct repairs and prevent future failure. These efforts are typically led by experienced staff.	There is no written procedure to follow for investigating the cause of force main failures.	Yes	No	No	Operations	23
59	Do field crews record changes or inaccuracies and is there a process in place to update “as built” plans (record drawings)?	Engineering - System Mapping and As-built Plans (Record Drawings)	There is an as-built plan stored in eBweb. Field crews markup maps in the field and provide to GIS analysts to update in the system. No defined workflow exists for how to address data discrepancies uncovered by field activities and what discrepancies should be reported.	There is no formal or written process directing what inconsistencies should be reported or the procedure to report the changes.	Yes	No	Yes	Operations	25
60	Are main line and lateral repairs checked by internal TV inspection after the repair(s) have been made? **Maintenance**	(SSES) Internal TV Inspection	Yes, contractors TVI main lines after point repair, but it is not necessarily a consistent process. Specification for I&I rehabilitation includes TVI Data. Video is not always saved in IPS.	1) Verification that TVI is consistently used. 2) Incorporation of results into IPS - potential IT issues with space	Yes	No	Yes	Operations	26
61	Have critical spare parts been identified?	Parts Inventory	Some critical spare parts have been identified. A process is in place to identify critical spare parts for new capital projects - that process is being developed, tested and refined. Critical spare parts for older assets are currently being identified by sending lists of inventory for review by operations. The method to track new capital spare parts in SAP is currently being developed.	1) New capital projects - Process/procedure is place for identification of critical spare parts. Will be tested and refined as new projects are completed and documented 2) Previous inventory - currently reviewing with operations staff existing inventory to determine what is critical spare parts for inventory. 3) Tracking system (SAP) for new capital project spare parts is not currently developed.	No	No	No	Supply Chain & Economic Inclusion	27
62	Is there a public relations program in place?	Communication and Customer Service	Yes, a program in place; however, MSD has contracted with a vendor to assist with program review, benchmarking against peers/experts and to establish a refined and formal program.	There is no documentation describing the public relations program.	Yes	No	Yes	Government & Public Affairs	28

Appendix I. Complete Gap Analysis Summary Table

Section 4 – Plan of Action

MSD reviewed the CMOM checklist consisting of 572 questions about the collection system and identified 62 gaps. Mitigation strategies were developed to address each of the identified gaps. The complete list of mitigation activities can be found in **Appendix II**. The identified mitigation activities have been compared to other organizational priorities and organized into an implementation schedule based on feasibility, as some mitigation activities require more resources than others. There are 53 gaps scheduled for mitigation in FY26 (see **Table 5**). The remainder of the gaps will be completed in future years. MSD will review the remaining gaps as resources allow when compared to other organizational priorities with each permit cycle, which is typically every five years. Additional reviews of the checklist may result in additional gaps, which would then be prioritized relative to other previously identified gaps. The identified gaps and mitigations were presented to the MSD Regulatory Compliance Accountability Team (RCAT) on June 11, 2025.

As discussed previously, mitigation activities were determined based on the gap analysis. Each gap has a mitigation activity assigned to it, and many of the mitigation activities address more than one gap. **Table 5** below is a condensed version of the Mitigation Activities Summary, which consists of 29 identified Mitigation Activities. See **Appendix II** for the complete Mitigation Activities Summary.

Table 5.

Mitigation Activities Summary								
Mitigation ID	**Division Lead**	**Description**	**Complexity Classification**	**Type Classification**	**Gaps Included in Mitigation Task**	**Projected Start Year**	**Projected Completion Year**	**Comments**
1	Operations	(1) Document formal training requirements, process and roles/responsibilities for (a) positions responsible for pump station O&M activities (front line and supervisory), inclusive of the use of SOPs and SMPs; positions responsible for sanitary linear assets maintenance activities (front line and supervisory), inclusive of the use of SOPs (2) Evaluate formal training content gaps and/or content refinement needs. Develop plan to mitigate gaps. Document SOP for content delivery. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	M	2	1,2,3	TBD	TBD	
2	Operations	Review current workflows and documentation for receiving and responding to customer service requests. The process should include an evaluation with feedback from the customer of the service provided once the complaint has been addressed. The documentation should address the process for responding to complaints and be stored in a database to easily pull records when needed. The process should include a goal for the timeline to respond to the customer (not to repair the source of the request). Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	H	2	4,5,7,8	TBD	TBD	
3	Operations	(1) Develop a listing of records required to satisfy CMOM and KPDES permits, which division is responsible for generating the record and subsequently ensure that those records are being kept as required. (2) Update records retention schedule to capture full suite of records and identify 2ACD non-destruction hold on applicable records (3) ensure SOPs in place to produce/save the required records; (4) institute a process to routinely vet the master list of required records to ensure up to date and assess compliance against SOPs and existence of the required (5) develop and conduct training . Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	1	6	FY26	TBD	Will be completed across future years as mitigation tasks are completed.
4	Government & Public Affairs	Develop and implement training framework for all staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, when approached on jobsites, talking to customers via phone,etc. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	H	1	9,10	FY26	TBD	The training framework is still under development. Once finalized, all staff will need to be trained. This is a broad task that covers the entire organization.
5	Government & Public Affairs	(a) Evaluate current CSI process to identify opportunity to incorporate feedback from customers that have had service performed or had a service request. (b) evaluate additional opportunities to solicit feedback from customers with submitted requests on overall experience. (c) develop scope and schedule of action plan. (d) implement. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	2	11	TBD	TBD	

6	Engineering	Update the CSSA plan description to define the frequency for reviewing and updating the plan. Update language in pipe inspection program to include the process and documentation on inspection of manholes during pipe inspections. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (11 gaps)	L	3	12-22	FY26	FY26	
7	Engineering	Update IPS to allow for tracking vandalism caused unauthorized discharges. Communicate to staff performing SSO/CSO inspections and reporting. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	L	1	23	TBD	TBD	
8	Engineering	Modify the existing tool or develop a new tool to allow for IPS and SAP data to be readily used together. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	H	1	24,25	FY26	TBD	The tool for integration of IPS and SAP was developed in FY26. Implementation of the tool will be completed in future years.
9	Engineering	Develop, where possible, preferred equipment types and develop procedures to incorporate these into capital project design. This task should review equipment that should be standardized to match other equipment (e.g. electrical, RTC) or equipment type for specific situations (e.g. FM type for RTC applications). This could also include a review/consideration of preferred equipment. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	1	26	FY26	FY27/TBD	Equipment standardization list and accompanying documentation has been developed. Phase 2 of this task for legal, procurement, and implementation is scheduled to be completed in FY27 although procurement challenges could delay the schedule.
10	Operations-Treatment	Create documentation and procedures and instructions for performing and tracking flow meter inspections. Records and tracking should be included in an existing MSD database. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (9 gaps)	M	2	27-35	FY26	FY26	The documentation has been completed. Implementing as equipment becomes available.
11	Engineering	Update the Standard Specifications to include CCTV as part of gravity sewer construction testing. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	L	2	36,37	FY26	FY26	
12	Engineering	Develop, implement and document a process for warranty on new construction. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	38	FY26	FY26	
13	Engineering	Update the Engineering Handbook to include methods and timelines for notifying the public of construction projects. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps, 5 potential activities)	L	2	39-44	FY26	FY26	
14	Engineering	Update the Engineering Handbook to include design review procedures (e.g. milestones, when/who to meet with at delivery milestones, general review procedures) for new capital projects. This will likely vary depending on the type and scale of the capital project. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative.	M	2	45	FY26	FY26	
15	Engineering	Develop a process describing the need and process for pre and post rehab projects. The procedure should clarify which types of projects this would apply to, as well as develop standard procedures. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	46	TBD	TBD	

16	Engineering	(a) Develop SOP to formalize protocols for performing CCTV after point repairs by contractors and incorporate requirements into design manual, construction contracts/standard specifications. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	47	FY26	FY26	A work instruction has been developed for point repairs. Point repairs likely will not go into the design manual. They may be added to construction contracts if determined to be necessary.
17	Engineering	Review and update modeling guidelines incorporating changes/enhancements to modeling uses, calibration procedures, update protocols. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (3 gaps)	M	3	48,49,50	FY26	FY26	
18	Facilities & Security	(a) Refresh confined space program oversight protocols. Documentation for confined space program was last refreshed in 2012. Appendix B of this document requires update to include current listing of MSD confined space facilities. (b) Refresh confined space entry protocols. (c) Refresh confined space training. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	H	2	51,52	FY26	FY26	
19	Health & Safety	(a) Expand current confined space database to include all WQTCs (counties), pump stations, tunnels, basins and other facilities - Appendix B in Confined Space document. (b) Assess identification status of CS facilities/areas and identify those that require identification and not yet marked (c) develop scope/schedule/approach to complete CS identification (d) update program documentation accordingly (e) update protocols for CS entry (f) update training program. Smaller structures (e.g. manholes)will not be individually marked. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	2	53	FY26	TBD	There is a large number of confined spaces within the service area to complete this mitigation. Confined Spaces, as defined in the gap analysis and Mitigation Strategy, will be identified, logged, and marked as resources allow across future years.
20	Health & Safety	Create documentation that outlines what safety committees exist, the standards of how safety meetings are conducted & documented, what the objectives of the meetings are, and who should be on each committee. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative.	L	2	54	FY26	FY26	
21	Operations	Verify that O&M manuals for projects commissioned since 2017 have been provided and appropriately uploaded. Develop O&M manuals for BCSD and OCEA pump stations. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	2	55	FY26	TBD	Compilation of missing information has been completed. Additional resources are needed in order to develop manuals for BCSD and OCEA.
22	Operations	Create general procedures and documentation applicable to all pump stations (could be sub-categorized by type, existence of generator, size, flooder status, etc.), excluding special cases, that should be used during emergencies. Special case pump stations including large pump stations, basin dewatering stations, treatment plant influent stations, and flood pump stations should have their own independent procedures. (1 gap)	H	2	56	FY26	TBD	Data and procedures have been developed and complied. Information needs to be formatted into formal SOP or work instruction.
23	Operations	Document a general process for investigating the cause of pump station and force main failures. The intent is to have a general checklist/guide that could be used by experienced personnel to determine the cause of failure with the primary goal to minimize futures failures. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	L	2	57,58	FY26	TBD	Data and procedures have been developed and complied. Information needs to be formatted into a formal SOP or work instruction
24	Operations	Develop procedure and work instructions for notifying customers/public of upcoming maintenance/construction activities. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps, 5 potential activities)	L	2	39-44	TBD	TBD	

25	Operations	Enhance current process to standardize how field condition/as-built discrepancies are documented, submitted for modification and records modified accordingly. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	L	2	59	FY26	FY26	The process is complete. Additional training will need to take place in other divisions, but collection system linework should be covered.
26	Operations	Develop work instruction to formalize protocols for performing CCTV after point repairs by internal crews. Complete for sanitary and combined sewers first. Then evaluate need and requirements for drainage system. Coordinate with Dan/Heather as formal procedure is scheduled for development in FY27. Drafting the work instruction allows the standardization process to begin with continuous improvement going forward. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	60	FY26	TBD	A work instruction has been developed, however, it is not feasible for all projects. Additional refinement is necessary to determine which projects require post construction CCTV.
27	Supply Chain and Economic Inclusion	Continue and finalize the identification of critical spare parts related to existing inventory. Finalize the implementation of new critical spare parts for new capital projects as the new procedure is tested. Develop, implement tracking system for new capital project spare parts. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	2	61	FY26	TBD	Generally, critical spare parts are already available. However, the process is being revised to more formally understand the inventory. The project has been initiated. There are multiple stakeholders involved. Stakeholders have been met with and a strategy has been developed. Additional equipment will need to be purchased prior to full implementation.
28	Government & Public Affairs	(a) Refine and document strategic frameworks, roles and responsibilities and SOPs. MSD has a contract in place in FY25 to assist with setup of a formal, benchmarked communication and outreach program. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	62	FY26	TBD	A contract has been awarded to begin the process of developing MSD's outward-facing brand. This program will continue to be developed.
29	Operations, Engineering	(1) Shift mindset for regulatory compliance accountability through delivery of training related to the Infrastructure Management Policy and Infrastructure KPDES Permit Compliance Procedures. (2) Re-establish KPDES Regulations Compliance Program training program. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	1	6	FY26	FY26	

Appendix II. Complete Mitigation Strategy Summary Table

Per Kentucky Division of Water, the Plan of Action should also include the following items:

Self-Assessment Summary (Including recommended improvements and schedules)

- The self-assessment was completed for all of the questions included in the CMOM checklist. Various MSD personnel were interviewed to adequately answer each question. From the interviews, 62 gaps were found and have been assigned to a mitigation strategy. The majority of the mitigation strategies are scheduled to be address in FY26, with several scheduled in future years as resources allow. Section 2 of this report discusses in depth how the assessment was completed. A master spreadsheet has been created to document the self-assessment and will be utilized for future assessments.

Collection System Diagram

- MSD maintains a GIS of its sewer system that is regularly updated. MSD also maintains an online mapping tool showing the entire collection system from the GIS that is accessible through lojic.org .

Sewer Overflow Response Protocol (SORP)

- MSD continuously reviews and updates the SORP on an annual basis. The SORP is available on MSD Project Win website and can be access through msdprojectwin.org .

Future updates to the checklist will be completed with each permit cycle. The checklist outlined in this report is completed for FY26. In accordance with the permit cycle, the next review of the checklist will be performed in FY31. If additional gaps are discovered during the checklist process, new mitigation activity tasks will be identified. These tasks will be added to the list of mitigation activity tasks and prioritized along with any remaining previously identified tasks based on criticality and resource availability.

Appendix I – Gap Analysis

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Gap Analysis Summary																				
Gap ID	**Current Tracking Status (Column to be hidden**	**Critical Business Activity Required under CMOM aspect of KPDES Permits**	**CMOM Self-Assessment Category**	**Findings as reported by Staff**	**Gap Summary**	**Staff Reported Activity Occurrence**	**Workflow Procedure Documented**	**Evidence through Data**	**Lead Division**	**Impacted Divisions**	**Accountable Executive**	**Assigned Program Lead**	**Gap Class**	**Gap Mitigation Type**	**Mitigation ID**	**Gap Impact**	**Gap Mitigation Status**	**BP25/30 CSF#**	**Critical Business Function (CBF)**	**CBF Program**	**Roadmap Exist**
1	Core Team Review	Does the owner or operator provide training in pump station operations and maintenance?	Collection System Management > Training	There are on the job training, videos, and PowerPoints for laborer positions. A performance criteria sheet is kept for each employee in their department. New employees are on a 6 month probation hire, at the end of this time, performance is assessed.	There is no formal documentation of the training (knowledge, skills, abilities) required for positions responsible for pump station operations and maintenance - front line staff nor their supervisors. There is also no SOP for training administration (who, when, how) and content delivery (how to present the info).	Yes	No	Yes	Operations	Operations-Treatment; HR-Training	Brian Bingham	Mike Brazel, Jeremy Goodwin	2	2	1	C	NS	1	Asset Management: Infrastructure Operation; Asset Management: Infrastructure Maintenance	Pump Stations	Operation - No; Maintenance - yes
2	Ready for Review	Is there a documented formal training program?	Collection System Management > Training	There is a master spreadsheet maintained by HR that contains all required trainings (according to policies/procedures, regulatory compliance, permits, etc) and which department title is responsible for implementing the training. There is a training program with a database known as the "Training Tracker" which records/stores training required/completed by position. This program does not store the training or training materials. Each training is assigned to the department responsible for implementing the required training. There is also a Utility Training Program that provides the basic fundamentals for maintenance utility workers which includes the linear collections system staff. However there is no overall document describing the program (and how it delivers CMOM related training).	There is not an overall training strategy or subsequent comprehensive training delivery framework for ensuring positions across the organization responsible for managing/operating/maintaining a CMOM compliant sanitary collection system have the knowledge, skills and abilities required. The training strategy needs to address content delineation for management staff and non-management, front line staff. The current training content being delivered needs to be evaluated against the strategic framework to determine if gaps exist and if the content needs to be freshed/modernized. Each training program needs an SOP for training administration (who, when, how) and content delivery (how to present the info).	Yes	No	Yes	Operations, Engineering	ALL	Brian Bingham, David Johnson	TBD	3	3	1	C	A	1	Regulatory Compliance	CMOM	N
3	Ready for Review	Does On-the-Job (OJT) training use Standard Operating and Standard Maintenance Procedures (SOPs & SMPs)	Collection System Management > Training	On-the-job training for positions varies between departments and is based on performance criteria. There are several programmatic trainings, however there are not necessarily any SOP's to document OTJ requirements and completion relative to CMOM.	Written Standard Operating and Maintenance Procedures are not currently used for training.	No	No	No	Operations	Operations- Treatment; HR- Training	Brian Bingham	Mike Brazel, Mike Griffith, Daymond Talley	2	2	1	B	NS	1	Regulatory Compliance	CMOM	N
4	Core Team Review	Do customer service records include feedback to the customer?	Collection System Management > Communication and Customer Service	Feedback to customers submitting sanitary service requests is not consistently provided. Some departments within Operations follow protocols, some do not. No formalized procedure in place to determine when/what/how feedback is provided to the customer and how to document that feedback was given.	There is not a standard process for providing and documenting feedback to customers.	No	No	No	Operations	ALL	Brian Bingham	Mike Griffith, Yvonne Austin	1	1	2	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N
5	Core Team Review	Does the owner or operator have a formal procedure in place to evaluate and respond to complaints?	Collection System Management > Communication and Customer Service	Customer complaints are received and processed through IPS workflow to assign the complaint for follow-up. The complaint doesn't always make it to the correct division/team at first attempt which delays response. Once at correct group, it is put into a que to respond to the complaint depending on criticality and other factors. Historically there has been lack of clarity in this area as evidenced by involvement of elected officials. many times the comments state that the call receipt script did not work properly which contributes to wervice requests not getting to the correct department nor inspected and planning of followup activities in a timely manner. Also, MSD only has defined standard metrics/goals for providing initial response to 4 types of customer requests (backups, discharge, cave-in, odors).	There is not an overarching framework that defines utility approach/metrics for resolving customer complaints/service requests. The process and scripting for assigning service requests to staff for followup needs to be evaluated to determine opportunities for refinement to reduce the rate of incorrectly assigning service requests. The correct division does not always receive the work order and therefore effects response time.	Yes	No	Yes	Operations	ALL	Brian Bingham	Mike Griffith, Yvonne Austin	2	2	2	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N
6	Core Team Review	Does the owner or operator provide training in record keeping?	Collection System Management > Training	MSD has implemented a records and information governance program over the last several years. General records keeping training is occurring as part of that program. This is a utility-wide issue overall. Currently the determination of "records" to keep is directed by division staff and/or thru historical justification without a master, vetted list of records required for KPDES. Certain aspects of KPDES permit record-keeping happens to a great deal with data/document kept in separate information management systems (i.e., LIMS, IPS, PI) and other areas are not documented at all.	There is not a comprehensive listing of records related to CMOM to be kept, department/position responsible for record-keeping, identifying the record appropriately on the records retention schedule, marking the record as a "compliance hold-do not destroy" according to the 2ACD provision related to record keeping, assessing current state of record keeping (do we keep, have we destroyed) the required compliance hold records and reviewing the list of required records to maintain on a recurring basis.	No	No	No	Operations	ALL	Brian Bingham	TBD	1	1	3	A	NS	1	Regulatory Compliance	KPDES Permit monitoring, record-keeping, reporting	N
7	Core Team Review	Does the owner or operator have a goal for how quickly customer complaints (or emergency calls) are resolved?	Collection System Management > Communication and Customer Service	MSD only has defined standard metrics/goals for providing initial response to 4 types of customer requests (backups, discharge, cave-in, odors). There is not an overarching framework that defines utility approach/metrics for resolving customer complaints/requests. This would be difficult to implement as more complex complaints will take a significant amount of time to investigate and develop solutions.	The only goal is for making initial response/contact on 4 types of service requests. There are no goals for timeliness of resolving service requests. A goal to provide a final response for other issues could be created, but this would be a long-term gap to mitigate. "Resolution" would need to be defined as part of the goal.	No	No	No	TBD	TBD	Brian Bingham	Mike Griffith, Yvonne Austin	1	1	2	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N
8	Core Team Review	What percentage of customer complaints (or emergency calls) are resolved within the timeline goals?	Collection System Management > Communication and Customer Service	There is not a timeline completion goal for resolving customer complaints. There is not an overarching framework that defines utility approach/metrics for resolving customer complaints/requests.	Once goals are established for resolving service requests and procedures developed/implemented, only then can metrics be implemented to track how often service requests are resolved withing established timeframes.	No	No	No	TBD	TBD	Brian Bingham	Mike Griffith, Yvonne Austin	1	1	2	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N
9	Ready for Review	Does the owner or operator provide training in public relations?	Collection System Management > Training	There is media training for certain individuals to address the public in instances such as crisis communication plan and emergency response and preparedness. The organization does not provide training to staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, how to answer questions when approached on jobsites, talking to customers via phone, etc.	No general training is provided for staff that may come in contact with customers as ambassadors of the organization. Develop and implement training framework for all staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, how to answer questions when approached on jobsites, talking to customers via phone, etc.	No	No	No	Government & Public Affairs	ALL	Carmen Moreno Rivera	Wes Sydnor	1	1	4	A	NS	2	Communication Management and Stakeholder Engagement	Organizational Brand Management	Y
10	Ready for Review	Are the employees of the collection system trained in public relations?	Collection System Management > Communication and Customer Service	There is media training for certain individuals to address the public in instances such as crisis communication plan and emergency response and preparedness. The organization does not provide training to staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, when approached on jobsites, talking to customers via phone,etc.	No specific training is provided for staff that come in contact with customers (as described in findings)	No	No	No	Government & Public Affairs	ALL	Carmen Moreno Rivera	Wes Sydnor	1	1	4	A	NS	2	Communication Management and Stakeholder Engagement	Organizational Brand Management	Y
11	Core Team Review	Does the owner or operator have a process for customer evaluation of the services provided?	Collection System Management > Communication and Customer Service	MSD has restarted the annual CSI process to randomly assess perceived quality of services from rate paying customers, not necessarily those that have had requests submitted to resolve. This general CSI initiative is in year 2. At one time there was discussion relative to establishing survey option specifically for customers calling MSD to to be able to opt in to complete a voluntary survey at the end of their call to evaluate their call experience. No formal opportunities exist for customers to evaluate their experience with MSD staff or the resolution of service requests on their property.	The CSI evaluation does not specifically filter through customers that have had service experience with MSD such as through a customer complaint. No formal opportunities for customers that have submitted requests to evaluate service/experience.	Yes	No	No	TBD	TBD	Carmen Moreno Rivera	Wes Sydnor	2	2	5	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N

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12	Final Review Complete	Is the plan for continuing sewer assessment regularly updated?	Continuing Sewer Assessment Plan	The current CSSA was completed in 2020 - it does not contain any guidelines for how often the overall CSSA should be reviewed and updated. Information from the plan is incorporated into IPS - and the components of the plan are updated and revised using a preventative maintenance and workflow process. The plan is risk based and takes into account previous inspection results. Various workflows exist to incorporate the components of the CSSA.	The frequency of review for the CSSA is not defined. The review should consider any potential updates to the CSSA based on changed conditions or new technology.	Yes	Yes - Outdated	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Regulatory Compliance	CMOM	N
13	Ready for Review	Do the records for manhole/pipe inspection include conditions of the frame and cover?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
14	Ready for Review	Do the records for manhole/pipe inspection include evidence of surcharge; offsets or misalignments?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
15	Ready for Review	Do the records for manhole/pipe inspection include atmospheric hazards measurements?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
16	Ready for Review	Do the records for manhole/pipe inspection include details on the root cause of cracks or breaks in the manhole or pope including blockages?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
17	Ready for Review	Do the records for manhole/pipe inspection include recording conditions of corbel, walls, bench, trough, and pipe seals?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
18	Ready for Review	Do the records for manhole/pipe inspection include presence of corrosion, if repair is necessary?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
19	Ready for Review	Do the records for manhole/pipe inspection include manhole identifying number/location?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
20	Ready for Review	Do the records for manhole/pipe inspection include accumulations of grease, debris, or grit?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
21	Ready for Review	Do the records for manhole/pipe inspection include presence of infiltration, location, and estimated quantity?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
22	Ready for Review	Do the records for manhole/pipe inspection include inflow from manhole covers?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
23	Ready for Review	Approximately, what percent of SSO discharge were caused vandalism in the last 5 years?	Management Information Systems: Performance Indicators	This data point is not currently tracked, but fields are being added into IPS to allow for this to be tracked.	Vandalism is not currently an option for the cause of SSOs.	No	No	No	Engineering	Operations	Dan French	Heather Dodds	1	1	7	C	A	1	Regulatory Compliance	SORP	FY25
24	Ready for Review	What are the average annual labor hours spent on pump station inspections?	Collection System Operation > Pump Station Operation > Pump Stations Inspection	The data to respond to this questions is tracked separately in SAP and IPS but an analysis cannot be easily performed because the IPS/SAP interface tool that allows this analysis is inoperable. The analysis could be performed, but would require a consultant to perform the analysis. Efforts are currently underway to re-establish the interface.	The data to respond to this question cannot accurately be tracked because the interface tool between SAP and IPS isn't working.	Yes	No	No	Engineering	Operations	David Johnson	Heather Dodds	2	2	8	B	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25
25	Ready for Review	What percent of repair funds are spent on emergency repairs?	Equipment and Collection System Maintenance > Maintenance Scheduling	The data to respond to this questions is tracked separately in SAP and IPS but an analysis cannot be easily performed because the IPS/SAP interface tool that allows this analysis is inoperable. The analysis could be performed, but would require a consultant to perform the analysis. Efforts are currently underway to re-establish the interface.	The data to respond to this question cannot accurately be tracked because the interface tool between SAP and IPS isn't working.	Yes	No	No	Engineering	Operations	David Johnson	Heather Dodds	2	2	8	B	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25

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26	Ready for Review	Does the owner or operator attempt to standardize equipment and sewer system components?	Collection System Operation > Engineering Design	Yes, there have been previous attempts to standardize equipment. It has not been reviewed recently based on new technology and recent construction projects. Staff has reported that attempts to maintain/update it occurred but they were abandoned because implementation was difficult due to procurement requirements.	There is not currently a standardized equipment list and nor is there a process for updating the list based on new technologies or operational experience.	No	No	No	Engineering	Operations, Operations-Treatment	David Johnson	John Loechle	2	1	9	C	NS		Operational Management Optimization	Infrastructure Planning, Design and Construction Standards (Wastewater, Stormwater, Flood)	Y
27	Final Review Complete	Are there written instructions for managing and tracking scheduled monitoring/sampling?	Collection System Management > Management Information Systems	For the collection system, flow monitoring is managed through Telog. There is no formal documentation on the overall procedure for use of temporary flow monitors within the collection system. There are SOP's for flow monitoring at each CSO.	There are no written instructions for managing and tracking scheduled monitoring/sampling within the sanitary collection system.	Yes	No	Yes	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	N/A 2 2	10	C	NS	1	Regulatory Compliance	CMOM	N
28	Ready for Review	How frequently are flow meters checked?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Flow meters are typically checked every 2-3 months when the batteries have to be changed or if abnormal activity is detected at flow monitors. Flow meter data is regularly checked, but flow meters are only inspected if necessary. This activity is not documented.	There is no formal procedure or documentation for checking flow monitors including frequency.	Yes	No	Yes	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N
29	Ready for Review	Do the flow meter checks include independent water level?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	This is measured but not documented.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N
30	Ready for Review	Do the flow meter checks include checking the desiccant?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	This is measured but not documented.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N
31	Ready for Review	Do the flow meter checks include cleaning away debris?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Debris are cleaned away from the sensors, especially in "low flow" conditions when debris can block sensor. When entering into a confined space, sensors are cleaned if necessary. This activity is not documented.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N
32	Ready for Review	Do the flow meter checks include battery condition?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Yes, but this is not documented. Battery conditions can be determined using Telog data.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	Yes	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N
33	Ready for Review	Are records maintained for each flow meter inspection?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	No. If batteries are changed or levels are adjusted, these can be seen in Telog.	flow meter inspections are not recorded into a MSD database.	No	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N
34	Ready for Review	Do the flow monitoring records include frequency of flow meter inspection?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	There is not set frequency for inspections. Inspections are typically done when there is abnormal data or if a battery needs to be changed. If the battery was changed, it can be inferred that the flow monitors were inspected.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	No	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N

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35	Ready for Review	Do the flow monitoring records include frequency of flow meter calibration?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	There is calibration on initial site setup. If the levels are off during inspection, the meters will be calibrated. The level adjustments should be annotated in Telog.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N
36	Ready for Review	How is the new gravity sewer construction tested? (Air, water, weirs, etc.)	Collection System Operation > Engineering - Construction	Testing is done using air test, CCTV, and mandrel deflection test. Air and mandrel testing are currently in the standard specifications. CCTV is not currently in the Standard Specifications, but is planned to be added.	CCTV is not included in the Standard Specifications or Design Manual.	Yes	No	Yes	Engineering	Operations	John Loechle	Bob Stauble	3	3	11	C	NS	1	Operational Management Optimization	Infrastructure Planning, design, construction	Y
37	Ready for Review	Are new gravity sewers televised?	Collection System Operation > Engineering - Construction	Yes, but CCTV is not currently in the Standard Specifications. Specification for CCTV is currently planned to be added to Standard Specifications	CCTV is not included in the Standard Specifications or Design Manual.	Yes	No	Yes	Engineering	Operations	John Loechle	Bob Stauble	3	3	11	C	NS	1	Operational Management Optimization	Infrastructure Planning, design, construction	Y
38	Ready for Review	Is there a warranty for new construction? If so, is there a warranty inspection done at the end of this period?	Collection System Operation > Engineering - Construction	Warranty inspections are currently being performed. There is a warranty for new construction in place. A formal process for new construction inspection is currently being developed.	The warranty process is new and is being developed - no formal process or documentation exists.	Yes	No	Yes	Engineering	Operations	John Loechle	Bob Stauble	2	2	12	C	A	1	Operational Management Optimization	Infrastructure Planning, design, construction	Y
39-43	Core Team Review	What methods are used to notify the public of major construction or maintenance work (door hangers, newspaper, fliers, signs, etc.)? **Capital Projects**	Collection System Management > Communication and Customer Service	There are various methods to notify the public such as door hangers, newspaper, fliers, signs, social media, community meetings, and letters for different types of capital projects. There currently is no formal documentation to determine which types of communication should be used for various projects.	There is not documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction work.	Yes	No	Yes	Engineering	Operations, Operations-Treatment Government & Public Affairs	John Loechle	Jacob Mathis	3	3	13	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N
39-43	Pending additional information	What methods are used to notify the public of major construction or maintenance work (door hangers, newspaper, fliers, signs, etc.)? **Maintenance Activities**	Collection System Management > Communication and Customer Service	There are various methods to notify the public such as door hangers, newspaper, fliers, signs, social media, community meetings, and letters for different types of capital projects. There currently is no formal documentation to determine which types of communication should be used for various projects.	There is not documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction and maintenance work.	Yes	No	No	Operations	Engineering, Government & Public Affairs	Mike Griffith	Gerald Dunlap, Tony Morrison, Will Cunningham	3	3	24	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N
44	Core Team Review	Is the homeowner notified prior to construction that his/her property may be affected? **Capital Projects**	Collection System Management > Communication and Customer Service	Homeowners are notified prior to construction for both capital and maintenance projects. Methods differ depending on type of project. The documentation on the type and timing for notifications for capital projects is not updated.	There is not documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction and maintenance work.	Yes	No	Yes	Engineering	Operations, Government & Public Affairs	John Loechle	Jacob Mathis	3	3	13	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N
44	Core Team Review	Is the homeowner notified prior to construction that his/her property may be affected? **Maintenance Activities**	Collection System Management > Communication and Customer Service	Homeowners are notified prior to construction for both capital and maintenance projects. Methods differ depend on type of project. The documentation on the type and timing for notifications for capital projects is not updated.	There is not documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction and maintenance work.	Yes	No	Yes	Operations	Public Affairs	Mike Griffith	Gerald Dunlap, Tony Morrison, Will Cunningham	2	3	24	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N
45	Ready for Review	Is there a document that describes the procedures that the owner or operator follows in conducting design review? Are there any standard forms that are used as a guide?	Collection System Operation > Engineering - Design	There are documents and checklists for new construction associated with new development. For new capital projects there are procedures in place but not formalized for all types of capital projects.	There is not a documented formal procedure for conducting design review on all capital project types. Add to handbook in appendix or an addendum.	Yes	No	Yes	Engineering	Operations	John Loechle	Jacob Mathis	3	3	14	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N
46	Ready for Review	Is post rehabilitation flow monitoring used to assess the success of the rehabilitation?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	If rehab was associated with reducing or eliminating a 'gray' capital project or IOAP required project, then post rehab flow monitoring is performed. In some areas where Inflow and Infiltration is considered high, post rehabilitation flow monitoring is typically performed to evaluate the impacts. Many of the current rehab projects are for structural reasons where flow monitoring is irrelevant and not performed. There is no overall document determining when /how flow monitoring should be performed.	There is not an overall procedure/standard determining when flow monitoring after rehabilitation should be performed or specifications on how to perform and compare pre and post-rehab flow monitoring.	Yes	No	Yes	Engineering	Operations	John Loechle	Jacob Mathis	2	2	15	C	NS	1	Regulatory Compliance	Sewer Overflow Abatement	N
47	Core Team Review	Are main line and lateral repairs checked by internal TV inspection after the repair(s) have been made? **Contractors**	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes, contractors TVI main lines after point repair, but it is not necessarily a consistent process. Specification for I&I rehabilitation include TVi Data. Video is not always saved in IPS.	1) Verification that TVI is consistently used. 2) Incorporation of results into IPS - potential IT issues with space	Yes	No	Yes	Engineering	Operations (Will/Gerald/Tony)	John Loechle	Jacob Mathis	2	1	16	C	NS	1	Asset Management: Infrastructure R&R	Wastewater collection, conveyance, storage	FY25

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48	Ready for Review	What uses does the model serve (predicting flow capacity, peak flows, force main pressures, etc.)?	Collection System Operation > Modeling	The models aids in determining capacity, evaluating new projects, assessing CIPs, mitigating overflows, and supporting operational requests. Documentation for this was developed in 2009 and updated in 2012. Various additional documents have been created for additional uses but have not been incorporated into the overall guidelines.	The overall guidelines have not been updated since 2012 and should be reviewed and updated to include enhancements, revisions or changes to model use.	Yes	Yes - Outdated	Yes	Engineering	Operations	John Loechle	Wolffie Miller	3	3	17	D	NS	1	Regulatory Compliance	Sewer Overflow Abatement	N
49	Ready for Review	Does the model produce results consistent with observed conditions?	Collection System Operation > Modeling	To ensure models produce results consistent with observed conditions, the models are calibrated using flow monitoring data, SCADA Information, and field observations. Models are adjusted such that the results fall within metrics specified in the guidelines. Flow monitoring data is constantly reviewed for accuracy. As individual models are updated, calibration reports are created.	The overall guidelines have not been updated since 2012 and should be reviewed and updated to include any enhancements or revisions.	Yes	Yes - Outdated	Yes	Engineering	Operations	John Loechle	Wolffie Miller	3	3	17	D	NS	1	Regulatory Compliance	Sewer Overflow Abatement	N
50	Ready for Review	Is the model kept up to date with respect to new construction and repairs that may affect hydraulic capacity?	Collection System Operation > Modeling	Models are periodically updated to add new geometry as the system grows. New capital projects are added to the models during the design process and are finalized once the projects are constructed. Memorandums describing the updates and impacts to the updates are typically produced. Overall guidelines that summarize frequencies and procedures for updates should be updated.	The overall guidelines have not been updated since 2012 and should be reviewed and updated to include any enhancements or revisions.	Yes	Yes - Outdated	Yes	Engineering	Operations	John Loechle	Wolffie Miller	3	3	17	D	NS	1	Regulatory Compliance	Sewer Overflow Abatement	N
51	Core Team Review	Does the owner or operator provide training in confined space entry?	Collection System Management > Training	confined space training occurs and a PowerPoint presentation is used for training, that is based on the 2012 confined space entry safety program documentation.	The program framework needs to be updated and the training program needs to be updated accordingly. Also need to document protocols for administering the training program, maintaining the training materials and delivering the training itself.	Yes	No	Yes	Facilities & Security	Operations, Operations-Treatment, Engineering, HR, Legal	Lopez High	Tony Combs	3	3	18	C	NS	3	Manage Workplace Health and Safety	Employee Health/Safety mgmt.	Y
52	Final Review Complete	Does the owner or operator have written procedures for the confined spaces permit program?	Collection System Operation > Safety	There is a written 'MSD-Permit Required Confined Space Safety Program (2012)'. Appendix B of this document lists the confined space facilities, as they existed in 2012.	The Permit Required confined space safety program framework documentation needs to be reviewed and expanded to include all facilities owned and operated today and include training related to implementation of written confined space entry procedures.	Yes	Yes - Outdated	Yes	Facilities & Security	Operations, Operations-Treatment, Engineering, Legal	Tony Combs	Tony Combs	3	3	18	C	NS	1	Manage Workplace Health and Safety	Employee Health/Safety mgmt.	Y
53	Core Team Review	Is there a permit required confined space entry procedure for manholes, wet wells, etc.? Are confined spaces clearly marked?	Collection System Operation > Safety	There is a confined space permit required when entering into a confined space. Permits must be called into Base 1 when entering and leaving a confined space. There is training on confined space entry for certain departments as well as some third party training. Confined spaces are marked for larger structures but not smaller assets such as manholes.	Need to determine protocols for clearly marking confined spaces across all MSD facilities, documenting the locations of those spaces and then ensure all required areas are marked. need to ensure process in place as part of the design, construction and commissioning of new facilities appropriately identify and mark confined spaces. Need to ensure process in place to assess, identify and mark confined spaces when MSD assumes facilities. Written procedures related to all aspects of implementing the confined space program need to be reviewed and refined.	Yes	No	Yes	Health & Safety	Operations, Operations-Treatment, Engineering, Legal	Tony Combs	Tony Combs	3	3	19	C	NS	3	Manage Workplace Health and Safety	Employee Health/Safety mgmt.	Y
54	Core Team Review	Is there a Safety Committee with participation by O&M staff? How often does it meet?	Collection System Operation > Safety	There are safety committees at all major facilities including flood protection, main office, CMF, MF, and Treatment 2. Meetings vary by facility but meet at a minimum once a quarter.	No written procedure exists covering the assignment of members, the responsibilities, and frequencies of meetings for each safety committee.	Yes	No	Yes	Health & Safety	Operations, Operations-Treatment, Engineering	Tony Combs	Tony Combs	3	3	20	C	NS	3	Manage Workplace Health and Safety	Employee Health/Safety mgmt.	Y
55	Ready for Review	Are there Standard Operating Procedures (SOPs) and Standard Maintenance Procedures (SMPs) for each station?	Collection System Operation > Pump Station Operation > Pump Stations Inspection	For pump stations in Jefferson county, O&M manuals were produced for facilities installed prior to 2017. New facilities constructed after 2017 should have manuals as part of the commissioning process. O&M manuals have not been developed for Bullitt and Oldham County pump stations.	1) O&M Manuals for newly acquired assets in BC and OC should be developed. 2)O&M Manuals for JC constructed since 2017 should be confirmed. 3) Verify process exists and is being implemented for newly commissioned facilities.	No	No	No	Operations	Engineering	Mike Brazel	Jeremy Goodwin	2	2	21	C	NS	1	Asset Management: Infrastructure Operation	Wastewater collection, conveyance, storage	N
56	Core Team Review	Is there an Emergency Operating Procedure for each pump station?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Emergencies	Some pump stations have written emergency operating procedures but each pump station does not have its own written procedures. Staff generally has procedures based upon the type of station and the nature of the emergency. There is not a documented procedure applicable to all pump stations in emergency situations.	There is no global document covering emergency operation procedures for pump stations.	Yes	No	Yes	Operations	Engineering	Mike Brazel	Jeremy Goodwin	2	2	22	C	NS	1	Asset Management: Infrastructure Operation	Wastewater collection, conveyance, storage	N
57	Core Team Review	What process is used to investigate the cause of pump station failure and take necessary action to prevent future failures?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Emergencies	Pump station failure root cause analyses are performed by experienced staff. The staff relies on prior experience and knowledge of each individual station to determine the potential cause. There is no formal process in place.	There is no written procedure to follow for investigating the cause of pump station failures.	Yes	No	No	Operations	Engineering	Mike Brazel	Jeremy Goodwin	2	2	23	C	NS	1	Asset Management: Infrastructure Operation	Wastewater collection, conveyance, storage	N

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Gap Analysis Summary																				
Gap ID	**Current Tracking Status (Column to be hidden**	**Critical Business Activity Required under CMOM aspect of KPDES Permits**	**CMOM Self-Assessment Category**	**Findings as reported by Staff**	**Gap Summary**	**Staff Reported Activity Occurrence**	**Workflow Procedure Documented**	**Evidence through Data**	**Lead Division**	**Impacted Divisions**	**Accountable Executive**	**Assigned Program Lead**	**Gap Class**	**Gap Mitigation Type**	**Mitigation ID**	**Gap Impact**	**Gap Mitigation Status**	**BP25/30 CSF#**	**Critical Business Function (CBF)**	**CBF Program**	**Roadmap Exist**
58	Core Team Review	Is there a process in place to investigate the cause of force main failures?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Force Mains and Air/Vacuum Valves	After an emergency, force main failure root cause analyses are investigated to conduct repairs and prevent future failure. These efforts are typically led by experienced staff.	There is no written procedure to follow for investigating the cause of force main failures.	Yes	No	No	Operations	Engineering	Mike Brazel	Jeremy Goodwin	2	2	23	C	NS	1	Asset Management: Infrastructure Operation	Wastewater collection, conveyance, storage	N
59	Ready for Review	Do field crews record changes or inaccuracies and is there a process in place to update “as built” plans (record drawings)?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	There are an as-built plan stored in eBweb. Field crews markup maps in the field and provide to GIS analysts to update in the system. No defined workflow exists for how to address data discrepancies uncovered by field activities and what discrepancies should be reported.	There is no formal or written process directing what inconsistencies should be reported or the procedure to report the changes.	Yes	No	Yes	Operations	Engineering, Infrastructure Technology	Mike Griffith	Will Cunningham	3	3	25	C	NS	1	Asset Management: Infrastructure Maintenance	Wastewater collection, conveyance, storage	Y
60	Core Team Review	Are main line and lateral repairs checked by internal TV inspection after the repair(s) have been made? **Maintenance**	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes, contractors TVI main lines after point repair, but it is not necessarily consistent process. Specification for I&I rehabilitation include TVi Data. Video is not always saved in IPS.	1) Verification that TVI is consistently used. 2) Incorporation of results into IPS - potential IT issues with space	Yes	No	Yes	Operations	Engineering	Mike Griffith	Will Cunningham	2	1	26	C	NS	1	Asset Management: Infrastructure Maintenance	Wastewater collection, conveyance, storage	Y
61	Ready for Review	Have critical spare parts been identified?	Equipment and Collection System Maintenance > Parts Inventory	Some critical spare parts have been identified. A process is in place to identify critical spare parts for new capital projects - that process is being developed, tested and refined. Critical spare parts for older assets are currently being identified by sending lists of inventory for review by operations. The method to track new capital spare parts in SAP is currently being developed.	1) New capital projects - Process/procedure is place for identification of critical spare parts. Will be tested and refined as new projects are completed and documented 2) Previous inventory - currently reviewing with operations staff existing inventory to determine what is critical spare parts for inventory. 3) Tracking system (SAP) for new capital project spare parts is not currently developed.	No	No	No	Supply Chain & Economic Inclusion	Engineering, Operations	Rene Lindsay	Adrianne Wright	2	2	27	C	A	1	Procurement Support and Inventory Management	Operational Inventory Management	Y
62	Ready for Review	Is there a public relations program in place?	Collection System Management > Communication and Customer Service	Yes, a program in place; however MSD has contracted with a vendor to assist with program review, benchmarking against peers/experts and to establish a refined and formal program.	There is no documentation describing the public relations program.	Yes	No	Yes	Government & Public Affairs	ALL	Wes Sydnor	Sheryl Lauder	2	2	28	A	A	2	Communication Management and Stakeholder Engagement	Communication Program Management	Y

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Appendix II – Mitigation Strategy Summary

CMOM Assessment Phase I - Recommended Mitigation Activities										
Mitigation ID	**Division Lead**	**Accountable Executive**	**Assigned Program Lead**	**Description**	**Complexity Classification**	**Type Classification**	**Impact**	**Status**	**FY Start**	**Gaps Included in Mitigation Task**
1	Operations	Brian Bingham	Mike Brazel, Mike Griffith, Daymond Talley. Jeremy Goodwin	(1) Document formal training requirements, process and roles/responsibilities for (a) positions responsible for pump station O&M activities (front line and supervisory), inclusive of the use of SOPs and SMPs; positions responsible for sanitary linear assets maintenance activities (front line and supervisory), inclusive of the use of SOPs (2) Evaluate formal training content gaps and/or content refinement needs. Develop plan to mitigate gaps. Document SOP for content delivery. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	M	2	B	NS	FY27	1,2,3
2	Operations	Brian Bingham	Mike Griffith, Yvonne Austin	Review current workflows and documentation for receiving and responding to customer service requests. The process should include an evaluation with feedback from the customer of the service provided once the complaint has been addressed. The documentation should address the process for responding to complaints and be stored in a database to easily pull records when needed. The process should include a goal for the timeline to respond to the customer (not to repair the source of the request). Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	H	2	A	NS	FY27	4,5,7,8
3	Operations	Brian Bingham	TBD	(1) Develop a listing of records required to satisfy CMOM and KPDES permits, which division is responsible for generating the record and subsequently ensure that those records are being kept as required. (2) Update records retention schedule to capture full suite of records and identify 2ACD non-destruction hold on applicable records (3) ensure SOPs in place to produce/save the required records; (4) institute a process to routinely vet the master list of required records to ensure up to date and assess compliance against SOPs and existence of the required (5) develop and conduct training . Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	1	A	NS	FY26	6
4	Government & Public Affairs	Carmen Moreno Rivera	Wes Sydnor	Develop and implement training framework for all staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, when approached on jobsites, talking to customers via phone,etc. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	H	1	A	NS	FY26	9,10
5	Government & Public Affairs	Carmen Moreno Rivera	Wes Sydnor	(a) Evaluate current CSI process to identify opportunity to incorporate feedback from customers that have had service performed or had a service request. (b) evaluate additional opportunities to solicit feedback from customers with submitted requests on overall experience. (c) develop scope and schedule of action plan. (d) implement. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	2	A	NS	FY27	11

CMOM Assessment Phase I - Recommended Mitigation Activities										
Mitigation ID	Division Lead	Accountable Executive	Assigned Program Lead	Description	Complexity Classification	Type Classification	Impact	Status	FY Start	Gaps Included in Mitigation Task
6	Engineering	Dan French	Heather Dodds	Update the CSSA plan description to define the frequency for reviewing and updating the plan. Update language in pipe inspection program to include the process and documentation on inspection of manholes during pipe inspections. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (11 gaps)	L	3	C	NS	FY27	12-22
7	Engineering	Dan French	Heather Dodds	Update IPS to allow for tracking vandalism caused unauthorized discharges. Communicate to staff performing SSO/CSO inspections and reporting. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	L	1	B	NS	FY26	23
8	Engineering	Dan French	Heather Dodds	Modify the existing tool or develop a new tool to allow for IPS and SAP data to be readily used together. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	H	1	B	NS	FY26	24,25
9	Engineering	David Johnson	John Loechle	Develop, where possible, preferred equipment types and develop procedures to incorporate these into capital project design. This task should review equipment that should be standardized to match other equipment (e.g. electrical, RTC) or equipment type for specific situations (e.g. FM type for RTC applications). This could also include a review/consideration of preferred equipment. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	1	C	NS	FY26	26
10	Operations-Treatment	Daymond Talley	Dwight Mitchell, Mike Moore	Create documentation and procedures and instructions for performing and tracking flow meter inspections. Records and tracking should be included in an existing MSD database. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (9 gaps)	M	2	C	NS	FY26	27-35
11	Engineering	John Loechle	Bob Stauble	Update the Standard Specifications to include CCTV as part of gravity sewer construction testing. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	L	2	C	Active	FY26	36,37
12	Engineering	John Loechle	Bob Stauble	Develop, implement and document a process for warranty on new construction. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	C	Active	FY26	38
13	Engineering	John Loechle	William Marshall	Update the Engineering Handbook to include methods and timelines for notifying the public of construction projects. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps, 5 potential activities)	L	2	D	NS	FY26	39-44
14	Engineering	John Loechle	William Marshall	Update the Engineering Handbook to include design review procedures (e.g. milestones, when/who to meet with at delivery milestones, general review procedures) for new capital projects. This will likely vary depending on the type and scale of the capital project. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative.	M	2	C	NS	FY26	45
15	Engineering	John Loechle	Jacob Mathis	Develop a process describing the need and process for pre and post rehab projects. The procedure should clarify which types of projects this would apply to, as well as develop standard procedures. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	C	NS	FY27	46

CMOM Assessment Phase I - Recommended Mitigation Activities										
Mitigation ID	Division Lead	Accountable Executive	Assigned Program Lead	Description	Complexity Classification	Type Classification	Impact	Status	FY Start	Gaps Included in Mitigation Task
16	Engineering	John Loechle	William Marshall	(a) Develop SOP to formalize protocols for performing CCTV after point repairs by contractors and incorporate requirements into design manual, construction contracts/standard specifications. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	D	NS	FY26	47
17	Engineering	John Loechle	Wolffie Miller	Review and update modeling guidelines incorporating changes/enhancements to modeling uses, calibration procedures, update protocols. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (3 gaps)	M	3	C	NS	FY26	48,49,50
18	Facilities & Security	Lopez High	Tony Combs	(a) Refresh confined space program oversight protocols. Documentation for confined space program was last refreshed in 2012. Appendix B of this document requires update to include current listing of MSD confined space facilities. (b) Refresh confined space entry protocols. (c) Refresh confined space training. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	H	2	B	NS	FY26	51,52
19	Health & Safety	Lopez High	Tony Combs	(a) Expand current confined space database to include all WQTCs (counties), pump stations, tunnels, basins and other facilities - Appendix B in Confined Space document. (b) Assess identification status of CS facilities/areas and identify those that require identification and not yet marked (c) develope scope/schedule/approach to complete CS identification (d) update program documentation accordingly (e) update protocols for CS entry (f) update training program. Smaller structures (e.g. manholes)will not be individually marked. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	2	B	NS	FY26	53
20	Health & Safety	Lopez High	Tony Combs	Create documentation that outlines what safety committees exist, the standards of how safety meetings are conducted & documented, what the objectives of the meetings are, and who should be on each committee. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative.	L	2	C	NS	FY26	54
21	Operations	Mike Brazel	Jeremy Goodwin	Verify that O&M manuals for projects commissioned since 2017 have been provided and appropriately uploaded. Develop O&M manuals for BCSD and OCEA pump stations. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	2	C	NS	FY26	55
22	Operations	Mike Brazel	Jeremy Goodwin	Create general procedures and documentation applicable to all pump stations (could be sub-categorized by type, existence of generator, size, flooder status, etc.), excluding special cases, that should be used during emergencies. Special case pump stations including large pump stations, basin dewatering stations, treatment plant influent stations, and flood pump stations should have their own independent procedures. (1 gap)	H	2	C	NS	FY26	56

CMOM Assessment Phase I - Recommended Mitigation Activities										
Mitigation ID	Division Lead	Accountable Executive	Assigned Program Lead	Description	Complexity Classification	Type Classification	Impact	Status	FY Start	Gaps Included in Mitigation Task
23	Operations	Mike Brazel	Jeremy Goodwin	Document a general process for investigating the cause of pump station and force main failures. The intent is to have a general checklist/guide that could be used by experienced personnel to determine the cause of failure with the primary goal to minimize futures failures. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps)	L	2	C	NS	FY26	57,58
24	Operations	Mike Griffith	Gerald Dunlap, Tony Morrison, Will Cunningham, Yvonne Austin	Develop procedure and work instructions for notifying customers/public of upcoming maintenance/construction activities. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (2 gaps, 5 potential activities)	L	2	D	NS	FY27	39-44
25	Operations	Mike Griffith	Will Cunningham	Enhance current process to standardize how field condition/as-built discrepancies are documented, submitted for modification and records modified accordingly. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	L	2	C	NS	FY26	59
26	Operations	Mike Griffith	Will Cunningham	Develop work instruction to formalize protocols for performing CCTV after point repairs by internal crews. Complete for sanitary and combined sewers first. Then evaluate need and requirements for drainage system. Coordinate with Dan/Heather as formal procedure is scheduled for development in FY27. Drafting the work instruction allows the standardization process to begin with continuous improvement going forward. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	D	NS	FY26	60
27	Supply Chain and Economic Inclusion	Rene' Lindsay	Adrianne Wright	Continue and finalize the identification of critical spare parts related to existing inventory. Finalize the implementation of new critical spare parts for new capital projects as the new procedure is tested. Develop, implement tracking system for new capital project spare parts. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	2	B	Active	FY26	61
28	Government & Public Affairs	Wes Sydnor	Sheryl Lauder	(a) Refine and document strategic frameworks, roles and responsibilities and SOPs. MSD has a contract in place in FY25 to assist with setup of a formal, benchmarked communication and outreach program. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	M	2	C	Active	FY26	62
29	Operations, Engineering	Brian Bingham, David Johnson	TBD	(1) Shift mindset for regulatory compliance accountability through delivery of training related to the Infrastructure Management Policy and Infrastructure KPDES Permit Compliance Procedures. (2) Re-establish KPDES Regulations Compliance Program training program. Refer to CMOM Ph1 gaps table for full scope to be addressed with initiative. (1 gap)	H	1		Active	FY26	

Appendix III – Self-Assessment Check List

Gap ID	Critical Business Activity Required under CMOM aspect of KPDES Permits	CMOM Self-Assessment Category	Findings as Reported by Staff	Gap Summary	Staff Reported Activity Occurrence	Workflow Procedure Documented	Evidence Through Data	Lead Division	Impacted Divisions	Accountable Executive	Assigned Program Lead	Gap Class	Gap Mitigation Type	Mitigation ID	Gap Impact	Gap Mitigation Status	BP25/30 CSF#	Critical Business Function (CBF)	CBF Program	Roadmap Exist	Document Reference
	What type of public education/outreach programs does the owner or operator have about user rates?	Collection System Management > Communication and Customer Service	There is a legal notice and public comment period for each rate adjustment. Advertisements and Public Hearing are also used as methods of outreach. Legal requirements for public notification are met.		Yes	Yes	Yes	Government & Public Affairs	Government & Public Affairs	Brad Good											legal notice & posted on MSD website
7	Does the owner or operator have a goal for how quickly customer complaints (or emergency calls) are resolved?	Collection System Management > Communication and Customer Service	MSD only has defined standard metrics/goals for providing initial response to 4 types of customer requests (backups, discharge, cave-in, odors). There is not an overarching framework that defines utility approach/metrics for resolving customer complaints/requests. This would be difficult to implement as more complex complaints will take a significant amount of time to investigate and develop solutions.	The only goal is for making initial response/contact on 4 types of service requests. There are no goals for timeliness of resolving service requests. A goal to provide a final response for other issues could be created, but this would be a long-term gap to mitigate. "Resolution" would need to be defined as part of the goal.	No	No	No	TBD	TBD	Brian Bingham	Mike Griffith, Yvonne Austin	1	2	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N		
4	Do customer service records include feedback to the customer?	Collection System Management > Communication and Customer Service	Feedback to customers submitting sanitary service requests is not consistently provided. Some departments within Operations follow protocols, some do not. No formalized procedure in place to determine when/what/how feedback is provided to the customer and how to document that feedback was given.	There is not a standard process for providing and documenting feedback to customers.	No	No	No	Operations	ALL	Brian Bingham	Mike Griffith, Yvonne Austin	1	2	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N		
	Do customer service records include the cause of the problem?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Customer Relations	Opperations												IPS
	Do customer service records include the date the follow-up action was assigned?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Customer Relations	Opperations												IPS
	Do customer service records include the location of the problem?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Customer Relations	Opperations												IPS
	Do customer service records include customer contact information?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Customer Relations	Opperations												IPS
	Do customer service records include the date the complaint or request was resolved?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Customer Relations	Opperations												IPS
	Do customer service records include the date of the complaint or request?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Customer Relations	Opperations												IPS
	Do customer service records include to whom the follow-up action was assigned?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Customer Relations	Opperations												IPS
	Do customer service records include the nature of complaint or request?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Customer Relations	Opperations												IPS
	Do customer service records include the personnel who received the complaint or request?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Customer Relations	Opperations												IPS
11	Does the owner or operator have a process for customer evaluation of the services provided?	Collection System Management > Communication and Customer Service	MSD has restarted the annual CSI process to randomly assess perceived quality of services from rate paying customers, not necessarily those that have had requests submitted to resolve. This general CSI initiative is in year 2. At one time there was discussion relative to establishing survey option specifically for customers calling MSD to to be able to opt in to complete a voluntary survey at the end of their call to evaluate their call experience. No formal opportunities exist for customers to evaluate their experience with MSD staff or the resolution of service requests on their property.	The CSI evaluation does not specifically filter through customers that have had service experience with MSD such as through a customer complaint. No formal opportunities for customers that have submitted requests to evaluate service/experience.	Yes	No	No	TBD	TBD	Carmen Moreno Rivera	Wes Sydnor	2	5	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N		
5	Does the owner or operator have a formal procedure in place to evaluate and respond to complaints?	Collection System Management > Communication and Customer Service	Customer complaints are received and processed through IPS workflow to assign the complaint for follow-up. The complaint doesn't always make it to the correct division/team at first attempt which delays response. Once at correct group, it is put into a que to respond to the complaint depending on criticality and other factors. Historically there has been lack of clarity in this area as evidenced by involvement of elected officials. many times the comments state that the call receipt script did not work properly which contributes to wervice requests not getting to the correct department nor inspected and planning of followup activities in a timely manner. Also, MSD only has defined standard metrics/goals for providing initial response to 4 types of customer requests (backups, discharge, cave-in, odors).	There is not an overarching framework that defines utility approach/metrics for resolving customer complaints/service requests. The process and scripting for assigning service requests to staff for followup needs to be evaluated to determine opportunities for refinement to reduce the rate of incorrectly assigning service requests. The correct division does not always receive the work order and therefore effects response time.	Yes	No	Yes	Operations	ALL	Brian Bingham	Mike Griffith, Yvonne Austin	2	2	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N		Tony Morrison workflow, IPS (Customer Relations/ Dispatch), IPS scripts
	Does the owner or operator regularly communicate with other municipal departments?	Collection System Management > Communication and Customer Service	Yes	Documentation is unsuitable.	Yes	No	Yes	Operations	ALL	Brian Bingham	Brian Bingham										
	How often are performance reviews conducted (e.g., semi-annually, annually, etc.)?	Collection System Management > Communication and Customer Service	Employees have annual appraisals from their supervisors.		Yes	Yes	Yes	Human Resources	ALL												Employee handbook/ Blueprint for Organizational performance Management FY25
	Does the owner or operator have an "Employee of the Month/Quarter/Year" program?	Collection System Management > Communication and Customer Service	Yes, this is included in the Peak Performance Rewards Program.		Yes	Yes	Yes	Human Resources	ALL												Peak Performance Rewards Program (MSDnet)
	Are incentives offered to employees for performance improvements?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Human Resources	ALL												Blueprint for Organizational performance Management FY25 pg 14-18
	Do these programs include communication with groups such as local governments, community groups, the media, schools, youth organizations, senior citizens? List applicable groups.	Collection System Management > Communication and Customer Service	It is required to communicate reasons for adjustment to local government. A letter is required by statute and ordinance. There is miscellaneous outreach to some community groups such as community meetings. SOP on rate adjustments. There is Rate Assistance Program in place to provide temporary wastewater discount to qualified low-income households. There is also the Drops of Kindness Program which is partnered with Louisville Water which helps with unpaid sewer and water bills.		Yes	Yes	Yes	Government & Public Affairs	Government & Public Affairs	Brad Good											SOP on rate adjustments & Programs Links on MSD Website
62	Is there a public relations program in place?	Collection System Management > Communication and Customer Service	Yes, a program in place; however MSD has contracted with a vendor to assist with program review, benchmarking against peers/experts and to establish a refined and formal program.	There is no documentation describing the public relations program.	Yes	No	Yes	Government & Public Affairs	ALL	Wes Sydnor	Sheryl Lauder	2	28	A	A	2	Communication Management and Stakeholder Engagement	Communication Program Management	Y		SOP, Overall Communications Plan
10	Are the employees of the collection system trained in public relations?	Collection System Management > Communication and Customer Service	There is media training for certain individuals to address the public in instances such as crisis communication plan and emergency response and preparedness. The organization does not provide training to staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, when approached on jobsites, talking to customers via phone,etc.	No specific training is provided for staff that come in contact with customers (as described in findings)	No	No	No	Government & Public Affairs	ALL	Carmen Moreno Rivera	Wes Sydnor	1	4	A	NS	2	Communication Management and Stakeholder Engagement	Organizational Brand Management	Y		
	Are there sample correspondence or "scripts" to help guide staff through written or oral responses to customers?	Collection System Management > Communication and Customer Service	Customer service calls have scripts in IPS		Yes	Yes	Yes	Customer Relations	Customer Relations												IPS
39-43	What methods are used to notify the public of major construction or maintenance work (door hangers, newspaper, fliers, signs, etc.)? Capital Projects	Collection System Management > Communication and Customer Service	There are various methods to notify the public such as door hangers, newspaper, fliers, signs, social media, community meetings, and letters for different types of capital projects. There currently is no formal documentation to determine which types of communication should be used for various projects.	There is not documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction work.	Yes	No	Yes	Engineering	Operations, Operations-Treatment Government & Public Affairs	John Loechle	Jacob Mathis	3	13	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N		
39-43	What methods are used to notify the public of major construction or maintenance work (door hangers, newspaper, fliers, signs, etc.)? Maintenance Activities	Collection System Management > Communication and Customer Service	There are various methods to notify the public such as door hangers, newspaper, fliers, signs, social media, community meetings, and letters for different types of capital projects. There currently is no formal documentation to determine which types of communication should be used for various projects.	There is not documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction and maintenance work.	Yes	No	No	Operations	Engineering, Government & Public Affairs	Mike Griffith	Gerald Dunlap, Tony Morrison, Will Cunningham	3	24	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N		
8	What percentage of customer complaints (or emergency calls) are resolved within the timeline goals?	Collection System Management > Communication and Customer Service	There is not a timeline completion goal for resolving customer complaints. There is not an overarching framework that defines utility approach/metrics for resolving customer complaints/requests.	Once goals are established for resolving service requests and procedures developed/implemented, only then can metrics be implemented to track how often service requests are resolved withing established timeframes.	No	No	No	TBD	TBD	Brian Bingham	Mike Griffith, Yvonne Austin	1	2	A	NS	2	Customer Experience, Impact and Satisfaction	Customer Care and Responsiveness	N		
44	Is the homeowner notified prior to construction that his/her property may be affected? Capital Projects	Collection System Management > Communication and Customer Service	Homeowners are notified prior to construction for both capital and maintenance projects. Methods differ depending on type of project. The documentation on the type and timing for notifications for capital projects is not updated.	There is not documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction and maintenance work.	Yes	No	Yes	Engineering	Operations, Government & Public Affairs	John Loechle	Jacob Mathis	3	13	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N		
	Is information provided to residents on cleanup procedures following basement backups and overflows from manholes when they occur?	Collection System Management > Communication and Customer Service	Yes	Documentation is unsuitable.	Yes	No	Yes	Human Resources	ALL		Jacob Mathis										
	Are regular meetings used to communicate with system staff?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Human Resources	ALL												Internal Communications Stratedgy
	Are bulletin boards used to communicate with system staff?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Human Resources	ALL												Internal Communications Stratedgy
	Is e-mail used to communicate with system staff?	Collection System Management > Communication and Customer Service	Yes		Yes	Yes	Yes	Human Resources	ALL												Internal Communications Stratedgy
	Are other methods used to communicate with system staff?	Collection System Management > Communication and Customer Service	N/A		Yes	Yes	Yes	Human Resources	ALL												
	How often are staff meetings held (e.g., daily, weekly, monthly)?	Collection System Management > Communication and Customer Service	Staff meetings vary by group from daily to monthly meetings.		Yes	Yes	Yes	Human Resources	ALL												Internal Communications Stratedgy pg 15
44	Is the homeowner notified prior to construction that his/her property may be affected? Maintenance Activities	Collection System Management > Communication and Customer Service	Homeowners are notified prior to construction for both capital and maintenance projects. Methods differ depend on type of project. The documentation on the type and timing for notifications for capital projects is not updated.	There is not documentation for guidance on who gets notified, when notification should be given, and what types of notification should be used to notify the public of construction and maintenance work.	Yes	No	Yes	Operations	Public Affairs	Mike Griffith	Gerald Dunlap, Tony Morrison, Will Cunningham	2	24	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N		
	How are complaint records maintained? (i.e., computerized) Is this information used as the basis for other activities such as routine preventative maintenance?	Collection System Management > Communication and Customer Service	All complaint records are digitized and maintained in IPS.		Yes	Yes	Yes	Customer Relations													IPS
	Does the collection system receive flow from satellite communities?	Collection System Management > Legal Authority	No	Activity and Documentation are unsuitable.	No	No	No														
	Does the SUO contain procedures and enforcement actions for storm water connections to sanitary lines?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														Sewer Ordinance
	Does the SUO contain procedures and enforcement actions for building structures over the sewer lines?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														Sewer Ordinance/ WDR
	Does the SUO contain procedures and enforcement actions for I/I?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														Sewer Ordinance/ WDR
	Does the SUO contain procedures and enforcement actions for fats, oils, and grease (FOG)?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														Sewer Ordinance/ WDR
	Does the SUO contain general prohibitions of obstructive materials?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														Sewer Ordinance/ WDR
	Does the SUO contain general prohibitions of materials which may cause interference at the wastewater treatment plant?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														Sewer Ordinance/ WDR
	Does the SUO contain general prohibitions of corrosive materials?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														Sewer Ordinance/ WDR
	Does the SUO contain general prohibitions of oils or petroleum?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														Sewer Ordinance/ WDR
	Does the SUO contain general prohibitions of fire and explosion hazards?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														Sewer Ordinance/ WDR
	Does the SUO contain procedures and enforcement actions for defects in service laterals located on private property?	Collection System Management > Legal Authority	No	Activity and Documentation are unsuitable.	No	No	No														
	Does the SUO contain procedures for the following: inspection standards, pretreatment requirements, building/sewer permit issues?	Collection System Management > Legal Authority	All information listed in located in the Sewer Use Ordinance.		Yes	Yes	Yes														sewer use ordinance, ch. 50
	Does the SUO require the satellite communities or the owner or operator to issue control permits for significant industrial users?	Collection System Management > Legal Authority	N/A		Yes	Yes	Yes														
	Does the SUO require satellite communities to adopt the same inspection and sampling schedules as required by the pretreatment ordinance?	Collection System Management > Legal Authority	N/A		Yes	Yes	Yes														
	Does the SUO require satellite communities to adopt the same industrial and commercial regulator discharge limits as the owner or operator?	Collection System Management > Legal Authority	N/A		Yes	Yes	Yes														
	Are standards, inspections, and approval for new connections clearly documented in a SUO?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														sewer use ordinance, ch. 50
	Does the owner or operator maintain the legal authority to control the maximum flow introduced into the collection system from satellite communities?	Collection System Management > Legal Authority	N/A		Yes	Yes	Yes														
	Do the agreements have a date of termination and allow for renewal under different terms?	Collection System Management > Legal Authority	N/A		Yes	Yes	Yes														
	Does the agreement include the requirements listed in the sewer use ordinance (SUO)?	Collection System Management > Legal Authority	N/A		Yes	Yes	Yes														
	Does the owner or operator require satellite communities to enter into an agreement?	Collection System Management > Legal Authority	N/A		Yes	Yes	Yes														
	What is the total area from satellite communities that contribute flow to the collection system (acres or square miles)?	Collection System Management > Legal Authority	0		Yes	Yes	Yes														
	Does the SUO contain provisions for addressing overstrength wastewater from satellite communities?	Collection System Management > Legal Authority	N/A		Yes	Yes	Yes														
	Does the SUO contain procedures and enforcement actions for sump pumps, air conditioner?	Collection System Management > Legal Authority	Yes		Yes	Yes	Yes														PPIDP/ Sewer Ordinance
	What types of work reports are prepared by the O&M Staff?	Collection System Management > Management Information Systems	Work Orders are prepared for all work activities including overflow activities, maintenance response, customer requests, ect.		Yes	Yes	Yes	Opperations	Engineering												IPS
	Do the written instructions for tracking procedures include updating the MIS?	Collection System Management > Management Information Systems	Generally if there are written instructions, they include this information. Details for each item are discussed in the previous set of questions regarding written instructions.		Yes	Yes	Yes														system admin manual, user guides
	Do the written instructions for tracking procedures include instructions for using the tracking system?	Collection System Management > Management Information Systems	Generally if there are written instructions, they include this information. Details for each item are discussed in the previous set of questions regarding written instructions.		Yes	Yes	Yes														system admin manual, user guides
	Do the written instructions for tracking procedures include accessing data and information?	Collection System Management > Management Information Systems	Generally if there are written instructions, they include this information. Details for each item are discussed in the previous set of questions regarding written instructions.		Yes	Yes	Yes														system admin manual, user guides
	Are there written instructions for managing and tracking parts inventory?	Collection System Management > Management Information Systems	Currently tracking is done on paper for parts inventory.		No	No	Yes				Rene Lindsay, Adriane Wright										Standard Operating Process Storeroom/Inventory Area Receiving Inventory/Non-Inventory Goods
	Are there written instructions for managing and tracking equipment/tools tracking?	Collection System Management > Management Information Systems	For vertical assets, large eqipment handled by Fleet (excluding landscapeing equipment) and there is a small tools shop in fleet building. Hand power tools are by department and the store room tracks. There are service request work orders for fleet, SOP for purchases and disposals, request forms. Program has own instructions, but not written on how to use with MSD document for small tools tracking. Large equipment includes but not limited to cranes, generators, excavators, skidsteers, trailers, attatchments for large equipment, pumps, tractors, forklifts, ect. There are inventory issue sheets and documentation for request of new equipment and lost/stolen or damaged equipment.	Documentation is unsuitable.	Yes	No	Yes				Mike Griffith, Mike Brazel, Daymond Talley, Bill Malcom										Vertical - potential gap; Fleet - Asset works Fleet Focus FA Program
	Are there written instructions for managing and tracking compliance/overflow tracking?	Collection System Management > Management Information Systems	There are written instructions in QAQC. Management and tracking is currently being improved with SORP roadmap that is in the process of being created.		Yes	Yes	Yes				Dan French										discharge reporting QAQC (dan to send), SharePoint Site (Program Documentation)
27	Are there written instructions for managing and tracking scheduled monitoring/sampling?	Collection System Management > Management Information Systems	For the collection system, flow monitoring is managed through Telog. There is no formal documentation on the overall procedure for use of temporary flow monitors within the collection system. There are SOP's for flow monitoring at each CSO.	There are no written instructions for managing and tracking scheduled monitoring/sampling within the sanitary collection system.	Yes	No	Yes	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	10	C	NS	1	Regulatory Compliance	CMOM	N		QAPP
	Are there written instructions for managing and tracking safety incidents?	Collection System Management > Management Information Systems	There are proceedures and work orders for safety incidents.		Yes	Yes	Yes				Tony Combs										Mdrive - saftey department doc (tony to send)
	Are there written instructions for managing and tracking sewer system inventory?	Collection System Management > Management Information Systems	Yes		Yes	Yes	Yes				Heather Dodds										LOJIC/GIS
	Are there written instructions for managing and tracking scheduled inspections?	Collection System Management > Management Information Systems	For vertical assets there are scheduled inspections. For linear assets, inspections are triggered by rain events (pre-rain event checks) as well as use the linear schedule located in the CSSA.		Yes	Yes	Yes				Mike Griffith, Mike Brazel, Daymond Talley										CSSA Pg. 16, PACP
	Are there written instructions for managing and tracking scheduled preventative maintenance?	Collection System Management > Management Information Systems	There is scheduled preventative maintenece for vertical and linear assets such as mowing and TVI.		Yes	Yes	Yes				Tony Morrison, jeremy, calude R, Mike Griffith, Mike Brazel, Daymond Talley										IPS,TAMP, CSSA pg. 34
	Are there written instructions for managing and tracking customer service?	Collection System Management > Management Information Systems	Yes		Yes	Yes	Yes				Christina Tomasulo										MSD.net/ Working with Service Requests Doc
	Are there written instructions for managing and tracking scheduled work orders?	Collection System Management > Management Information Systems	Yes		Yes	Yes	Yes				Mike Griffith, Mike Brazel, Daymond Talley										MSD.net/ Working with Service Requests Doc
	Are there written instructions for managing and tracking complaint work orders?	Collection System Management > Management Information Systems	Service requests are documented in IPS. There are scripts in IPS to provide a workflow for tracking work orders from complaints.		Yes	Yes	Yes				Christina Tomasulo, Yvone Austin-Cornish										IPS
	Does the owner or operator use computer technology for its management information system? (Computer Based Maintenance Management Systems, spreadsheets, data bases, SCADA, etc). If so, what type of system(s) is used?	Collection System Management > Management Information Systems	MSD has a computer based management system (IPS), databases, and SCADA.		Yes	Yes	Yes														IPS/SCADA
	Are the records able to distinguish activities taken in response to an overflow event?	Collection System Management > Management Information Systems	Yes		Yes	Yes	Yes														IPS
	Are records maintained for a period of at least three years?	Collection System Management > Management Information Systems	Yes		Yes	Yes	Yes	Records													IPS
	How are records kept?	Collection System Management > Management Information Systems	Records are digitally kept on MSD's management system (IPS).		Yes	Yes	Yes	Records	All												IPS
	Do the work reports include enough information? (See example report forms)	Collection System Management > Management Information Systems	Yes		Yes	Yes	Yes	Operations	Engineering												
	Do the written instructions for tracking procedures include developing and printing reports?	Collection System Management > Management Information Systems	Generally if there are written instructions, they include this information. Details for each item are discussed in the previous set of questions regarding written instructions.		Yes	Yes	Yes														system admin manual, user guides
	How often is the management information system updated (immediately, within one week of the incident, monthly as time permits)?	Collection System Management > Management Information Systems	Immediately		Yes	Yes	Yes														IPS
	Is an organizational chart available that shows the overall personnel structure for the collection system, including operation and maintenance staff?	Collection System Management > Organizational Structure	Yes, an organizational chart with all divisions, supervisor names and titles is maintained and consitently updated.	N/A	Yes	Yes	Yes	Human Resources	All	Adrienne Henderson	Angela Gowdy	N/A	N/A	N/A	N/A	N/A					MSDnet / OrgChart
	Are there organizational charts that show functional groups and classifications?	Collection System Management > Organizational Structure	Yes, an organizational chart with all divisions, supervisor names and titles is maintained and consitently updated.	N/A	Yes	Yes	Yes	Human Resources	All	Adrienne Henderson	Angela Gowdy	N/A	N/A	N/A	N/A	N/A					MSDnet / OrgChart
	Are up to date job descriptions available that delineate responsibilities and authority for each position?	Collection System Management > Organizational Structure	Yes, job descriptions are listed on MSDnet (internal communication software) and include the responsibilites of each position. The authority of each job is documented elsewhere such as in policies, proceedures, and SOP's.	N/A	Yes	Yes	Yes	Human Resources	All	Adrienne Henderson	Angela Gowdy	N/A	N/A	N/A	N/A	N/A					MSDnet/ Job Description
	Are the following items discussed in the job descriptions: Nature of work to be performed? Minimum requirements for the position? Necessary special qualifications or certifications? Examples of the types of work? List of licenses required for the position? Performance measures or promotional potential?	Collection System Management > Organizational Structure	All of these listed are included in the job descriptions except for performance and promotional potential is not included.	N/A	Yes	Yes	Yes	Human Resources	All	Adrienne Henderson	Angela Gowdy	N/A	N/A	N/A	N/A	N/A					MSDnet/ Job Description
	Does the organizational chart indicate how many positions are budgeted as opposed to actually filled?	Collection System Management > Organizational Structure	Yes, each division page includes a summary of position budget status.	N/A	Yes	Yes	Yes	Human Resources	All	Adrienne Henderson	Angela Gowdy	N/A	N/A	N/A	N/A	N/A					MSDnet/Orgchart
	On average, how long do positions remain vacant?	Collection System Management > Organizational Structure	Data, HR request	N/A	Yes	Yes	Yes	Human Resources	All	Adrienne Henderson	Angela Gowdy	N/A	N/A	N/A	N/A	N/A					SAP/ NeoGov
	Are collection system staff responsible for any other duties, (e.g., road repair or maintenance, O&M of the storm water collection system)?	Collection System Management > Organizational Structure	Not typically as part of base job description. Durring emergencies, collection system staff may assist with other areas. (all other duties aside)	N/A	Yes	No	Yes	Human Resources	Operations	Adrienne Henderson	Angela Gowdy	N/A	N/A	N/A	N/A	N/A					MSDnet/ Job Description
	Does the owner or operator have standard procedures for notifying state agencies, health agencies, the regulatory authority, and the drinking water purveyor of overflow events?	Collection System Management > SSO Notification Program	Yes all appropriate agencies are notified when required. Drinking water is not notified due to their intake being upstream of overflows.		Yes	Yes	Yes	Opperations	Engineering	Brian Bingham, Dan French											SORP pg. 16
	Are above notification procedures dependent on the size or location of the overflow? If so, describe this procedure.	Collection System Management > SSO Notification Program	Yes, if the overflow is >50,000 gallons then more notifications are required.		Yes	Yes	Yes	Opperations	Engineering	Brian Bingham											SORP pg. 29
	Is there a Standard form for recording overflow events? Does it include location, type, receiving water, estimated volume, cause?	Collection System Management > SSO Notification Program	Overflows are recorded in IPS		Yes	Yes	Yes	Opperations	Engineering												IPS
	Are chronic SSO locations posted?	Collection System Management > SSO Notification Program	Yes		Yes	Yes	Yes	Opperations	Engineering												IPS
51	Does the owner or operator provide training in confined space entry?	Collection System Management > Training	confined space training occurs and a PowerPoint presentation is used for training, that is based on the 2012 confined space entry safety program documentation.	The program framework needs to be updated and the training program needs to be updated accordingly. Also need to document protocols for administering the training program, maintaining the training materials and delivering the training itself.	Yes	No	Yes	Facilities, Safety & Security	Operations, Operations-Treatment, Engineering, HR, Legal	Lopez High	Tony Combs	3	3	18	C	NS	3	Manage Workplace Health and Safety	Employee Health/Safety mgmt.	Y	health and safety rule book, confined space permit document (dated 2012)
2	Is there a documented formal training program?	Collection System Management > Training	There is a master spreadsheet maintained by HR that contains all required trainings (according to policies/procedures, regulatory compliance, permits, etc) and which department title is responsible for implementing the training. There is a training program with a database known as the "Training Tracker" which records/stores training required/completed by position. This program does not store the training or training materials. Each training is assigned to the department responsible for implementing the required training. There is also a Utility Training Program that provides the basic fundamentals for maintenance utility workers which includes the linear collections system staff. However there is no overall document describing the program (and how it delivers CMOM related training).	There is not an overall training strategy or subsequent comprehensive training delivery framework for ensuring positions across the organization responsible for managing/operating/maintaining a CMOM compliant sanitary collection system have the knowledge, skills and abilities required. The training strategy needs to address content delineation for management staff and non-management, front line staff. The current training content being delivered needs to be evaluated against the strategic framework to determine if gaps exist and if the content needs to be freshed/modernized. Each training program needs an SOP for training administration (who, when, how) and content delivery (how to present the info).	Yes	No	Yes	Operations, Engineering	ALL	Brian Bingham, David Johnson	TBD	3	3	1	C	A	1	Regulatory Compliance	CMOM	N	Training Tracker & Policies/Proceedures/Regulations
	What percentage of the training offered by the owner or operator is in the form of on-the-job training?	Collection System Management > Training	data - Not tracked in these type of categories, however most training is done in this category or in-house classroom	N/A	No	No	No				Tony Glore, Kelli Rhodes, John Loechle	N/A	N/A	N/A	N/A	N/A					
	What percentage of the training offered by the owner or operator is in the form of manufacturer training?	Collection System Management > Training	data -Not tracked in these type of categories	N/A	No	No	No				Tony Glore, Kelli Rhodes, John Loechle	N/A	N/A	N/A	N/A	N/A					
	Is nothing used to assess the effectiveness of the training?	Collection System Management > Training	N/A	N/A	No	No	No					N/A	N/A	N/A	N/A	N/A					
	Are demonstrations used to assess the effectiveness of the training?	Collection System Management > Training	Yes, skills demonstrations are typically done at the end of training as part of specific training for each individual topic	N/A	Yes	Yes	Yes				Tony Glore, Kelli Rhodes	N/A	N/A	N/A	N/A	N/A					
	Are drills used to assess the effectiveness of the training?	Collection System Management > Training	Yes, simulations are typically done at the end of training as part of specific training for each individual topic	N/A	Yes	Yes	Yes				Tony Glore, Kelli Rhodes	N/A	N/A	N/A	N/A	N/A					
	Is periodic testing used to assess the effectiveness of the training?	Collection System Management > Training	Yes, assesments are typically done during training as part of specific training for each individual topic.	N/A	Yes	Yes	Yes				Tony Glore, Kelli Rhodes	N/A	N/A	N/A	N/A	N/A					
	What percentage of employees met or exceeded their annual training goals during the past year?	Collection System Management > Training	data	N/A	Yes	Yes	Yes				Tony Glore, Kelli Rhodes	N/A	N/A	N/A	N/A	N/A					Training Tracker
	Does the owner or operator have mandatory training requirements identified for key employees?	Collection System Management > Training	Yes	N/A	Yes	Yes	Yes				Tony Glore, Kelli Rhodes	N/A	N/A	N/A	N/A	N/A					Training Tracker
	Is OJT progress and performance measured?	Collection System Management > Training	OTJ is asesed through 2-4-6 month performance evaluation using the policies and proceedures template for the basics.	N/A	Yes	Yes	Yes				Tony Glore, Kelli Rhodes	N/A	N/A	N/A	N/A	N/A					Utility Worker Training Program & Training Tracker
3	Does On-the-Job (OJT) training use Standard Operating and Standard Maintenance Procedures (SOPs & SMPs)	Collection System Management > Training	On-the-job training for positions varies between departments and is based on performance criteria. There are several programmatic trainings, however there are not necessarily any SOP's to document OTJ requirements and completion relative to CMOM.	Written Standard Operating and Maintenance Procedures are not currently used for training.	No	No	No	Operations	Operations- Treatment; HR- Training	Brian Bingham	Mike Brazel, Mike Griffith, Daymond Talley	2	2	1	B	NS	1	Regulatory Compliance	CMOM	N	
	Which of these programs have formal curriculums?	Collection System Management > Training	All of the above mentioned categories have type of training and documentation answered in the above questions.	N/A	Yes	Yes	Yes				Tony Glore, Kelli Rhodes	N/A	N/A	N/A	N/A	N/A					
	Does the owner or operator provide training in other areas?	Collection System Management > Training	There is also training for hazardous materials, first aid, CPR, other miscellaneous items covered in safety category.	N/A	Yes	Yes	Yes				Tony Glore, Kelli Rhodes	N/A	N/A	N/A	N/A	N/A					Health and Safety Rulebook
	Does the owner or operator provide training in CCTV and trench/shoring?	Collection System Management > Training	Training for trenching/shoring, software use, and CCTV is completed through linear assets with on-the-job training.	N/A	Yes	No	Yes				Will Cunningham, Gerald Dunlap, Kelli Rhodes	N/A	N/A	N/A	N/A	N/A					camera equipment training in utility program. PACP standards. M: drive powerpoint (tony), training tracker
1	Does the owner or operator provide training in pump station operations and maintenance?	Collection System Management > Training	There are on the job training, videos, and PowerPoints for laborer positions. A performance criteria sheet is kept for each employee in their department. New employees are on a 6 month probation hire, at the end of this time, performance is assessed.	There is no formal documentation of the training (knowledge, skills, abilities) required for positions responsible for pump station operations and maintenance - front line staff nor their supervisors. There is also no SOP for training administration (who, when, how) and content delivery (how to present the info).	Yes	No	Yes	Operations	Operations-Treatment; HR-Training	Brian Bingham	Mike Brazel, Jeremy Goodwin	2	2	1	C	NS	1	Asset Management: Infrastructure Operation; Asset Management: Infrastructure Maintenance	Pump Stations	Operation - No; Maintenance - yes	module (powerpoint), performance criteria sheet, Jeremy to send
	Does the owner or operator provide training in SSO/emergency response?	Collection System Management > Training	There are online modules and in-person training for SSO emergency response. In additional new SOP is currently being developed on training.	N/A	Yes	Yes	Yes	Opperations & Engineering		Brian Bingham	Dan French, Mike Brazel	N/A	N/A	N/A	N/A	N/A					
9	Does the owner or operator provide training in public relations?	Collection System Management > Training	There is media training for certain individuals to address the public in instances such as crisis communication plan and emergency response and preparedness. The organization does not provide training to staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, how to answer questions when approached on jobsites, talking to customers via phone, etc.	No general training is provided for staff that may come in contact with customers as ambassadors of the organization. Develop and implement training framework for all staff related to utility/personal brand awareness, how to show up in public during/after work hours, how to respond to questions posed by customers at public meetings, how to answer questions when approached on jobsites, talking to customers via phone, etc.	No	No	No	Government & Public Affairs	ALL	Carmen Moreno Rivera	Wes Sydnor	1	1	4	A	NS	2	Communication Management and Stakeholder Engagement	Organizational Brand Management	Y	module for training, half day training session (media for certain individuals)
	Does the owner or operator provide training in bursting CIPP?	Collection System Management > Training	N/A	N/A	No	No	No					N/A	N/A	N/A	N/A	N/A					
	Does the owner or operator provide training in pipe repair?	Collection System Management > Training	Yes, utility workers are trained throught the utility program but mostly training consists of on-the-job training.	N/A	Yes	Yes	Yes				Gerald Dunlap, Tony Glore	N/A	N/A	N/A	N/A	N/A					Utility Worker Training Program
	Does the owner or operator provide training in electrical and instrumentation?	Collection System Management > Training	Training for electrical and instramentation is implemented though an apprenticship program, on the job training, and local courses outside of the organization	N/A	Yes	Yes	Yes			Brian Bingham	Mike Brazel, Jeremy Goodwin	N/A	N/A	N/A	N/A	N/A					Apprenticship documented
6	Does the owner or operator provide training in record keeping?	Collection System Management > Training	MSD has implemented a records and information governance program over the last several years. General records keeping training is occurring as part of that program. This is a utility-wide issue overall. Currently the determination of "records" to keep is directed by division staff and/or thru historical justification without a master, vetted list of records required for KPDES. Certain aspects of KPDES permit record-keeping happens to a great deal with data/document kept in separate information management systems (i.e., LIMS, IPS, PI) and other areas are not documented at all.	There is not a comprehensive listing of records related to CMOM to be kept, department/position responsible for record-keeping, identifying the record appropriately on the records retention schedule, marking the record as a "compliance hold-do not destroy" according to the 2ACD provision related to record keeping, assessing current state of record keeping (do we keep, have we destroyed) the required compliance hold records and reviewing the list of required records to maintain on a recurring basis.	No	No	No	Operations	ALL	Brian Bingham	TBD	1	1	3	A	NS	1	Regulatory Compliance	KPDES Permit monitoring, record-keeping, reporting	N	
	Does the owner or operator provide training in traffic control?	Collection System Management > Training	Yes	N/A	Yes	Yes	Yes			Mike Griffith		N/A	N/A	N/A	N/A	N/A					Utility Worker Training Program
51	Does the owner or operator provide training in confined space entry?	Collection System Management > Training	confined space training occurs and a PowerPoint presentation is used for training, that is based on the 2012 confined space entry safety program documentation.	The program framework needs to be updated and the training program needs to be updated accordingly. Also need to document protocols for administering the training program, maintaining the training materials and delivering the training itself.	Yes	No	Yes	Facilities, Safety & Security	Operations, Operations-Treatment, Engineering, HR, Legal	Lopez High	Tony Morrison	3	3	18	C	NS	3	Manage Workplace Health and Safety	Employee Health/Safety mgmt.	Y	Permit-Required Confined Space Safety Program document & Confined Space Refresher PPT (2022)
	Does the owner or operator provide training in routine line maintenance?	Collection System Management > Training	Employees are trained on routine preventative maintenance for linear assets. Training is completed within the department and implemented through on-the-job training.	N/A	Yes	Yes	Yes	Opperations		Mike Griffith	Tony Combs	N/A	N/A	N/A	N/A	N/A					
	Does the owner or operator provide training in safety?	Collection System Management > Training	Yes, the Health and Safety Rulebook gives guidance one where safety is required for different topics.	N/A	Yes	Yes	Yes	Opperations		Lopez High	Gerald Dunlap, Will Cunningham	N/A	N/A	N/A	N/A	N/A					health and safety rule book
	Does the training program address the fundamental mission, goals, and policies of the collection system owner or operator?	Collection System Management > Training	Yes	N/A	Yes	Yes	Yes				Tony Combs	N/A	N/A	N/A	N/A	N/A					
	What percentage of the training offered by the owner or operator is in the form of in-house classroom training?	Collection System Management > Training	data - Not tracked in these type of categories, however most training is done in this category or On-the-job	N/A	No	No	No				Tony Glore, Kelli Rhodes, John Loechle	N/A	N/A	N/A	N/A	N/A					
	What percentage of the training offered by the owner or operator is in the form of industry-wide training?	Collection System Management > Training	data - Not tracked in these type of categories	N/A	No	No	No				Tony Glore, Kelli Rhodes, John Loechle	N/A	N/A	N/A	N/A	N/A					
	What are the owner or operator's current rates?	Collection System Operation > Budgeting	data - Rates, Rentals and Charges		Good	Good	Yes														Rates, Rentals & Charges
	How are priorities determined for budgeting for O&M during the budget process?	Collection System Operation > Budgeting	Historical data and the asset management program is used to determine O&M budget.		Good	Good	Yes														asset management program /SAMP/TAMP
	Are O&M staff involved in O&M budget preparation?	Collection System Operation > Budgeting	Yes	Documentation is unsuitable.	Good	Unsuitable	No														
	Does the owner or operator have a budgeted program for the replacement of over-capacity pipes?	Collection System Operation > Budgeting	No	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No														
	Does the owner or operator have a budgeted program for the replacement of under-capacity pipes?	Collection System Operation > Budgeting	Yes, the IOAP provides an overall analysis and prioritization to replace under capacity pipes as necessary.		Good	Good	Yes														IOAP
	What percentage of the maintenance budget is allotted to equipment breakdowns?	Collection System Operation > Budgeting	data - Not tracked separately	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Opperations			Brian, Mike Brazel, Mike Grifith										
	What percentage of the maintenance budget is allotted to overflows?	Collection System Operation > Budgeting	data - Not tracked separately	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Opperations													
	What percentage of the maintenance budget is allotted to emergency maintenance (reactive maintenance)?	Collection System Operation > Budgeting	data - Not tracked separately	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Opperations			Brian, Mike Brazel, Mike Grifith										
	What percentage of the maintenance budget is allotted to corrective maintenance (fixing system components that are functioning but not at 100% capacity/efficiency)?	Collection System Operation > Budgeting	data - Not tracked separately	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Opperations			Brian, Mike Brazel, Mike Grifith										
	What percentage of the maintenance budget is allotted to preventative maintenance (identifying and fixing system weakness which, if left unaddressed, could lead to overflows)?	Collection System Operation > Budgeting	data - Not tracked separately	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Opperations			Brian, Mike Brazel, Mike Grifith										
	What percentage of the maintenance budget is allotted to predictive maintenance (tracking design, life span, and scheduled parts replacement)?	Collection System Operation > Budgeting	data - Not tracked separately	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Opperations			Brian, Mike Brazel, Mike Grifith										
	What is the collection system's average annual CIP budget?	Collection System Operation > Budgeting	Data - Currently the FY25-29 average annual budget is $87.5M/yr.		Good	Good	Yes														Annual Report/MSD Website/ Annual Fiscal Year Budget FY2025 pg. 69
	Does the owner or operator maintain a fund for future equipment and infrastructure replacement?	Collection System Operation > Budgeting	Yes		Good	Good	Yes														Asset management plan/CIP in SAMP, TAMP, Budget
	Does the owner or operator have a Capital Improvement Plan (CIP) that provides for system repair/replacement on a prioritized basis?	Collection System Operation > Budgeting	Yes		Good	Good	Yes														Annual Report/MSD Website/ Annual Fiscal Year Budget FY2025 pg. 69
	What is the collection system's average annual O&M budget?	Collection System Operation > Budgeting	Data - budget can be found in SAP.		Good	Good	Yes	Opperations			Brian Bingham										SAP
	Do O&M managers have current O&M budget data?	Collection System Operation > Budgeting	Yes		Good	Good	Yes														Annual budget
	Are costs for collection system O&M separated from other utility services, i.e., water, storm water and treatment plants?	Collection System Operation > Budgeting	Yes		Good	Good	Yes	Opperations			Brian Bingham										Budget Book , MSD website/ Annual Fiscal Year Budget FY2025 pg. 43
	Does the budget provide sufficient line item detail for labor, materials and equipment?	Collection System Operation > Budgeting	Yes		Good	Good	Yes														
	Is there a budget for annual operating costs?	Collection System Operation > Budgeting	Yes		Good	Good	Yes														Annual Report/MSD Website/ Annual Fiscal Year Budget FY2025 pg. 42

	Are collection system enterprise funds used for non-enterprise fund activities?	Collection System Operation > Budgeting	No		Good	Good	No														
	Does the owner or operator receive sufficient funding from its revenues?	Collection System Operation > Budgeting	Yes		Good	Good	No														
	How many rate changes have there been in the last 10 years and what were they?	Collection System Operation > Budgeting	User rates are evaluated and adjusted annually therefor there have been 10 changed in the last 10 years (1/year).		Good	Good	Yes														2025 Budget Book pg 40
	How often are user charges evaluated and adjusted based on that evaluation?	Collection System Operation > Budgeting	User rates are evaluated and adjusted annually.		Good	Good	Yes														2025 Budget Book pg 40
	How are user rates calculated?	Collection System Operation > Budgeting	The Rates, Rentals and Charges document outlines user rates.		Good	Good	Yes	Opperations			Brian Bingham										2025 Budget pg 30
	What is the average annual fee for residential users?	Collection System Operation > Budgeting	data - Rates, Rentals and Charges		Good	Good	Yes														Rates, Rentals & Charges
	What percentage of the collection system's overall budget is allocated to maintenance of the collection system?	Collection System Operation > Budgeting	Data		Good	Good	Yes	Opperations			Brian Bingham, Mike Brazel										Budget Book , MSD website/ Annual Fiscal Year Budget FY2025 pg. 43
	How is new work typically financed?	Collection System Operation > Budgeting	New work is typically fiananced by issuing bonds.		Good	Good	Yes														Budget Rates/rentals/charges
	Does the owner or operator have inter-jurisdictional or inter-municipal agreements?	Collection System Operation > Compliance	There are some various intermunicipal agreements but none that specifically relate to CMOM activities.	Documentation is unsuitable.	Good	Unsuitable	Yes				Brian Bingham										
	Is there a sewer-use and a grease ordinance?	Collection System Operation > Compliance	Yes		Good	Good	Yes														Sewer Ordinance/ WDR
	Is there a process in place for enforcing sewer and grease ordinances?	Collection System Operation > Compliance	Yes		Good	Good	Yes														Sewer Ordinance/ WDR
	Are all grease traps inspected regularly?	Collection System Operation > Compliance	Grease traps are inspected with the cleaning schedule andwith the waste hauler program. Reports from the inspecions are sent in and collected in a database. Grease traps are also inspected when installed by MSDand afterwards they are inspected by certified waste hauler. Intervals for inspecting based on type of facility.		Good	Good	Yes				Mike Moore										tracked in IPS, LINKO, documented in FOG Program
	How does the owner or operator learn of new or existing unknown grease traps?	Collection System Operation > Compliance	Permiting is required for new construction. Existing grease traps that are unknown remain so unless MSD is informed. Unknowns are discovered if reported or there is a problem such as a blockage ocurrs. There is a FOG program in place which has requirements for new restaurant and included the "certified hauler program". MSD works with the Health Dept when healht inspetions are performed. The Health Dept will send inpection results to MSD when doing health inspections. Health dept also informs MSD when new establishments are opened.		Good	Good	Yes				Mike Moore										FOG program, Sewer ordinance/WDR, MSD website
	Who is responsible for enforcing the sewer ordinance and grease ordinance? Does this party communicate with the utility department on a regular basis?	Collection System Operation > Compliance	MSD has the authority for enforcement action. The Health Department notify MSD when they do their own inspections.		Good	Good	No				Mike Moore										WDR
	Are there any significant industrial dischargers to the system?	Collection System Operation > Compliance	Yes, SIU's have a pretreament permit, HMPC.		Good	Good	Yes				Mike Moore										permits in M drive, LIMS for sampling, pretreatment software LINKO, Annual report for pretreatment, Lojic Mapping/IPS
	Is there a pretreatment program in place? If so, please describe.	Collection System Operation > Compliance	Yes, pre treatment program that is approved by DOW.		Good	Good	Yes				Mike Moore										WDR, Pretreatment program approval on M drive
	Is there an ordinance dealing with private service laterals?	Collection System Operation > Compliance	No	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No														
	Is there an ordinance dealing with storm water connections or requirements to remove storm water connections?	Collection System Operation > Compliance	There is a program through "Rates, Rentals and Charges". The authority for enforcement is through WDR.		Good	Good	Yes														Sewer Ordinance/ WDR
	Does the owner or operator have an emergency response plan? A contingency plan?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes				Brian Bingham										(Confidential) Emergency response plan
	Is there a hazard classification system? Where is it located?	Collection System Operation > Emergency Preparedness and Response	This is included in the Emergency Response Plan.		Yes	Yes	Yes														(Confidential) Emergency response plan
	Does the owner or operator have signage to keep public from affected area?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes														IPS/Annual Report
	Do the overflow records include duration of overflow?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes	Engineering													IPS/Annual Report
	Do the overflow records include estimated flow/volume discharged?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes	Engineering													IPS/Annual Report
	Do the overflow records include any remediation efforts?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes	Engineering													IPS/Annual Report
	Do the overflow records include how it was stopped?	Collection System Operation > Emergency Preparedness and Response	Yes, if applicable		Yes	Yes	Yes	Engineering													IPS/Annual Report
	Do the overflow records include location?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes	Engineering													IPS/Annual Report
	Do the overflow records include names of affected receiving water(s)?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes	Engineering													IPS/Annual Report
	Do the overflow records include cause(s)?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes	Engineering													IPS/Annual Report
	Does the owner or operator conduct vulnerability analyses?	Collection System Operation > Emergency Preparedness and Response	This is included in the Emergency Response Plan.		Yes	Yes	Yes				Brian Bingham										(Confidential) Emergency response plan
	Do the overflow records include date and time?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes	Engineering													IPS/Annual Report
	Does the owner or operator have procedures to limit public access to and contact with areas affected with SSOs?	Collection System Operation > Emergency Preparedness and Response	Yes, these procedures are included in the SORP.		Yes	Yes	Yes	Opperations													SORP
	Is there a public notification plan? If so, does it cover both regular business hours and off-hours?	Collection System Operation > Emergency Preparedness and Response	There is a Business Continuity Plan and an Emergency Response Plan.		Yes	Yes	Yes				Wes Sydnor										business continuity plan, emergency response plan (both confidential documents)
	Do work crews have immediate access to tools and equipment during emergencies?	Collection System Operation > Emergency Preparedness and Response	Yes, documentation answered in related questions.	Documentation is unsuitable.	Yes	Unsuitable	No				Brian Bingham										
	Does the procedure include an up-to-date list of the names, titles, phone numbers, and responsibilities of all personnel involved?	Collection System Operation > Emergency Preparedness and Response	Notifications are sent automatically to the appropriate personnel.		Yes	Yes	Yes				Brian Bingham, Jeremy Goodwin, Mike Brazel										automated system
	Does the owner or operator have standard procedures for notifying state agencies, local health departments, the regulatory authority, and drinking water authorities of significant overflow events?	Collection System Operation > Emergency Preparedness and Response	Yes all appropriate agencies are notified when required. Drinking water is not notified due to their intake being upstream of overflows. Notification is given with 12 hours.		Yes	Yes	Yes				Brian Bingham										SORP pg. 16
	Are there emergency operation procedures for equipment and processes?	Collection System Operation > Emergency Preparedness and Response	Yes	Data and documentation is unsuitable.	Unsuitable	Unsuitable	No				Brian Bingham, Jeremy Goodwin, Mike Brazel										
	Are staff trained and drilled to respond to emergency situations? Are responsibilities detailed for all personnel who respond to emergencies?	Collection System Operation > Emergency Preparedness and Response	The Emergency Response Plan is detailed for appropriate personnell.		Yes	Yes	Yes														(Confidential) Emergency response plan
	Does the plan take into consideration vulnerable points in the system, severe natural events, failure of critical system components, vandalism or other third party events, and a root cause analysis protocol?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes														(Confidential) Emergency response plan
	How often is the plan reviewed and updated? What was the date it was last updated?	Collection System Operation > Emergency Preparedness and Response	The plan was last updated in 2020 and is update on average at a 5 year cycle.		Yes	Yes	Yes				Brian Bingham										(Confidential) Emergency response plan
	Does the owner or operator use containment techniques to protect the storm drainage systems?	Collection System Operation > Emergency Preparedness and Response	Yes		Yes	Yes	Yes	Operations													SORP
	Are risk assessments performed? How often?	Collection System Operation > Emergency Preparedness and Response	Risk assesments are periodicaly performed for different components of the system.		Yes	Yes	Yes														(Confidential) Emergency response plan
	What procedures are used in determining whether the capacity of existing gravity sewer system, pump stations and force mains are adequate for new connections?	Collection System Operation > Engineering - Capacity	A capacity tool was created to analyze general system capacities. Larger users are evaluated using the hydraulic models.		Yes	Yes	Yes	Engineering			brad										SCAP
	Is any metering of flow performed prior to allowing new connections?	Collection System Operation > Engineering - Capacity	As outlined in the SCAP, an InfoWorks model is utilized to evaluate capacity requests. The model is calibrated periodically based on information from the Telog system (remote flow monitors). However, there is a process for customers to request installation of flow monitors at specific locations for a more accurate account for flow (see attached Work Instructions)		Yes	Yes	Yes	Engineering			brad										SCAP/ flow monitoring procedures
	Is there a hydraulic model of the system used to predict the effects of new connections?	Collection System Operation > Engineering - Capacity	Yes	Documentation is unsuitable.	Yes	Unsuitable	No	Engineering			casey										
	Is there any certification as to the adequacy of the sewer system to carry additional flow from new connections required?	Collection System Operation > Engineering - Capacity	Developers submit a capacity request form and must receive approval letter to proceed.		Yes	Yes	Yes	Engineering													rates, rentals, and charges/ DFC approval letter
	Who constructs new sewers? If other than the owner or operator, does the owner or operator review and approve the design?	Collection System Operation > Engineering - Construction	For private projects the developer installs new sewer. For CIP projects MSD contractor installs. MSD reviews and approves design for both types.		Yes	Yes	Yes	Engineering													
	Is there a document that describes the procedures that the owner or operator follows in conducting their construction inspection and testing program?	Collection System Operation > Engineering - Construction	There is an SOP for when and what to test during an inspection.		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										SOP for sanitary inspection process (sharepoint> divisions pages > engineering > construction inspection), constructions field guide (phase 2 ok) SOP for inspection
	Are there any standard forms that guide the owner or operator in conducting their construction inspection and testing program?	Collection System Operation > Engineering - Construction	There are air test sheets, inspection applicationa, daily reports, and testing reports.		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										SOP for sanitary inspection process (sharepoint> divisions pages > engineering > construction inspection), constructions field guide (phase 2 ok) SOP for inspection
	Is new construction inspected by the owner or operator or others?	Collection System Operation > Engineering - Construction	New construction is inspected by MSD unless greater than 20 million		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										SOP for new construction
	What are the qualifications of the inspector(s)?	Collection System Operation > Engineering - Construction	Qualification are included int the job descriptions. There are 5 levels of inspectors.		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										msd.net
	What percentage of time is a construction inspector on site?	Collection System Operation > Engineering - Construction	data - Time on site varies for regulatory projects. Items deemed as "unseen infrastructure"such as laying pipe, or large projects such construction of a pump station, or costs greater than 20 million have a full time inspector on site.		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										Project Inspection Frequency
	Is inspection supervision provided by a registered professional engineer?	Collection System Operation > Engineering - Construction	Ultimately, a PE oversees the entire program, but not directly .		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										org chart
36	How is the new gravity sewer construction tested? (Air, water, weirs, etc.)	Collection System Operation > Engineering - Construction	Testing is done using air test, CCTV, and mandrel deflection test. Air and mandrel testing are currently in the standard specifications. CCTV is not currently in the Standard Specifications, but is planned to be added.	CCTV is not included in the Standard Specifications or Design Manual.	Yes	No	Yes	Engineering	Operations	John Loechle	Bob Stauble	3	3	11	C	NS	1	Operational Management Optimization	Infrastructure Planning, design, construction	Y	
	Are new manholes tested for inflow and infiltration?	Collection System Operation > Engineering - Construction	Yes		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										standard specifications
37	Are new gravity sewers televised?	Collection System Operation > Engineering - Construction	Yes, but CCTV is not currently in the Standard Specifications. Specification for CCTV is currently planned to be added to Standard Specifications	CCTV is not included in the Standard Specifications or Design Manual.	Yes	No	Yes	Engineering	Operations	John Loechle	Bob Stauble	3	3	11	C	NS	1	Operational Management Optimization	Infrastructure Planning, design, construction	Y	
	What tests are performed on pump stations?	Collection System Operation > Engineering - Construction	Start-up testing is performed for pump stations.		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										standard specifications, 10.3.3
	What tests are performed on force mains?	Collection System Operation > Engineering - Construction	Pressure testing is performed for force mains.		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										standard specifications, 4.3.5.4
	Is new construction built to standard specifications established by the owner or operator and/or the State?	Collection System Operation > Engineering - Construction	Standards specification are determined by both with some overlap. MSD standard specs are sometimes more restrictive than state requirements.		Yes	Yes	Yes	Engineering	Operations		Bob Stauble										standard specifications
38	Is there a warranty for new construction? If so, is there a warranty inspection done at the end of this period?	Collection System Operation > Engineering - Construction	Warranty inspections are currently being performed. There is a warranty for new construction in place. A formal process for new construction inspection is currently being developed.	The warranty process is new and is being developed - no formal process or documentation exists.	Yes	No	Yes	Engineering	Operations	John Loechle	Bob Stauble	2	2	12	C	A	1	Operational Management Optimization	Infrastructure Planning, design, construction	Y	
	What type of mapping/inventory system is used?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	ArcMap GIS (Lojic) is linked to a database with inventory of assets.		Yes	Yes	Yes	Engineering													Lojic
	Do the sewer line maps include pipe diameter?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include an installation date?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include slope?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include manhole rim elevation?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include manhole coordinates?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include manhole invert elevation?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include distance between manholes?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Is the sewer size recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Is the sewer shape recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Is the sewer invert elevation recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Is the sewer material recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Is the separate/combined sewer recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Is the sewer installation date recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Are the manhole attributes recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Are the manhole shapes recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Are the manhole types recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Are the manhole depths recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Do the sewer line maps include pipe material?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include easement lines and dimensions?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include main, trunk, and interceptor sewers?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include lined sewers?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Is the mapping tied to a GPS system?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes, LOJIC		Yes	Yes	Yes	Engineering													Lojic
	Are "as-built" plans (record drawings) or maps available for use by field crews in the office and in the field?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													eB-Web/Lojic
59	Do field crews record changes or inaccuracies and is there a process in place to update "as built" plans (record drawings)?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	There are an as-built plan stored in eBweb. Field crews markup maps in the field and provide to GIS analysts to update in the system. No defined workflow exists for how to address data discrepancies uncovered by field activities and what discrepancies should be reported.	There is no formal or written process directing what inconsistencies should be reported or the procedure to report the changes.	Yes	No	Yes	Operations	Engineering, Infrastructure Technology	Mike Griffith	Will Cunningham	3	3	25	C	NS	1	Asset Management: Infrastructure Maintenance	Wastewater collection, conveyance, storage	Y	SOP for sanitary inspection process (sharepoint> divisions pages > engineering > construction inspection)
	Do the maps show the date the map was drafted and the date of the last revision?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	A digital map is kept where metadata shows the most recent dates for information.		Yes	Yes	Yes	Engineering													LOJIC metadata
	Do the sewer line maps include a scale?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include a north arrow?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include a date the map was drafted?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include a date of the last revision?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Are the manhole age recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Do the sewer line maps include service area boundaries?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include other landmarks?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include a manhole and other access points?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include a location of building laterals?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include street names?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include SSOs/CSOs?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include flow monitors?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include force mains?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include pump stations?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Do the sewer line maps include property lines?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													LOJIC
	Are the manhole material recorded?	Collection System Operation > Engineering - System Mapping and As-built Plans (Record Drawings)	Yes		Yes	Yes	Yes	Engineering													IPS
	Is there a document which details design criteria and standard construction details?	Collection System Operation > Engineering Design	Yes , there is a design manual.		Yes	Yes	Yes	Engineering	Yes	Verify	Yes	Yes	Good	Good	4	Design Manual					Design Manual
	Is life cycle cost analysis performed as part of the design process?	Collection System Operation > Engineering Design	Life cycle analysis is done for some applications, such as pump stations.		Yes	Yes	Yes	Engineering	Yes	Verify	Yes	Yes	Good	Good	4	Design Manual pg.656					Design Manual pg.656
45	Is there a document that describes the procedures that the owner or operator follows in conducting design review? Are there any standard forms that are used as a guide?	Collection System Operation > Engineering Design	There are documents and checklists for new construction associated with new development. For new capital projects there are procedures in place but not formalized for all types of capital projects.	There is not a documented formal procedure for conducting design review on all capital project types. Add to handbook in appendix or an addendum.	Yes	No	Yes	Engineering	Operations	John Loechle	Jacob Mathis	3	3	14	C	NS	2	Customer Experience, Impact and Satisfaction	Customer Input and Impact Management	N	deisgn manual, engineering handbook, talked to jacob and wants docuemntation i.e. capital project
	Are O&M staff involved in the design review process?	Collection System Operation > Engineering Design	Yes		Yes	Yes	Yes	Engineering	Yes	N/A	Yes	N/A	Good	Good	N/A						
	Does the owner or operator have documentation on private service lateral design and inspection standards?	Collection System Operation > Engineering Design	Inspection of laterals is done by the state plumbing inspector.		Yes	Yes	Yes	Engineering	No	N/A	No	N/A	Good	Good	N/A						
26	Does the owner or operator attempt to standardize equipment and sewer system components?	Collection System Operation > Engineering Design	Yes, there have been previous attempts to standardize equipment. It has not been reviewed recently based on new technology and recent construction projects. Staff has reported that attempts to maintain/update it occurred but they were abandoned because implementation was difficult due to procurement requirements.	There is not currently a standardized equipment list and nor is there a process for updating the list based on new technologies or operational experience.	No	No	No	Engineering	Operations, Operations-Treatment	David Johnson	John Loechle	2	1	9	C	NS		Operational Management Optimization	Infrastructure Planning, Design and Construction Standards (Wastewater, Stormwater, Flood)	Y	long lead time on mitigation strategy
	Are odors a frequent source of complaints? How many?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	Data - During the dry season (July-October) there are more compaints of odors, typicall in the west end area of the collection system. Odor complaints are docuemnted and stored in IPS.		Good	Good	Yes	Engineering			Eric Weidner										IPS
	Does the system contain air relief valves at the high points of the force main system?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	Yes		Good	Good	Yes	Engineering													Lojic Map/Sewer asbuilts
	Are other methods used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	High-Purity Oxygen is also used.		Good	Good	No	Engineering			Mike Brazel										IPS
	Is biofiltration used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	There are systems in place but not in use due to loadings.		Good	Good	No	Engineering			Mike Brazel										IPS
	Is potassium permanganate used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	No	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Engineering			Mike Brazel										
	Is hydrogen peroxide used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	No	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Engineering			Mike Brazel										
	Is Sodium hydroxide used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	This is used as a corrective method in a cleaning product with alumminium. This product is used to disolve grease and bio-material(biomat) and also kills the slime layer in force mains.		Good	Good	No	Engineering			Mike Brazel										IPS, corrective work order
	Is chlorine used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	Chlorine is used as a corrective metod for cleaning purposes and removal of slime layer. Chlorine is used as a "one time treatment".		Good	Good	No	Engineering			Mike Brazel										IPS, corrective work order
	Are activated charcoal canisters used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	Activated charcoal is used in large vapor phase units with carbon. It is not used in canisters.		Good	Good	No	Engineering			Mike Brazel										IPS
	Are enzymes used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	No	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Engineering			Mike Brazel										
	Are iron salts used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	No	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Engineering													
	Is aeration used for hydrogen sulfide control?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	No	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Engineering			Mike Brazel										
	Does the owner or operator have a program in place for renewing or replacing severely corroded sewer lines to prevent collapse?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	This is included in the asset management program.		Good	Good	Yes	Engineering													SAMP pg 234-301
	Are chemical dosages, dates, and locations documented?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	Chemical dosages are documented with monthly with meetings, documents from vendors, documents from professional services, meeting minutes, and quarterly summary reports.		Good	Good	Yes	Engineering			Mike Brazel										M:\Operations\Vertical\Collections System Equipment\Collections Odor Control
	Does the owner or operator have written procedures for the application of chemical dosages?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	Yes		Good	Good	Yes	Engineering			Mike Brazel										SOP
	Does the collection system owner or operator have a hydrogen sulfide problem, and if so, does it have in place corrosion control programs? What are the major elements of the program?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	There is a problem with H2S and there is a program in place to address it. The program includes moitoring H2S, adjusting dosing of chemicals, liquid phase testing and sampling. Prioritization of each site with an H2S problem is based on readings. There are monthly meetings with vendors to review budget and dosing prioritization of sites based on sensitivity to odor and readings.		Good	Good	Yes	Engineering			Mike Brazel										M:\Operations\Vertical\Collections System Equipment\Collections Odor Control/Site Prioritization Ranking Tool
	What is the typical sewer slope? Does the owner or operator take hydrogen sulfide corrosion into consideration when designing sewers?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	New sewers design slope follow 10-State Standards. H2S is considered in new sewers design.		Good	Good	Yes	Engineering													Design Manual pg 122, 692
	Are the locations of the frequent odor complaints documented?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	Data - Frequent odor complaints are mapped based off address, recourring areas, historical mapping, and heat mapping for concentration and repeated calls.		Good	Good	Yes	Engineering													IPS, LOJIC Map
	How often are the valves maintained and inspected (weekly, monthly, etc.)?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	Valves are maintained and inspected dependent upon pipe material, past history of failure, size and age. Insecptions for valves are on the same schedule as forcemain inspections (annually up to 10 years). Every forcemain is on an inspection schedule.		Good	Good	No	Engineering			Mike Brazel										IPS
	Does the owner or operator enforce pretreatment requirements?	Collection System Operation > Hydrogen Sulfide Monitoring and Control	Pretreatment requirements are enforced through, fines, letters, ect.		Good	Good	Yes	Engineering			Mike Moore										pretreatment software LINKO, LIMS, permits, WDR, enforcement response plan (mike to send)
IV	Does the owner or operator have a hydraulic model of the collection system including pump stations? What model is used?	Collection System Operation > Modeling	Hydraulic models are built for each system in InfoWorksICM,		Yes	Yes	Yes	Engineering													InfoWorksICM
48	What uses does the model serve (predicting flow capacity, peak flows, force main pressures, etc.)?	Collection System Operation > Modeling	The models aids in determining capacity, evaluating new projects, assessing CIPs, mitigating overflows, and supporting operational requests. Documentation for this was developed in 2009 and updated in 2012. Various additional documents have been created for additional uses but have not been incorporated into the overall guidelines.	The overall guidelines have not been updated since 2012 and should be reviewed and updated to include enhancements, revisions or changes to model use.	Yes	Yes - Outdated	Yes	Engineering	Operations	John Loechle	Wolffie Miller	3	3	17	D	NS	1	Regulatory Compliance	Sewer Overflow Abatement	N	
49	Does the model produce results consistent with observed conditions?	Collection System Operation > Modeling	To ensure models produce results consistent with observed conditions, the models are calibrated using flow monitoring data, SCADA Information, and field observations. Models are adjusted such that the results fall within metrics specified in the guidelines. Flow monitoring data is constantly reviewed for accuracy. As individual models are updated, calibration reports are created.	The overall guidelines have not been updated since 2012 and should be reviewed and updated to include any enhancements or revisions.	Yes	Yes - Outdated	Yes	Engineering	Operations	John Loechle	Wolffie Miller	3	3	17	D	NS	1	Regulatory Compliance	Sewer Overflow Abatement	N	modeling guidelines
50	Is the model kept up to date with respect to new construction and repairs that may affect hydraulic capacity?	Collection System Operation > Modeling	Models are periodically updated to add new geometry as the system grows. New capital projects are added to the models during the design process and are finalized once the projects are constructed. Memorandums describing the updates and impacts to the updates are typically produced. Overall guidelines that summarize frequencies and procedures for updates should be updated.	The overall guidelines have not been updated since 2012 and should be reviewed and updated to include any enhancements or revisions.	Yes	Yes - Outdated	Yes	Engineering	Operations	John Loechle	Wolffie Miller	3	3	17	D	NS	1	Regulatory Compliance	Sewer Overflow Abatement	N	modeling guidelines
	How many pump stations are in the system? How many have backup power sources?	Collection System Operation > Pump Station Operation	Data		Yes	Yes	Yes														IPS
	Are enough trained personnel assigned to properly maintain pump stations	Collection System Operation > Pump Station Operation	Yes		Yes	Yes	Yes														
	Are these personnel assigned full-time or part-time to pump station duties?	Collection System Operation > Pump Station Operation	Full-time		Yes	Yes	Yes														
	Are there manned and un-manned pump stations in the system? How many of each?	Collection System Operation > Pump Station Operation	Data - None of the pump stations require full-time personel. Staff monitors pump station conditions remotely and can respond to alarms.		Yes	Yes	Yes														
	Is there a procedure for manipulating pump operations (manually or automatically) during wet weather to increase in-line storage of wet weather flows?	Collection System Operation > Pump Station Operation	Not generally, some pumps that are part of the RTC system may increase ILS during wet weather, but pumps typically pump max available capacity,		Yes	Yes	Yes				Mike Brazel										
	Are well-operating levels set to limit pump start/stops?	Collection System Operation > Pump Station Operation	During design, starts and stops are optimized.		Yes	Yes	Yes														Design Manual
	Are the lead, lag, and backup pumps rotated regularly?	Collection System Operation > Pump Station Operation	All pumps are programed to rotate regularly.		Yes	Yes	Yes														Design Manual
	How are lift stations monitored?	Collection System Operation > Pump Station Operation > Pump Stations - Emergency Response and Monitoring	SCADA		Yes	Yes	Yes	Operations													SCADA
	If a SCADA system is used, what parameters are monitored?	Collection System Operation > Pump Station Operation > Pump Stations - Emergency Response and Monitoring	Data - Parameters that are monitored include level, velocity, gate position, runtime, operation mode, pump voltage for variable rate pumps, air pressure in inflatable dams, temperature, machine/measurement status' and calculated measurements such as flow and basin fill amounts.		Yes	Yes	Yes	Operations													SCADA
	How often are pump stations inspected?	Collection System Operation > Pump Station Operation > Pump Stations - Inspection	Inspections are scheduled monthly or bimonthly inspection depending on the size of the station.		Yes	Yes	Yes						Good	Good							TAMP(22) pg. 38
	What work is accomplished during inspections?	Collection System Operation > Pump Station Operation > Pump Stations - Inspection	Work is described in the "job plan" in IPS.		Yes	Yes	Yes						Good	Good							Job Plan in IPS, SAMP pg 225, 234-300
	Is there a checklist?	Collection System Operation > Pump Station Operation > Pump Stations - Inspection	Work is described in the "job plan" in IPS.		Yes	Yes	Yes						Good	Good							Job Plan in IPS, SAMP pg 225, 234-301
	Are records maintained for each inspection?	Collection System Operation > Pump Station Operation > Pump Stations - Inspection	Yes		Yes	Yes	Yes						Good	Good							IPS
	What are the critical operating characteristics maintained for each station? Are the stations maintained within these criteria?	Collection System Operation > Pump Station Operation > Pump Stations - Inspection	The capacity of each facility is maintain and verified with drawdown testing. Characteristics of Pump stations are kept in IPS.		Yes	Yes	Yes				Heather Dodds, Mike Brazel		Good	Good							1G2A goal is process (work in, Daily runtime reports
	Are operations logs maintained for all pump stations?	Collection System Operation > Pump Station Operation > Pump Stations - Recordkeeping	Yes		Yes	Yes	Yes														IPS
	Are manufacturer's specifications and equipment manuals available for all equipment?	Collection System Operation > Pump Station Operation > Pump Stations - Recordkeeping	Typically SOP's and manufactures manuals are available, however older equipment may not have these available.		Yes	Yes	Yes														ebweb
	Are pump run times maintained for all pumps?	Collection System Operation > Pump Station Operation > Pump Stations - Recordkeeping	Yes		Yes	Yes	Yes														IPS, PI
	Are elapsed time meters used to assess performance?	Collection System Operation > Pump Station Operation > Pump Stations - Recordkeeping	Elapsed meters are used for runtimes, however they are not used for maintenance becuse the tracking would be too much data.	Documentation is unsuitable.	Yes	Unsuitable	Yes				mike brazel										
24	What are the average annual labor hours spent on pump station inspections?	Collection System Operation > Pump Station Operation > Pump Stations Inspection	Data - The data to respond to this questions is tracked separately in SAP and IPS but an analysis cannot be easily performed because the IPS/SAP interface tool that allows this analysis is inoperable. The analysis could be performed, but would require a consultant to perform the analysis. Efforts are currently underway to re-establish the interface.	The data to respond to this question cannot accurately be tracked because the interface tool between SAP and IPS isn't working.	Yes	No	No	Engineering	Operations	David Johnson	Heather Dodds	2	2	8	B	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	
55	Are there Standard Operating Procedures (SOPs) and Standard Maintenance Procedures (SMPs) for each station?	Collection System Operation > Pump Station Operation > Pump Stations Inspection	For pump stations in Jefferson county, O&M manuals were produced for facilities installed prior to 2017. New facilities constructed after 2017 should have manuals as part of the commissioning process. O&M manuals have not been developed for Bullitt and Oldham County pump stations.	1) O&M Manuals for newly acquired assets in BC and OC should be developed. 2)O&M Manuals for JC constructed since 2017 should be confirmed. 3) Verify process exists and is being implemented for newly commissioned facilities.	No	No	No	Operations	Engineering	Mike Brazel	Jeremy Goodwin	2	2	21	C	NS	1	Asset Management: Infrastructure Operation	Wastewater collection, conveyance, storage	N	eBweb
56	Is there an Emergency Operating Procedure for each pump station?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Emergencies	Some pump stations have written emergency operating procedures but each pump station does not have its own written procedures. Staff generally has procedures based upon the type of station and the nature of the emergency. There is not a documented procedure applicable to all pump stations in emergency situations.	There is no global document covering emergency operation procedures for pump stations.	Yes	No	Yes	Operations	Engineering	Mike Brazel	Jeremy Goodwin	2	2	22	C	NS	1	Asset Management: Infrastructure Operation	Wastewater collection, conveyance, storage	N	Mike Brazel
	Is there sufficient redundancy of equipment in all pump stations?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Emergencies	Most pump stations have sufficient redundancy,however some older stations have limited redundancy for some equipment.		Yes	Yes	Yes	Operations													
	Who responds to lift station failures and overflows? How are they notified?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Emergencies	Operations staff and collections system emergency response supervisors are notified by SCADA alarms and customer complaints via the computer room.		Yes	Yes	Yes	Operations		Mike Brazel											
	How is loss of power at a station dealt with? (i.e. on-site electrical generators, alternate power source, portable electric generator(s))	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Emergencies	Some stations have on-site generators (these are documented in IPS). Other stations require portable generators or use pumper trucks.		Yes	Yes	Yes	Operations		Mike Brazel											IPS

	What equipment is available for pump station bypass?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Emergencies	Pumper trucks and portable pumps are available for bypass. If necessary, a pump around into a tapped force main is used.	Documentation is unsuitable.	Yes	Unsuitable	Yes	Operations		Mike Brazel											
57	What process is used to investigate the cause of pump station failure and take necessary action to prevent future failures?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Emergencies	Pump station failure root cause analyses are performed by experienced staff. The staff relies on prior experience and knowledge of each individual station to determine the potential cause. There is no formal process in place.	There is no written procedure to follow for investigating the cause of pump station failures.	Yes	No	No	Operations	Engineering	Mike Brazel	Jeremy Goodwin	2	2	23	C	NS	1	Asset Management: Infrastructure Operation	Wastewater collection, conveyance, storage	N	Heather Dodds
	Does the owner or operator regularly inspect the route of force mains?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Force Mains and Air/Vacuum Valves	Force mains are inspected through work orders and on a inspection schedule in IPS.		Yes	Yes	Yes	Operations													IPS
	Does the owner or operator have a program to regularly assess force main condition?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Force Mains and Air/Vacuum Valves	No	Data and documentation is unsuitable.	Unsuitable	Unsuitable	No	Operations													
58	Is there a process in place to investigate the cause of force main failures?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Force Mains and Air/Vacuum Valves	After an emergency, force main failure root cause analyses are investigated to conduct repairs and prevent future failure. These efforts are typically led by experienced staff.	There is no written procedure to follow for investigating the cause of force main failures.	Yes	No	No	Operations	Engineering	Mike Brazel	Jeremy Goodwin	2	2	23	C	NS	1	Asset Management: Infrastructure Operation	Wastewater collection, conveyance, storage	N	
	Does the owner or operator have a regular maintenance/inspection program for air/vacuum valves?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Force Mains and Air/Vacuum Valves	Air valves are inspected witht the force mains through work orders and on a inspection schedule in IPS.		Yes	Yes	Yes	Operations			Mike Brazel										IPS
	Have force main failures been caused by water hammer?	Collection System Operation > Pump Station Operation > Pump Stations Inspection > Pump Stations Force Mains and Air/Vacuum Valves	It is suspected there have been failures caused by water hammer.	Documentation is unsuitable.	Yes	Unsuitable	No	Operations			Mike Brazel										
	Is there a documented safety program supported by the top administration official?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs										health and safety rule book
	Is atmospheric testing equipment and gas detectors available and in adequate supply?	Collection System Operation > Safety	We issue a version of Multi Gas Monitors but unsure of what all they measure. New hardwired/cloud based monitors have been installed at most Treatment Facilities.		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Adriane Wright										MSD Gas Detector equipment
	Are oxygen sensors available and in adequate supply?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			tony combs, Adriane Wright, Mike brazel										ask mike
	Are H2S monitors available and in adequate supply?	Collection System Operation > Safety	We issue a version of Multi Gas Monitors but unsure of what all they measure. New hardwired/cloud based monitors have been installed at most Treatment Facilities.		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Adriane Wright										ask mike
	Are full body harnesses available and in adequate supply?	Collection System Operation > Safety	Managed per division/department	Documentation is unsuitable.	Yes	Unsuitable	No	Facilities, Safety & Security			Tony Combs, Adriane Wright										
	Is protective clothing available and in adequate supply?	Collection System Operation > Safety	Standard PPE such as Tyvek, Proguard, Vest, Gloves, Glasses, Boots, Hardhat etc.	Documentation is unsuitable.	Yes	Unsuitable	No				Adriane Wright										
	Is traffic/public access control equipment available and in adequate supply?	Collection System Operation > Safety	Yes	Documentation is unsuitable.	Yes	Unsuitable	No				Adriane Wright										
	Are 5-minute escape breathing devices available and in adequate supply?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Adriane Wright										SCBA inventory
	Are life preservers for lagoons available and in adequate supply?	Collection System Operation > Safety	Yes	Documentation is unsuitable.	Yes	Unsuitable	No				Adriane Wright, Daymond										
	Are safety buoys at activated sludge plants available and in adequate supply?	Collection System Operation > Safety	Yes	Documentation is unsuitable.	Yes	Unsuitable	No				Adriane Wright, Daymond										
	Are fiberglass or wooden ladders for electrical work available and in adequate supply?	Collection System Operation > Safety	Yes		Yes	Yes	Yes				Adriane Wright										
	Are respirators and/or self-contained breathing apparatus available and in adequate supply?	Collection System Operation > Safety	Yes, the warehouse offers mask and respirators after scheduled fitting is approved through Safety.		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Adriane Wright										SCBA inventory
	Are methane gas or OVA analyzers available and in adequate supply?	Collection System Operation > Safety	Managed per division/department	Documentation is unsuitable.	Yes	Unsuitable	No	Facilities, Safety & Security			Tony Combs, Adriane Wright, mike Brazel										
	Is LEL metering available and in adequate supply?	Collection System Operation > Safety	Managed per division/department	Documentation is unsuitable.	Yes	Unsuitable	No	Facilities, Safety & Security			Tony Combs, Adriane Wright, mike Brazel										
	Are safety monitors clearly identified?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Adriane Wright										
	How often are safety procedures reviewed and revised?	Collection System Operation > Safety	Safety procedures are annually reviewed and revised as needed.	Documentation is unsuitable.	Yes	Unsuitable	No	Facilities, Safety & Security			Tony Combs										
	Are workplace accidents investigated?	Collection System Operation > Safety	Yes		Yes	Yes	Yes														
	How does the Administration communicate with field personnel on safety procedures; memo, direct communication, video, etc.?	Collection System Operation > Safety	Safety training, memos, email, video, ect. are all used as forms of communication.		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs										blueprint doc
	Are portable crane/hoists available and in adequate supply?	Collection System Operation > Safety	Managed per division/department	Documentation is unsuitable.	Yes	Unsuitable	No				Adriane Wright										
	Is equipment to enter manholes available and in adequate supply?	Collection System Operation > Safety	Managed per division/department	Documentation is unsuitable.	Yes	Unsuitable	No	Facilities, Safety & Security			tony combs, Adriane Wright, Mike brazel										
	Are fire extinguishers available and in adequate supply?	Collection System Operation > Safety	Fire extinguishers are managed per division/department and by Safety. Fire extinguishers are part of inspections of facilities that are completed annually. MSD's fire system contractor JCI also checks the fire extinguishers annually.		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Adriane Wright										JCI contract doucments
	Are tripods or non-entry rescue equipment available and in adequate supply?	Collection System Operation > Safety	Managed per division/department	Documentation is unsuitable.	Yes	Unsuitable	No				Adriane Wright										
	Is there a Safety Department that provides training, equipment, and an evaluation of procedures?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security													health and safety rule book
	If not, who provides safety training?	Collection System Operation > Safety	N/A		Yes	Yes	Yes	Facilities, Safety & Security													
	Does the owner or operator have written procedures for lockout/tagout?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs										health and safety rule book, lockout/tagout document (dated 2012), Lockout tag out PPT (2023)
	Does the owner or operator have written procedures for MSDS?	Collection System Operation > Safety	There is an SDS program. SDS sheets are kept at each treatment plant and acceible through MSDpro website.		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs										health and safety rule book references need for SDS sheets, individula sheets are documented on MSDpro website
	Does the owner or operator have written procedures for chemical handling?	Collection System Operation > Safety	There is an SDS program. SDS sheets are kept at each treatment plant and acceible through MSDpro website.		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs										health and safety rule book references need for SDS sheets, individula sheets are documented on MSDpro website, Hazmat trainging mentions
	Does the owner or operator have written procedures for trenching and excavations?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Tony Glore, Kelli Rhodes										health and safety rule book ch 12
	Does the owner or operator have written procedures for biological hazards in wastewater?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Tony Glore, Kelli Rhodes										NEO Hazcom Training ppt/ Hazmat training
	Does the owner or operator have written procedures for traffic control and work site safety?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Tony Glore, Kelli Rhodes										health and safety rule book
54	Is there a Safety Committee with participation by O&M staff? How often does it meet?	Collection System Operation > Safety	There are safety committees at all major facilities including flood protection, main office, CMF, MF, and Treatment 2. Meetings vary by facility but meet at a minimum once a quarter.	No written procedure exists covering the assignment of members, the responsibilities, and frequencies of meetings for each safety committee.	Yes	No	No	Facilities, Safety & Security	Operations, Operations-Treatment, Engineering	Lopez High	Tony Combs	3	3	20	C	NS	3	Manage Workplace Health and Safety	Employee Health/Safety mgmt.	Y	Meeting Notes
	Does the owner or operator have written procedures for electrical and mechanical systems?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Tony Glore, Kelli Rhodes										health and safety rule book, Safety PPTs
	What is the agency's lost-time injury rate(percent or in hours)?	Collection System Operation > Safety	Data		Yes	Yes	Yes	Facilities, Safety & Security			Adriane Henderson, Tony Combs										M drive OSHA reporting spreadsheet
53	Is there a permit required confined space entry procedure for manholes, wet wells, etc.? Are confined spaces clearly marked?	Collection System Operation > Safety	There is a confined space permit required when entering into a confined space. Permits must be called into Base 1 when entering and leaving a confined space. There is training on confined space entry for certain departments as well as some third party training. Confined spaces are marked for larger structures but not smaller assets such as manholes.	Need to determine protocols for clearly marking confined spaces across all MSD facilities, documenting the locations of those spaces and then ensure all required areas are marked. need to ensure process in place as part of the design, construction and commissioning of new facilities appropriately identify and mark confined spaces. Need to ensure process in place to assess, identify and mark confined spaces when MSD assumes facilities. Written procedures related to all aspects of implementing the confined space program need to be reviewed and refined.	Yes	No	Yes	Facilities, Safety & Security	Operations, Operations-Treatment, Engineering, Legal	Lopez High	Tony Combs	3	3	19	C	NS	3	Manage Workplace Health and Safety	Employee Health/Safety mgmt.	Y	Confined Space Permit, confined space doc dated 2012
	Are rubber/disposable gloves available and in adequate supply?	Collection System Operation > Safety	Yes		Yes	Yes	Yes				Adriane Wright										SAP, stock overview
	Is confined space ventilation equipment available and in adequate supply?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Adriane Wright, Mike brazel										ask mike
	Are hard hats available and in adequate supply?	Collection System Operation > Safety	Yes		Yes	Yes	Yes				Adriane Wright										SAP, stock overview
	Are safety glasses available and in adequate supply?	Collection System Operation > Safety	Yes		Yes	Yes	Yes				Adriane Wright										SAP, stock overview
	Are rubber boots available and in adequate supply?	Collection System Operation > Safety	Yes		Yes	Yes	Yes				Adriane Wright										SAP, stock overview
	Is antibacterial soap and first aid kit available and in adequate supply?	Collection System Operation > Safety	Yes		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Adriane Wright										first aid kit location spreadsheet
	Does the owner or operator have written procedures for pneumatic and hydraulic systems safety?	Collection System Operation > Safety	Pneumatic and hydraulic syetems are addessed in LOTO training, but there is no individual training specific to these items.		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs, Tony Glore, Kelli Rhodes										Basics of Machine Gaurding, LOTO PPT
	Is there a formal Safety Training Program? Are records of training maintained?	Collection System Operation > Safety	All those mentioned above in this table including first aid, CPR and hazardous materials meets OSHA requirements. Records are maintained in the training tracker.		Yes	Yes	Yes	Facilities, Safety & Security			Tony Combs										health and safety rule book, training records in training tracker
	Is there a water quality monitoring program in the service areas?	Collection System Operation > Water Quality Monitoring	The "State of Our Streams" report outlines the water quality monitoring program.		Good	Good	Yes	Engineering			Colette										State of Our Streams
	If so, who performs the monitoring?	Collection System Operation > Water Quality Monitoring	Monitoring is performed by MS-4 (USGS). There are 27 sites which are monitored though quarterly and monthly sampling. Field Services Department is responsible for installations and upkeep.		Good	Good	Yes	Engineering			Colette, Dwight										QAPP, Appendix B pg. 10 - personel requirements
	How many locations are monitored?	Collection System Operation > Water Quality Monitoring	Data - There are 27 monitoring locations in the permit.		Good	Good	Yes	Engineering			Colette										QAPP, Appendix B pg. 5
	What parameters are monitored and how often?	Collection System Operation > Water Quality Monitoring	Recreational sampling and quarterly sampleing is physically done every 15 minutes. The Stream Program performs physical, chemical, and biological analyses. Physical analysis includes Water Temperature, Air Temperature, Stream Flow, Dissolved Oxygen levels, Specific Conductance, Barometric Pressure and pH. Chemical analysis includes Biological Oxygen Demand, Chemical Oxygen Demand, Total Suspended Solids, Total Volatile Suspended Solids, Total Dissolved Solids, Alkalinity, Ammonia, Nitrates, Nitrites, Organic Nitrogen, Total Phosphorus, and Soluble Reactive Phosphorus are performed on a monthly basis. In addition, 18 metals, herbicides, and pesticides are monitored quarterly. Microbiological analyses for fecal coliforms and fecal streptococcus are performed monthly. Biological analyses using macroinvertebrates are currently conducted twice a year, every other year. Macroinvertebrates are invertebrates (insects, crayfish, etc.) that are large enough to be seen with the naked eye are mmonitored. The different types of macroinvertebrates and numbers of individuals in each type are used to provide a picture of relative stream health and impact over long periods of time. Wet weather samples are also collected for all parameters outlined above.		Good	Good	Yes	Engineering			Colette										QAPP, Appendix B pg.25 (sampling sheet)
	Is water quality monitored after an SSO event?	Collection System Operation > Water Quality Monitoring	Currently, the permits nor the enforcment order require quality monitoring SSO events.	Activity and Documentation are unsuitable.	Unsuitable	Unsuitable	No	Engineering			Colette										
	Are there written standard sampling procedures available?	Collection System Operation > Water Quality Monitoring	There is and approved QAPP with DOW that is reviewed and updated annually.		Good	Good	Yes	Engineering			Colette										QAPP, Appendix B pg. 14
	Is analysis performed in-house or by a contract laboratory?	Collection System Operation > Water Quality Monitoring	In-house analysis is done by MSD's ceritifed laboratory as well as a third party laboratory when needed.		Good	Good	Yes	Engineering			Colette										QAPP, section 3.1.2 & 6.1.2
	Are chain-of-custody forms used?	Collection System Operation > Water Quality Monitoring	Chain of custody forms are outlined in the QAPP.		Good	Good	Yes	Engineering			Colette										QAPP Appendix B pg 37
	Does the collection system experience problems related to I/I? How do these problems manifest themselves? (Manhole overflows, basement flooding, structure, SSOs)	Continuing Sewer Assessment Plan	Yes, the collection system experieces I/I which manifests itself in sanitary sewer overflows (SSO's) and basement backups. Data is stored in IPS.	N/A	Yes	Yes	Yes	Engineering	Operations	Dan French	Heather Dodds	N/A	N/A	N/A	N/A	N/A					IPS/ Annual Report
	How does the owner or operator prioritize investigation, repairs and rehabilitation related to I/I?	Continuing Sewer Assessment Plan	The Asset Management Program identifies a methodology to prioritize inspection, repair, and rehabilitation for gravity line assets based on multiple factors including risk of failure, consequence of failure, and expected useful life.	N/A	Yes	Yes	Yes	Engineering	Operations	Dan French	Heather Dodds	N/A	N/A	N/A	N/A	N/A					SAMP Pgs. 303-307, TAMP(23) pg. 46, 68
	What methods are considered to remedy hydraulic deficiencies?	Continuing Sewer Assessment Plan	Methods such as rehabilitiation to reduce I&I, diversion of flows, storage of flows, increasing pipe capacity, and increasing pump staion capacity are used to remedy hydraulic deficencies in the collection system.	N/A	Yes	Yes	Yes	Engineering	Operations	Dan French	Heather Dodds	N/A	N/A	N/A	N/A	N/A					SAMP Pgs. 303-307, TAMP(22) Pgs. 93-99, TAMP(23) pg. 46, 97-102, IOAP, New SSO SOP
	Does the plan include a schedule for investigative activities?	Continuing Sewer Assessment Plan	Yes, assets are on 5 to 20 yr inspection schedule. Each schedule varies depending on charcteristic such as age, criticality, and condition of each asset. The schedules and work orders are stored in IPS.	N/A	Yes	Yes	Yes	Engineering	Operations	Dan French	Heather Dodds	N/A	N/A	N/A	N/A	N/A					IPS Work Orders, CSSA G-18
12	Is the plan for continuing sewer assessment regularly updated?	Continuing Sewer Assessment Plan	The current CSSA was completed in 2020 - it does not contain any guidelines for how often the overall CSSA should be reviewed and updated. Information from the plan is incorporated into IPS - and the components of the plan are updated and revised using a preventative maintenance and workflow process. The plan is risk based and takes into account previous inspection results. Various workflows exist to incorporate the components of the CSSA.	The frequency of review for the CSSA is not defined. The review should consider any potential updates to the CSSA based on changed conditions or new technology.	Yes	Yes - Outdated	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Regulatory Compliance	CMOM	N	TAMP(23) pg. 85, IPS Work Orders, CSSA
	Is there a list of equipment and tools used for operation and maintenance?	Equipment and Collection System Maintenance > Equipment and Tools Management	Yes, there are different lists based upon the specified work function.		Yes	Yes	No	Operations			Adriane Wright, Mike Brazel										excel sheets for tool issue for specified work function
	Do personnel feel they have access to the necessary equipment and tools to do all aspects of operation and maintenance of the collection system?	Equipment and Collection System Maintenance > Equipment and Tools Management	Yes		Yes	Yes	No	Operations													
	Is there access to suitable equipment if the owner or operator's equipment is down for repair?	Equipment and Collection System Maintenance > Equipment and Tools Management	Yes		Yes	Yes	No	Operations													
	Does the owner or operator own or have access to portable generators?	Equipment and Collection System Maintenance > Equipment and Tools Management	Yes		Yes	Yes	Yes	Operations													
	Where does the owner or operator store its equipment?	Equipment and Collection System Maintenance > Equipment and Tools Management	Equipment is stored in regional locations throughout the system.		Yes	Yes	Yes	Operations													
	Is a detailed equipment maintenance log kept?	Equipment and Collection System Maintenance > Equipment and Tools Management	Yes, for applicable equipment.		Yes	Yes	Yes	Operations			Adriane Wright, Mike Brazel										IPS/ Asset Works
	Are written equipment maintenance procedures available?	Equipment and Collection System Maintenance > Equipment and Tools Management	There is the Asset Management Plan, Asset Class Plans, OEM access, and checklists available.		Yes	Yes	Yes	Operations													TAMP (23)pg 45, 87-95, TAMP(22) pg 33, 83-91, SAMP pg 41, 219-224
	What is the procedure for equipment replacement?	Equipment and Collection System Maintenance > Equipment and Tools Management	There is an analysis for fleet assets and a scoring system. Assets are on a performance based system (ie. Pump). There is replacement criteria (point system) where assets that score the highest based on age, miles, hours, and expense are replaced.		Yes	Yes	Yes	Operations			Mike Brazel, bill malcolm										replacement program analysis doc and spreadsheet
	Are the services of an in-house vehicle and equipment maintenance services used?	Equipment and Collection System Maintenance > Equipment and Tools Management	Yes		Yes	Yes	Yes	Operations													
	What is the typical turnaround time for equipment and vehicle maintenance?	Equipment and Collection System Maintenance > Equipment and Tools Management	The target is 24-hr for maintence, but can vary depending on equipment.		Yes	Yes	No	Operations			Bill Malcolm, Adrianne Wright, will cunningham										Turnaround time dashboard
	How does the collection system owner or operator track yearly maintenance costs?	Equipment and Collection System Maintenance > Maintenance Budgeting	Costs are tracked in SAP and determined in annual budgeting.		Yes	Yes	Yes				wolffie miller										SAP
	Is there a maintenance cost control system?	Equipment and Collection System Maintenance > Maintenance Budgeting	There is a non-flexable opperating budget.		Yes	Yes	Yes														Budget Book , MSD website/ Annual Fiscal Year Budget FY2025 pg. 43
	Are maintenance costs developed from past cost records?	Equipment and Collection System Maintenance > Maintenance Budgeting	Yes		Yes	Unsuitable	No				Brian Bingham										
	How does the owner or operator categorize costs? Preventive? Corrective? Projected Costs? Projected Repair?	Equipment and Collection System Maintenance > Maintenance Budgeting	MSD does not categorize costs in this manner.		Unsuitable	Unsuitable	No				Brian Bingham										
	How does the owner or operator control expenditures?	Equipment and Collection System Maintenance > Maintenance Budgeting	Expenditures are controlled through authorization and budget reviews. There is also a requisition process and a procurment process.		Yes	Yes	Yes				Brian Bingham										
	Does the owner or operator perform scheduled maintenance on Rights-of-Way and Easements?	Equipment and Collection System Maintenance > Maintenance Right-of-Way	There is mowing and maintainence of vegitation on select easment R/W. There is also a GIS map layer for what gets mowed. There are contracts to have sites mowed for larger assets such as large pump stations, treatment plants or basins.		Yes	Yes	Yes	Operations			brian bingham, Tony Morrison					LOJIC, gis links > msd mowing > mowing schedules					LOJIC, gis links > msd mowing > mowing schedules
	Does the owner or operator monitor street paving projects?	Equipment and Collection System Maintenance > Maintenance Right-of-Way	No		Yes	Yes	No	Operations													
	Does the owner or operator have a program to locate and raise manholes (air valves, etc) as needed?	Equipment and Collection System Maintenance > Maintenance Right-of-Way	MSD has agreements with Louisville Metro (MOU) for certain projects. Manholes, air valve, ect. are generally raised through corrective workorders.		Yes	Yes	Yes	Operations			Brian Bingham, Mike Grifith, Mike Brazel, Tony Morrison					CSSA pg. 27 manholes					CSSA pg. 27 manholes
	How are priorities determined?	Equipment and Collection System Maintenance > Maintenance Right-of-Way	Priorities are determined through the asset management planand condition assesments.		Yes	Yes	Yes	Operations			mike brazel					TAMP					TAMP
	How is the effectiveness of the maintenance schedule measured?	Equipment and Collection System Maintenance > Maintenance Right-of-Way	Customer complains and emergency access/repaire measure the effectiveness.		Unsuitable	Unsuitable	No	Operations													
	Does the owner or operator plan and schedule preventive and corrective maintenance activities?	Equipment and Collection System Maintenance > Maintenance Scheduling	Yes, this in included in the TAMP and SAMP.		Yes	Yes	Yes	Operations													SAMP pg 206-211,TAMP (23) pg 80 - 85,TAMP(22) pg 76-81
	How are priorities determined for this work?	Equipment and Collection System Maintenance > Maintenance Scheduling	N/A		Yes	Yes	No	Operations													
	Is maintenance performed for other public works divisions?	Equipment and Collection System Maintenance > Maintenance Scheduling	No, not as a general practice.		Yes	Yes	No	Operations													
	Are corrective repair work orders backlogged more than six months?	Equipment and Collection System Maintenance > Maintenance Scheduling	No, corrective work orders are not open more than 6 months.		Yes	Yes	Yes	Operations													Power BI report in IPS
25	What percent of repair funds are spent on emergency repairs?	Equipment and Collection System Maintenance > Maintenance Scheduling	Data - The data to respond to this questions is tracked separately in SAP and IPS but an analysis cannot be easily performed because the IPS/SAP interface tool that allows this analysis is inoperable. The analysis could be performed, but would require a consultant to perform the analysis. Efforts are currently underway to re-establish the interface.	The data to respond to this question cannot accurately be tracked because the interface tool between SAP and IPS isn't working.	Yes	No	No	Engineering	Operations	David Johnson	Heather Dodds	2	2	8	B	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	
	How is O&M performance tracked and measured?	Equipment and Collection System Maintenance > Maintenance Scheduling	O&M performance is measured with organization goals and tracked in IPS.		Yes	Yes	Yes	Operations													IPS
	Is maintenance backlog tracked?	Equipment and Collection System Maintenance > Maintenance Scheduling	Yes		Yes	Yes	Yes	Operations			mike brazel, heather dodds										IPS
	How is this work funded?	Equipment and Collection System Maintenance > Maintenance Scheduling	N/A		Yes	Yes	No	Operations													
	Are dated tags used to show out-of-service equipment?	Equipment and Collection System Maintenance > Maintenance Scheduling	Yes		Yes	Yes	Yes	Operations			mike brazel, heather dodds										IPS
	Do equipment maintenance records include maintenance schedule?	Equipment and Collection System Maintenance > Maintenance Scheduling	Inlcuded in Asset Class Plans.		Yes	Yes	Yes	Operations													TAMP (23)pg 45, 87-95, TAMP(22) pg 33, 83-91, SAMP pg 41, 219-227
	Do equipment maintenance records include other observations on the equipment?	Equipment and Collection System Maintenance > Maintenance Scheduling	Inlcuded in Asset Class Plans.		Yes	Yes	Yes	Operations													TAMP (23)pg 45, 87-95, TAMP(22) pg 33, 83-91, SAMP pg 41, 219-226
	Do equipment maintenance records include instructions on conducting the specific maintenance activity?	Equipment and Collection System Maintenance > Maintenance Scheduling	Inlcuded in Asset Class Plans.		Yes	Yes	Yes	Operations													TAMP (23)pg 45, 87-95, TAMP(22) pg 33, 83-91, SAMP pg 41, 219-225
	Do equipment maintenance records include maintenance recommendations?	Equipment and Collection System Maintenance > Maintenance Scheduling	Inlcuded in Asset Class Plans.		Yes	Yes	Yes	Operations													TAMP (23)pg 45, 87-95, TAMP(22) pg 33, 83-91, SAMP pg 41, 219-224
	Is a maintenance card or record kept for each piece of mechanical equipment within the collection system?	Equipment and Collection System Maintenance > Maintenance Scheduling	There is a maintenance record kept in IPS for equipment identified as an asset.		Yes	Yes	Yes	Operations													SAMP, IPS
	Is there an established priority system? Who sets priorities for maintenance?	Equipment and Collection System Maintenance > Maintenance Scheduling	Priorities are set by planners for low priority and high priority.		Yes	Yes	Yes	Operations													TAMP (23) Pg 47, TAMP(22) pg 34, SAMP pg 119
	Do equipment maintenance records include a record of maintenance on the equipment to date?	Equipment and Collection System Maintenance > Maintenance Scheduling	Maintained and stored in IPS.		Yes	Yes	Yes	Operations													IPS
	Are maintenance logs maintained for all pump stations?	Equipment and Collection System Maintenance > Maintenance Scheduling	Maintenance logs are digitally kept in IPS.		Yes	Yes	Yes	Operations													IPS
	Does the owner or operator have a central location for the storage of spare parts?	Equipment and Collection System Maintenance > Parts Inventory	Spare parts are kept at CMF, MF, CC, HC, and DRG.		Yes	Yes	Yes	Supply Chain & Economic Inclusion	Engineering, Operations												
61	Have critical spare parts been identified?	Equipment and Collection System Maintenance > Parts Inventory	Some critical spare parts have been identified. A process is in place to identify critical spare parts for new capital projects - that process is being developed, tested and refined. Critical spare parts for older assets are currently being identified by sending lists of inventory for review by operations. The method to track new capital spare parts in SAP is currently being developed.	1) New capital projects - Process/procedure is place for identification of critical spare parts. Will be tested and refined as new projects are completed and documented 2) Previous inventory - currently reviewing with operations staff existing inventory to determine what is critical spare parts for inventory. 3) Tracking system (SAP) for new capital project spare parts is not currently developed.	No	No	No	Supply Chain & Economic Inclusion	Engineering, Operations	Rene Lindsay	Adrianne Wright	2	2	27	C	A	1	Procurement Support and Inventory Management	Operational Inventory Management	Y	
	Are adequate supplies on hand to allow for two point repairs in any part of the system?	Equipment and Collection System Maintenance > Parts Inventory	Standard parts are available, and contracts are available for accessing parts that aren't standard. CIPP System for Slipline Repairs there is hot, cold & warm resin available.		Yes	Yes	Yes	Supply Chain & Economic Inclusion	Engineering, Operations		Adriane Wright										SAP
	Is there a parts standardization policy in place?	Equipment and Collection System Maintenance > Parts Inventory	No		Unsuitable	Unsuitable	No	Supply Chain & Economic Inclusion	Engineering, Operations												
	Does the owner or operator maintain a stock of spare parts on its maintenance vehicles	Equipment and Collection System Maintenance > Parts Inventory	Sanitary Crews keep a "Standard Issue" on their trucks that are 6inch in size.		Yes	Yes	Yes	Supply Chain & Economic Inclusion	Engineering, Operations		Adriane Wright										standard issue workorder, paper doc
	What method(s) does the owner or operator employ to keep track of the location, usage, and ordering of spare parts? Are parts logged out when taken by maintenance personnel for use?	Equipment and Collection System Maintenance > Parts Inventory	There are barcodes that help to keep track of inventory. The location of spares is tracked and more spares are ordered once spares in stock are used. All O&M assets are signed out to keep balance of property book valuation and inventory.		Yes	Yes	Yes	Supply Chain & Economic Inclusion	Engineering, Operations		Adriane Wright										use barcodes and SAP tracking, doc being created as improvement
	Does the owner or operator salvage specific equipment parts when equipment is placed out-of-service and not replaced?	Equipment and Collection System Maintenance > Parts Inventory	Only equipment and parts with with a salvage value are salvaged.		Yes	Yes	Yes	Supply Chain & Economic Inclusion	Engineering, Operations		Adriane Wright										obsolete SOP,
	How often does the owner or operator conduct a check of the inventory of parts to ensure that their tracking system is working?	Equipment and Collection System Maintenance > Parts Inventory	Daily cycle counts, ABC Counts and annual inventories are completed for all O&M Inventory Items		Yes	Yes	Yes	Supply Chain & Economic Inclusion	Engineering, Operations		Adriane wright										Cycle Counting doc, ABC Cycle Count Generation, Batch Cycle Count Generation, Inventory Cycle Counting
	Who has the responsibility of tracking the inventory?	Equipment and Collection System Maintenance > Parts Inventory	All Warehouse Personnel, Primarily Specialist, Coordinators and Supervisors who run reports are responsible. After hours, there is a procedure when taking inventory parts.		Yes	Yes	Yes	Supply Chain & Economic Inclusion	Engineering, Operations		Adriane wright										Job description
	For those parts which are not kept in inventory, does the owner or operator have a readily available source or supplier?	Equipment and Collection System Maintenance > Parts Inventory	Yes, for applicable equipment such as permanent, stationary, rolling stock and equipment in the garage.		Yes	Unsuitable	No	Supply Chain & Economic Inclusion	Engineering, Operations		Adriane Wright										
	Are preventive maintenance tasks and frequencies established for all pump stations and equipment?	Equipment and Collection System Maintenance > Planned Maintenance	Process is established for types of pump stations and equipment.		Yes	Yes	No	Operations			Mike Brazel										TAMP(22) Pg. 35/ IPS
	How were preventive maintenance frequencies established?	Equipment and Collection System Maintenance > Planned Maintenance	Frequencies are established initally using equipment manufactures recommendations and are updated as necessary depending on field assesment.		Yes	Yes	No	Operations			Mike Brazel										TAMP(22) Pg. 35/ IPS
	What percentage of the operator's time is devoted to planned, as opposed to unplanned, maintenance?	Equipment and Collection System Maintenance > Planned Maintenance	Data - IPS report by count of work orders		Yes	Yes	Yes	Operations			Mike Brazel										IPS
	What predictive maintenance techniques are used as part of PM program?	Equipment and Collection System Maintenance > Planned Maintenance	Techniques including liklihood of failure, performance indicators, and conditions assesments are used.		Yes	Yes	Yes	Operations			Mike Brazel										TAMP, SAMP pg. 227-300
	Is there a formal procedure to repair or replace pump stations and equipment when useful life is reached?	Equipment and Collection System Maintenance > Planned Maintenance	There is process for assesing the COF and LOF of pump stations in the Asset Management Plan included in the TAMP. The plan includes the decision making process for pump stationss that score a certain number and then become CIP projects. CIP project are then descided on based on funcding and various other factors.		Yes	Yes	Yes	Operations													TAMP(22) pg 50, 86, SAMP pg 347
	Has an energy audit been performed on pump station electrical usage	Equipment and Collection System Maintenance > Planned Maintenance	There have been some energy reviews done on select pump stations.		Unsuitable	Unsuitable	Yes	Operations													
	Is an adequate parts inventory maintained for all equipment?	Equipment and Collection System Maintenance > Planned Maintenance	Yes, generally for equipment that is critical or high-churn.		Yes	Yes	Yes	Operations			Mike Brazel										
	Is there a sufficient number of trained personnel to properly maintain all stations?	Equipment and Collection System Maintenance > Planned Maintenance	Yes		Yes	Yes	Yes	Operations													
	Who performs mechanical and electrical maintenance?	Equipment and Collection System Maintenance > Planned Maintenance	Operations staff		Yes	Yes	Yes	Operations													
	Are there Standard Maintenance Procedures (SMPs) for each station?	Equipment and Collection System Maintenance > Planned Maintenance	O&M Manual's are available for each station. The process is established for different types of pump stations and equipment. Frequencies are established initally using equipment manufactures recommendations and are updated as necessary depending on field assesment		Yes	Yes	Yes	Operations			Mike Brazel										TAMP(22) Pg. 35/ IPS
	Is there a routine schedule for cleaning sewer lines on a system wide basis, e.g., at the rate of once every seven to twelve years or a rate of between 8% and 14% per year?	Equipment and Collection System Maintenance > Sewer Cleaning	There is an inspection schedule sewer lines with cleaning included as needed.		Yes	Yes	Yes														SAMP pg 206-211,TAMP (23) pg 80 - 85,TAMP(22) pg 76-81
	What is the owner or operator's goals for annual system cleaning?	Equipment and Collection System Maintenance > Sewer Cleaning	There are goals for inspecting sewers where cleaning is performed on an as needed basis.		Yes	Yes	Yes														SAMP pg 206-211,TAMP (23) pg 80 - 85,TAMP(22) pg 76-81
	What percent of the sewer lines are cleaned, even high/repeat cleaning trouble spots, during the past year?	Equipment and Collection System Maintenance > Sewer Cleaning	Data - IPS		Yes	Yes	Yes														IPS
	Is there a program to identify sewer line segments that have chronic problems and should be cleaned on a more frequent schedule?	Equipment and Collection System Maintenance > Sewer Cleaning	Programs including the CSSA, GLPM/BAP, and preventative maintenance program address this.		Yes	Yes	Yes				Will Cunningham, Keith Gallai										TAMP(23) pg 46, Hydraulic sewer cleaning doc (will to send)
	What is the average number of stoppages experienced per mile of sewer pipe per year?	Equipment and Collection System Maintenance > Sewer Cleaning	Data - IPS		Yes	Yes	Yes														IPS
	Has the number of stoppages increased, decreased, or stayed the same over the past five years?	Equipment and Collection System Maintenance > Sewer Cleaning	Data - IPS		Yes	Yes	Yes				Heather Dodds										IPS
	Are stoppages diagnosed to determine the cause?	Equipment and Collection System Maintenance > Sewer Cleaning	Yes		Yes	Yes	Yes				Heather Dodds										IPS
	Are stoppages plotted on maps and correlated with other data such as pipe size and material, or location?	Equipment and Collection System Maintenance > Sewer Cleaning	Data - Data is available to generate maps to show stoppages.		Yes	Yes	Yes														IPS
	Do the sewer cleaning records include the date and time?	Equipment and Collection System Maintenance > Sewer Cleaning	Yes		Yes	Yes	Yes														IPS
	Do the sewer cleaning records include the cause of stoppage?	Equipment and Collection System Maintenance > Sewer Cleaning	Yes		Yes	Yes	Yes														IPS
	Do the sewer cleaning records include the method of cleaning?	Equipment and Collection System Maintenance > Sewer Cleaning	Yes		Yes	Yes	Yes														IPS
	Do the sewer cleaning records include the location of stoppage or routine cleaning activity?	Equipment and Collection System Maintenance > Sewer Cleaning	Yes		Yes	Yes	Yes														IPS
	Do the sewer cleaning records include the identity of cleaning crew?	Equipment and Collection System Maintenance > Sewer Cleaning	Cleaning records include the crew leader.		Yes	Yes	Yes														IPS
	Do the sewer cleaning records include further actions necessary/initiated?	Equipment and Collection System Maintenance > Sewer Cleaning	Yes		Yes	Yes	Yes														IPS
	If sewer cleaning is done by a contractor are videos taken of before and after cleaning?	Equipment and Collection System Maintenance > Sewer Cleaning	Generally, heavy cleaning and CCTV contracts annually include video. There is no policy specificallu but it is written into the contracts.		Yes	Yes	No				Keith Gallai										Individual Contract for heavy clenaing and CCTV
	Does the owner or operator have a root control program?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Chemical Cleaning and Root Removal	Programs such as GLPM and CHEMR include roots.		Yes	Yes	Yes	Operations			Will Cunningham, Keith Gallai, Heather Dodds					regulatory compliance department, gravity tamp, CSSA, Schedules in IPS					regulatory compliance department, gravity tamp, CSSA, Schedules in IPS
	Does the owner or operator have a FOG program?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Chemical Cleaning and Root Removal	Yes		Yes	Yes	Yes	Operations								Sewer ordinance/WDR					Sewer ordinance/WDR
	Are chemical cleaners used?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Chemical Cleaning and Root Removal	Chemical for grease control are used on a case by case basis, with CHEMR and CHEMG programs.		Yes	Yes	Yes	Operations			Will Cunningham, Keith Gallai, Heather Dodds					CSSA section 5.3					CSSA section 5.3
	What types of chemical cleaners are used?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Chemical Cleaning and Root Removal	Duke Roots is the contractor used for root control. This contractor uses a foam applicator.		Yes	Yes	Yes	Operations			Will Cunningham, Keith Gallai					Duke Roots Brochure and Warranty					Duke Roots Brochure and Warranty
	How often are they applied?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Chemical Cleaning and Root Removal	Chemical cleaner are pllied as needed based on severity. The cleaners are applied on a 1 and 3 year frquency.		Yes	Yes	Yes	Operations			Will Cunningham, Keith Gallai, Heather Dodds					Schedules in IPS, program doc in CSSA					Schedules in IPS, program doc in CSSA
	How are the chemical cleaners applied?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Chemical Cleaning and Root Removal	A foam applicator is used.		Yes	Yes	Yes	Operations			Will Cunningham, Keith Gallai					Duke Roots Brochure and Warranty					Duke Roots Brochure and Warranty
	What results are achieved through the use of chemical cleaners?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Chemical Cleaning and Root Removal	Chemical cleaners reduces the amount of tree root intrusion in the sewer system. Ther is data available for mileage of sewer treated		Yes	Yes	Yes	Operations			Will Cunningham, Keith Gallai										
	What type of cleaning equipment does the owner or operator use?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Cleaning Equipment	Flushers, combination VAC trucks, and catch basin cleaners are used for cleaning.		Yes	Yes	Yes	Operations			Bill Malcolm										Asset works Fleet management inventory
	How many cleaning units of each type does the owner or operator have? What is the age of each?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Cleaning Equipment	Data		Yes	Yes	Yes	Operations			Bill Malcolm										Asset works Fleet management inventory
	How many cleaning crews and shifts does the owner or operator employ?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Cleaning Equipment	Data - Crews are available at all times.		Yes	Yes	Yes	Operations			Will cunningham, gerald Dunlap										IPS
	How many cleaning crews are dedicated to preventive maintenance cleaning?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Cleaning Equipment	Data - Crews are available at all times. Varies from day to day.		Yes	Yes	Yes	Operations			Will cunningham, gerald Dunlap										IPS
	How many cleaning crews are dedicated to corrective maintenance cleaning?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Cleaning Equipment	Data - Crews are available at all times. Varies from day to day.		Yes	Yes	Yes	Operations			Will cunningham, gerald Dunlap										IPS
	What has the owner or operator's experience been regarding pipe damage caused by mechanical equipment?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Cleaning Equipment	This ocurrs occasionally , but not oten and is not tracked.		Yes	Unsuitable	Np	Operations			Will cunningham, Keith Gallai										
	Where is the equipment stationed?	Equipment and Collection System Maintenance > Sewer Cleaning > Sewer Cleaning - Cleaning Equipment	Most equipment is stationed at the central maintence facility located at commerce center place. All assets have a location field in their record kept in Asset Works Fleet Management software.		Yes	Yes	Yes	Operations			Bill Malcolm										Asset works Fleet management inventory
	Size of service area (acres)	General Information - Collection System Description	Data	N/A	Yes		Yes	Engineering	All	Dan French	Heather Dodds	N/A	N/A	N/A	N/A	N/A					Annual Report/ MSD Website /Lojic website/ IPS
	Population of service area	General Information - Collection System Description	Data	N/A	Yes		Yes	Engineering	All	Dan French	Heather Dodds	N/A	N/A	N/A	N/A	N/A					Annual Report/ MSD Website /Lojic website/ IPS
	Number of pump stations	General Information - Collection System Description	Data	N/A	Yes		Yes	Engineering	All	Dan French	Heather Dodds	N/A	N/A	N/A	N/A	N/A					Annual Report/ MSD Website /Lojic website/ IPS
	Feet (or miles) of sewer	General Information - Collection System Description	Data	N/A	Yes		Yes	Engineering	All	Dan French	Heather Dodds	N/A	N/A	N/A	N/A	N/A					Annual Report/ MSD Website /Lojic website/ IPS
	Age of system (e.g., 30% over 30 years, 20% over 50 years, etc.)	General Information - Collection System Description	Data	N/A	Yes		Yes	Engineering	All	Dan French	Heather Dodds	N/A	N/A	N/A	N/A	N/A					Annual Report/ MSD Website /Lojic website/ IPS
	How many sanitary sewer overflows (SSOs) have occurred in the last 5 years? How many less than 1,000 gallons?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering			Dan French										IPS/Annual Report
	Prior to collapse, are structurally deteriorating pipelines being monitored for renewal or replacement?	Management Information Systems: Performance Indicators	Yes		Yes	Yes	Yes	Engineering			Heather Dodds										TAMP SAMP R/R section 5
	Are pipes with chronic SSOs being monitored for sufficient capacity and/or structural condition?	Management Information Systems: Performance Indicators	Pipes are inspected under CSSA program where discharge is a portion of risk factor for dictating schedule included in the System Capcaity Assurance Plan.		Yes	Yes	Yes	Engineering			Heather Dodds/ Dan French										CSSA/IPS
	How many chronic SSO locations are in the collection system?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report/IPS
	For surface water releases, what percent are to surface waters that could affect drinking water sources?	Management Information Systems: Performance Indicators	Data - This is not tracked specifically but the data is available to do an analysis.		Yes	Yes	Yes	Engineering			Dan French										IPS/GIS/LOJIC
	For surface water releases, what percent are to surface waters that could affect shellfish growing areas?	Management Information Systems: Performance Indicators	Data - 0		Yes	Yes	No	Engineering													
	For surface water releases, what percent are to surface waters that could affect contact recreation?	Management Information Systems: Performance Indicators	Data - This is not tracked specifically but the data is available to do an analysis.		Yes	Yes	Yes	Engineering			Dan French										IPS/GIS/LOJIC
	What percent of SSOs were released to rivers, lakes or streams?	Management Information Systems: Performance Indicators	Data - This is incorporated into surface water.		Yes	Yes	Yes	Engineering													Annual Report
	What percent of SSOs were released to coastal, ocean, or beach areas?	Management Information Systems: Performance Indicators	Data - 0		Yes	Yes	No	Engineering													Annual Report
	What percent of SSOs were released to paved areas?	Management Information Systems: Performance Indicators	Data - Don't track the difference in paved and unpaved		Yes	Yes	No	Engineering			Dan French										Annual Report
	What percent of SSOs were released to basements?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering			Dan French										Annual Report
	What percent of SSOs were released to surface water?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report
	What percent of SSOs were released to soil?	Management Information Systems: Performance Indicators	Data - Not track separately		Yes	Yes	No	Engineering													Annual Report/IPS
23	Approximately, what percent of SSO discharge were caused vandalism in the last 5 years?	Management Information Systems: Performance Indicators	This data point is not currently tracked, but fields are being added into IPS to allow for this to be tracked.	Vandalism is not currently an option for the cause of SSOs.	No	No	No	Engineering	Operations	Dan French	Heather Dodds	1	1	7	C	A	1	Regulatory Compliance	SORP	FY25	
	Approximately, what percent of SSO discharge were caused by FOG in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report pg. 8/IPS
	Approximately, what percent of SSO discharge were caused by excessive infiltration and inflow in the last 5 years?	Management Information Systems: Performance Indicators	Data - Not tracked separetly from capacity.		Unsuitable	Unsuitable	No	Engineering													
	Approximately, what percent of SSO discharge were caused by capacity limitations in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report pg. 8/IPS

	Approximately, what percent of SSO discharge were caused by root intrusion in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report pg. 8/IPS
	Does the owner or operator document and report all SSOs regardless of size?	Management Information Systems: Performance Indicators	Yes		Yes	Yes	Yes	Engineering													IPS/Annual Report
	Does the owner or operator document basement backups?	Management Information Systems: Performance Indicators	Yes, through service requests and work order follow ups.		Yes	Yes	Yes	Engineering			christina T.										Lojic/IPS
	Are there areas that experience basement or street flooding?	Management Information Systems: Performance Indicators	Yes, this is tracked through service request which are followed by inspection and work orders.		Yes	Yes	Yes	Engineering			christina T.										Lojic/IPS
	How many SSOs have reached "Waters of the US"? Is there a record?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report/IPS
	Approximately, what percent of SSOs discharge were from manholes in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report/IPS
	Approximately, what percent of SSOs discharge were from pump stations in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report/IPS
	What is the annual number of mainline sewer cave-ins? What was the cause (i.e. pipe corrosion, leaks, etc.)	Management Information Systems: Performance Indicators	Data - Cave-ins are documented in IPS, but the cause is not.		Yes	Yes	Yes	Engineering			Dan French										IPS
	Approximately, what percent of SSOs discharge were from main and trunk sewers in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report/IPS
	Approximately, what percent of SSOs discharge were from structural bypasses in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report/IPS
	What is the per capita wastewater flow for the maximum month and maximum week or day?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering			Daymond										wastewater customer count
	What is average annual influent BOD?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering			Daymond										LIMS
	What is the ratio of maximum wet weather flow to average dry weather flow?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Pi data
	Approximately, what percent of SSO discharge were caused by debris buildup in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report pg. 8/IPS
	Approximately, what percent of SSO discharge were caused by collapsed pipe in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report pg. 8/IPS
	Approximately, what percent of SSOs discharge were from lateral and branch sewers in the last 5 years?	Management Information Systems: Performance Indicators	Data		Yes	Yes	Yes	Engineering													Annual Report/IPS
	What other types of performance indicators does the owner or operator use?	Management Information Systems: Performance Indicators	Modeled overflows		Yes	Yes	Yes	Engineering			Dan French										Annual Report section 1.3
	What type of main line repairs has the owner or operator used in the past?	Rehabilitation > Mainline Sewers	Repairs including point-repair, CIPP, panel liner, CIPP patch, slip lining, tunnel liners, full pipe replacement, and pipe burst have been used in the past.		Yes	Yes	Yes	Engineering			Heather Dodds										CSSA G-23
	Does the owner or operator currently use any of above techniques for main line repairs? What other techniques is the owner or operator presently using?	Rehabilitation > Mainline Sewers	All the above.		Yes	Yes	Yes	Engineering			Heather Dodds										CSSA G-23
	How are priorities established for main line repairs?	Rehabilitation > Mainline Sewers	Priorities are based on criticality, risk, and emergency situations.		Yes	Yes	Yes	Engineering													TAMP
	What type of follow-up is performed after the repair (e.g., CCTV)?	Rehabilitation > Mainline Sewers	CCTV or sewer walk is typically performed and included in contractcs.		Yes	Yes	Yes	Engineering			Heather Dodds										CSSA 3.1.2
	What rehabilitation techniques are used for manhole repairs?	Rehabilitation > Manhole Repairs	Techniques sucha as lining, structural repairs, chminey seals, frame/lid replacement, water tight lids, spot repair, replace in kind, and root removal are used.		Yes	Yes	Yes				Heather Dodds										CSSA G-27
	How are priorities determined for manhole repairs?	Rehabilitation > Manhole Repairs	Priority is based on severity and criticality.		Yes	Yes	Yes														TAMP
	What type of documentation is kept?	Rehabilitation > Manhole Repairs	Work orders are kept in IPS.		Yes	Yes	Yes				Heather Dodds										IPS
	Does the owner or operator use manhole inserts?	Rehabilitation > Manhole Repairs	Inserts are used when appropriate but are not programatic.		Unsuitable	Unsuitable	No				Heather Dodds										couldn't find in TAMP or SAMP or CSSA
	Are they used system wide or only on low lying manholes?	Rehabilitation > Manhole Repairs	Inserts are used at odor hot spots.		Yes	Yes	Yes														
	Does the owner or operator have a flow monitoring program? If so, please describe.	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	MSD has dozens of permanent flow monitors throughout the separate system. There are temporary monitors available that can be moved as necessary, and third party flow monitoring that can be used for short term needs. There is flow monitoring at each CSO.		Yes	Yes	Yes														SCADA
	Does the owner or operator have any wet weather capacity problems?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Yes		Yes	Yes	Yes														IOAP, IPS SSO data
	What is the ratio of peak wet weather flow to average dry weather flow at the wastewater treatment plant?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Data - This can be found in Pi or Hydraullic models.		Yes	Yes	Yes				Jonathan										models , Pi data
	Are flow data used for billing, capacity analysis, and/or I/I investigations?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Flow data is used for capacity analysis and/or I&I investigations and billing for larger users.		Yes	Yes	Yes														
35	Do the flow monitoring records include frequency of flow meter calibration?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	There is calibration on initial site setup. If the levels are off during inspection, the meters will be calibrated. The level adjustments should be annotated in Telog.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N	
34	Do the flow monitoring records include frequency of flow meter inspection?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	There is not set frequency for inspections. Inspections are typically done when there is abnormal data or if a battery needs to be changed. If the battery was changed, it can be inferred that the flow monitors were inspected.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	No	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N	can determine if battery was changed based on telog data
	Do the flow monitoring records include type of flow meter?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	The name and serial number of the flow meter is documented.		Yes	Yes	Yes				dwight										site sheet
	Do the flow monitoring records include descriptive location of flow meter?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Yes		Yes	Yes	Yes				dwight										site sheets, exist but we don't have access to them jonathan has to ask
33	Are records maintained for each flow meter inspection?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	No. If batteries are changed or levels are adjusted, these can be seen in Telog.	flow meter inspections are not recorded into a MSD database.	No	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N	
32	Do the flow meter checks include battery condition?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Yes, but this is not documented. Battery conditions can be determined using Telog data.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	Yes	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N	
	Are low points or flood-plain areas monitored during rain events?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Yes, if they have been previously identified as a potential concern.		Yes	Yes	Yes														IPS
	Do the flow meter checks include downloading data?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Typically all flow meters have telemetry but when telog goes out, the data is imported.		Yes	Yes	Yes				dwight										
	Do the flow meter checks include velocity reading?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	There are portable meters that measure flow and velocity. This method of data collection is not always effective with even small debris in the water that can disrupt the reading. A non-contact velocity meter would measure more acurately.		Unsuitable	Unsuitable	No				dwight										
30	Do the flow meter checks include checking the desiccant?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	This is measured but not documented.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N	
29	Do the flow meter checks include independent water level?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	This is measured but not documented.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N	
28	How frequently are flow meters checked?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Flow meters are typically checked every 2-3 months when the batteries have to be changed or if abnormal activity is detected at flow monitors. Flow meter data is regularly checked, but flow meters are only inspected if necessary. This activity is not documented.	There is no formal procedure or documentation for checking flow monitors including frequency.	Yes	No	Yes	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N	
	Number of rain gauges?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Data - 44		Yes	Yes	Yes														MSD Website
	What type(s) of meters are used?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	The types of sensors used include AV sensor, pressure sensor, ultrasonic, and non-contact sensors.		Yes	Yes	Yes				dwight										manuals from meters (unsure), telog and IPS label a type
	Number of permanent meters? Number of temporary meters?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Data - There are approximately 133 permanent and 10 temporary meters. There are site sheets and log book uploaded to IPS and Telog which tracks flow monitors.		Yes	Yes	Yes				dwight, greg										IPS, telog
	Are flows measured prior to allowing new connections?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	As outlined in the SCAP, an InfoWorks model is utilized to evaluate capacity requests. The model is calibrated periodically based on information from the Telog system (remote flow monitors). However, there is a process for customers to request installation of flow monitors at specific locations for a more accurate account for flow.		Yes	Yes	Yes				Brad Selch										SCAP/ flow monitoring procedures
	Does the owner or operator have a comprehensive capacity assessment and planning program?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Yes		Yes	Yes	Yes				Brad Selch										SCAP
31	Do the flow meter checks include cleaning away debris?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	Debris are cleaned away from the sensors, especially in "low flow" conditions when debris can block sensor. When entering into a confined space, sensors are cleaned if necessary. This activity is not documented.	1) There are no written instructions for activities performed during flow meter checks. 2) Flow meter checks are not recorded.	Yes	No	No	Operations-Treatment	Engineering, Operations	Daymond Talley	Dwight Mitchell	2	2	10	C	NS	1	Regulatory Compliance	CMOM	N	
	Does the owner or operator have any dry weather capacity problems?	Sewer System Capacity Evaluation (SSES) > Flow Monitoring	No		Yes	Yes	Yes														
	Does the owner or operator use internal T.V. inspection? If so please describe the program.	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	TV inspection is done through regulatory CCTV, CSSA program, and service requests that require CCTV. Tv is done by contractor and in-house equipment.		Yes	Yes	Yes	Engineering			Will , Keith										IPS
	Do the internal TV record logs include pipe size, type, length, and joint spacing?	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes, but not joint spacing (unsuitable for joint spacing)		Yes	Yes	Yes	Engineering			Will Cunningham										survey in IPS, granitenet cloud service
	Do the internal TV record logs include distance recorded by internal TV?	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes		Yes	Yes	Yes	Engineering			Will Cunningham										survey in IPS, granitenet cloud service
	Do the internal TV record logs include results of the internal TV inspection?	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes		Yes	Yes	Yes	Engineering			Will Cunningham										survey in IPS, granitenet cloud service
	Do the internal TV record logs include internal TV operator name?	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes		Yes	Yes	Yes	Engineering			Will Cunningham										survey in IPS, granitenet cloud service
	Do the internal TV record logs include cleanliness of the line?	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes		Yes	Yes	Yes	Engineering			Will Cunningham										survey in IPS, granitenet cloud service
	Do the internal TV record logs include location and identification of line being televised by manholes?	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes		Yes	Yes	Yes	Engineering			Will Cunningham										survey in IPS, granitenet cloud service
	Is a rating system used to determine the severity of the defects found during the inspection process?	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes		Yes	Yes	Yes	Engineering			Will Cunningham										NASSCO satndard PACP
	Is there documentation explaining the codes used for internal TV results reporting?	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes		Yes	Yes	Yes	Engineering			Will Cunningham										NASSCO satndard PACP
	Approximately what percent of the total defects determined by TV inspection during the past 5 years were the following:	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Question does not have any sub-points		Yes	Yes	Yes	Engineering													
47	Are main line and lateral repairs checked by internal TV inspection after the repair(s) have been made? Contractors	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes, contractors TVI main lines after point repair, but it is not necessarily a consistent process. Specification for I&I rehabilitation include TVi Data. Video is not always saved in IPS.	1) Verification that TVI is consistently used. 2) Incorporation of results into IPS - potential IT issues with space	Yes	No	Yes	Engineering	Operations (Will/Gerald/Tony)	John Loechle	Jacob Mathis	2	1	16	C	NS	1	Asset Management: Infrastructure R&R	Wastewater collection, conveyance, storage	FY25	
60	Are main line and lateral repairs checked by internal TV inspection after the repair(s) have been made? Maintenance	Sewer System Capacity Evaluation (SSES) > Internal TV Inspection	Yes, contractors TVI main lines after point repair, but it is not necessarily consistent process. Specification for I&I rehabilitation include TVi Data. Video is not always saved in IPS.	1) Verification that TVI is consistently used. 2) Incorporation of results into IPS - potential IT issues with space	Yes	No	Yes	Operations	Engineering	Mike Griffith	Will Cunningham	2	1	26	C	NS	1	Asset Management: Infrastructure Maintenance	Wastewater collection, conveyance, storage	Y	
	Does the owner or operator have a routine manhole inspection and assessment program?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	Manholes are inpected during pipe inspections and when lines are TVI.		Yes	Yes	Yes														TAMP
	Has the owner or operator established schedules for performing rehabilitation, both short term and long term of manholes?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	Yes, these are included in asset management.		Yes	Yes	Yes														SAMP Pgs. 303-307, TAMP(22) Pgs. 93-99, TAMP(23) pg. 46, 97-101
	How are priorities established for rehabilitation, replacement, and repair of manholes?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	Priorities are based on severity and criticality.		Yes	Yes	Yes														TAMP
	Does the owner or operator have a multi-year Capital Improvements Program that includes rehabilitation, replacement, and repair of manholes?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	Yes		Yes	Yes	Yes														Annual Budget Report
	What triggers whether a manhole needs rehabilitation?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	A manhole is identified for rehab if there is deterioration based on visual inspection,or the manhole is within 50' of stream or in floodplain (water tight). Rehad is prioritized based on TAMP guidelines.		Yes	Yes	Yes														TAMP
	Is there a data management system for tracking manhole inspection activities?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	Yes, the system exisits but not being tracked currently.		Yes	Yes	Yes														IPS, Granite
	Are manholes susceptible to inflow identified and inspected on a regular frequency?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	Manholes are inspected on the pipe inspection schedule. During rain events manholes that are known to overflow are observed from the surface.		Unsuitable	Unsuitable	No				Dan French, Heather Dodds										
22	Do the records for manhole/pipe inspection include inflow from manhole covers?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
21	Do the records for manhole/pipe inspection include presence of infiltration, location, and estimated quantity?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
20	Do the records for manhole/pipe inspection include accumulations of grease, debris, or grit?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
	Has funding been approved for the rehabilitation of manholes?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	Yes		Yes	Yes	Yes														Annual Budget Report
	Do the records for manhole/pipe inspection include wastewater flow characteristics?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	N/A		Unsuitable	Unsuitable	No				Heather Dodds										update pipe inspections to include direction on manholes should be inspected and repairs create work order
18	Do the records for manhole/pipe inspection include presence of corrosion, if repair is necessary?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
17	Do the records for manhole/pipe inspection include recording conditions of corbel, walls, bench, trough, and pipe seals?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
16	Do the records for manhole/pipe inspection include details on the root cause of cracks or breaks in the manhole or pipe including blockages?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
15	Do the records for manhole/pipe inspection include atmospheric hazards measurements?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
14	Do the records for manhole/pipe inspection include evidence of surcharge; offsets or misalignments?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
13	Do the records for manhole/pipe inspection include conditions of the frame and cover?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
	How many manholes were inspected during the past year?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	Data - Manhole inspections are incorporated into pipe inspections.		Yes	Yes	Yes														
	Does the owner or operator have a goal for the number of manholes inspected annually?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is not directly a goal for manholes, however the total sewer length has goals. Manholes are inspected as part of sewer length but not explicitly tracked.		Yes	Yes	Yes														TAMP/SAMP
	What is the purpose of the inspection program?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	The purpose of inspection is for preventative maintenance.		Yes	Yes	Yes														TAMP/SAMP
19	Do the records for manhole/pipe inspection include manhole identifying number/location?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	There is a visual inspection of manholes done when inspecting pipes. Recommendations for repairs are given but not documented. A work order is started if a manhole needs repair, but only the repair is documented. For capital rehabilitation projects, some manhole inspections are performed. Overall there is no explicit documentation that MH inspections should be performed as part of the pipe inspection process.	There is not explicit documentation (in the CSSA or elsewhere) to programmatically confirm that MH inspections are performed as part of the overall pipe inspection program.	Yes	No	Yes	Engineering	Operations	Dan French	Heather Dodds	3	3	6	C	NS	1	Asset Mgmt.: Infrastructure Maintenance	Wastewater collection, conveyance, storage	FY25	update pipe inspections to include direction on manholes should be inspected and repairs create work order
	Does the owner or operator have a grouting program?	Sewer System Capacity Evaluation (SSES) > Manhole Inspection	No		Unsuitable	Unsuitable	No														
	Are sewers cleaned prior to flow monitoring?	Sewer System Capacity Evaluation (SSES) > Sewer Cleaning Related to I/I Reduction	Sewers are cleaned if necessary. The CSSA program has documented entire sewer system back to 2006 and pipes are reinspected on 1,3,5,10 yr frequency.		Yes	Yes	Yes	Opperations			Will Cunningham										Will Cunningham
	Are sewers cleaned prior to internal T.V. inspection?	Sewer System Capacity Evaluation (SSES) > Sewer Cleaning Related to I/I Reduction	Sewers are cleaned if necessary.		Yes	Yes	Yes	Opperations			Will Cunningham										Will Cunningham
	When cleaning, is debris removed from the system?	Sewer System Capacity Evaluation (SSES) > Sewer Cleaning Related to I/I Reduction	Debris is removed if necessary.		Yes	Unsuitable	No	Opperations			Will Cunningham										Will Cunningham
	Does the owner or operator have a smoke testing program to identify sources of inflow and infiltration into the system including private service laterals and illegal connections? If so please describe.	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	No, MSD no longer does smoke testing due to concerns from residents.		Unsuitable	Unsuitable	No														
	Are there written procedures for the frequency and schedule of smoke testing?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	Is there a documented procedure for isolating line segments?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	Is there a documented procedure for notifying local residents that smoke testing will be conducted in the area?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	What is the guideline for the maximum amount of line to be tested at one time?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	Are there guidelines for the weather conditions under which smoke testing should be conducted?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	Do the written records contain location, address, and description of the smoking element that produced a positive result?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	What follow-up occurs as a result of positive results for smoke or dye testing?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	If dye testing indicates an illicit connection MSD will follow up as necessary and do repairs at sources of infiltration if needed.		Good	Unsuitable	No														
	Is there a goal for the percent of the system smoke tested each year?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	What percent of the system has been smoke tested over the past year?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	Does the owner or operator have a dyed water flooding program If so please describe.	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	There is no program, dye testing is performed as necessary.		Unsuitable	Unsuitable	No														
	Is there a goal for the percent of the system dye tested each year?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	What percent of the system has been dye tested over the past year?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	N/A		Yes	Yes	No														
	Does the owner or operator share smoke and dye testing equipment with another owner or operator?	Sewer System Capacity Evaluation (SSES) > Smoke Testing and Dyed Water Flooding	No		Yes	Yes	No														
	Have SSES's been performed in the past? If so, is documentation available?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	Yes, SSES's have been regularly performed in different parts of the system.		Yes	Yes	Yes	Engineering													Previous SSES, ebweb
	Has any sewer rehabilitation work been done in the past 15 years? If so, please describe?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	Sewer rehab is an ongoing processes prioritized by TVI, system criticality, and SCAP needs. Rehab typically consists of CIPP liners, pipe replacement, slip lining, point repair, and manhole repair/rehab/lining as needed based on conditions.		Yes	Yes	Yes	Engineering			Heather Dodds										IPS
	Does the owner or operator have standard procedures for performing SSES work?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	There are standards for SSES work, however MSD no longer uses SSES reports, alternatively MSD has an integrated inspection repair program.		Yes	Yes	No	Engineering													
	Do the SSES reports include recommendations for rehabilitation, replacement, and repair?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	the previous SSES reports do include recomendeations, those have been incorporated into the Asset Management Porgram, MSD has an integrated inspection and repair program using PACP and previous reports		Yes	Yes	Yes	Engineering													Previous SSES reports, Currently use IPS
	Were defects identified in the SSES repaired?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	Defects are repaired depending on severity and priority. Not all defects are repaired if they were lower priority.		Yes	Yes	no	Engineering													IPS
	Does the owner or operator have a multi-year Capital Improvements Program that includes rehabilitation, replacement, and repair?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	Yes		Yes	Yes	Yes	Engineering													Annual Budget
	How are priorities established for rehabilitation, replacement, and repair?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	Priorities are based on severity of defect, system criticality, and SCAP needs in the Asset Management Program.		Yes	Yes	Yes	Engineering													SAMP Pgs. 303-307, TAMP(22) Pgs. 93-99, TAMP(23) pg. 46, 97-101
	Has the owner or operator established schedules for performing recommended rehabilitation, both short term and long term?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	Schedules are included in the Asset Management Plan.		Yes	Yes	Yes	Engineering													SAMP Pgs. 303-307, TAMP(22) Pgs. 93-99, TAMP(23) pg. 46, 97-101
	Has funding been approved for the recommended rehabilitation?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	Yes		Yes	Yes	No	Engineering													Annual Budget
46	Is post rehabilitation flow monitoring used to assess the success of the rehabilitation?	Sewer System Capacity Evaluation (SSES) > Survey and Rehabilitation (General)	If rehab was associated with reducing or eliminating a 'gray' capital project or IOAP required project, then post rehab flow monitoring is performed. In some areas where Inflow and Infiltration is considered high, post rehabilitation flow monitoring is typically performed to evaluate the impacts. Many of the current rehab projects are for structural reasons where flow monitoring is irrelevant and not performed. There is no overall document determining when /how flow monitoring should be performed.	There is not an overall procedure/standard determining when flow monitoring after rehabilitation should be performed or specifications on how to perform and compare pre and post-rehab flow monitoring.	Yes	No	Yes	Engineering	Operations	John Loechle	Jacob Mathis	2	2	15	C	NS	1	Regulatory Compliance	Sewer Overflow Abatement	N	