

# Engineering Operations

## 2017 Operating Budget Amendment Request – Additional Supervisor

### CMOM Program

The Madison Sewer Utility (MSU) operates under WPDES Permit No. WI-0047341-05-0. This permit is issued under the authority of Chapter 283, Wisconsin Statutes, and applies to satellite sewage collection systems owned and operated by municipalities and non-municipal entities that do not own or operate a wastewater treatment facility.

By August 1, 2016 all permittees were required to implement a capacity, management, operation and maintenance program (CMOM) and submit to the Wisconsin Department of Natural Resources verification that a CMOM program for the sewage collection system has been developed which is consistent with the requirements of s. NR 210.23, Wis. Adm. Code.

The MSU’s CMOM Program was developed in-house by Engineering staff with Kathy Cryan, Engineering Operations Manager, assuming lead responsibility. Moving forward the MSU is required to:

- Maintain and update written documentation of the CMOM program components;
- Submit annual verification with the submittal of the Compliance Maintenance Annual Report;
- Assure that the CMOM program is consistent with the permittee’s program documentation and with the requirements of s. NR 210.23, Wis. Adm. Code.
- Conduct an annual self-audit of activities to ensure the CMOM program is being implemented as necessary to meet the requirements.
- Upon request provide CMOM program documentation, a record of implementation activities and the results of the self-audit to the Wisconsin Department of Natural Resources.

Additionally the MSU’s CMOM Program identified opportunities for improvements in the operation and maintenance of the sewer system. Continually assessing our progress and identifying these opportunities is the sign of a well managed organization. While the MSU intends to continue its existing programs and practices it also has identified the following opportunities for improvement:

Activity	Lead Section
Perform cost/benefit analysis for development and implementation of a flow model;	Design
Implement a GIS-centric Computerized Maintenance Management System (CMMS) with paperless work orders for field crews;	Operations
Review and enhance written construction inspection standards for sanitary sewer installation and develop checklists for same;	Construction
Develop written Standard Operating Procedures for all Operations’ functions;	Operations
Track and report the time required to get sanitary as-built data into GIS;	
Develop a written asset management plan;	Operations
Updating existing and develop new safety procedures with the intent of creating a comprehensive written safety plan.	Operations
Develop and implement 10 year cycle for performing CCTV inspection and condition assessments of entire sanitary sewer system with the first cycle being completed by the end of 2020. Upon completion of the initial round of CCTV inspection of the system each main will have a condition rating associated with it	Operations

which will be used to identify and prioritize assets to be replaced or rehabilitated.	
Implement a formal Failure Mode, Effects and Criticality Analysis (FMECA) process.	Operations
Assign a criticality rating to each asset and conduct a formal business risk assessment.	Operations
Identify means of maintaining and assessing condition of existing force mains;	Operations
Develop force main replacement program;	Operations
Perform emergency power analysis for lift stations;	Operations
Eliminate existing infrastructure deficit and develop plan for funding future replacement and rehabilitation of assets with particular attention to projected peaks.	Admin
Enhance MSU's presence on City's website and use as a means of educating customers.	Operations

The City Engineer has designated Kathy Cryan, Engineering Operations Manager, to serve as the CMOM Program Manager. The duties of the CMOM Program manager include:

- Oversee and direct the activities of the City's CMOM Program.
- Prepare all reports required of the Program.
- Serve as custodian for all reports and records associated with the Program.

Cryan will lead the Engineering Divisions CMOM Program Work Team which in addition to Cryan consists of Mark Moder, Engineer 4, and Jay Schlimgen, Sewer Maintenance Supervisor. Other Engineering staff will be involved as needed but the Work Team will have primary responsibility for the CMOM Program.

The Engineering Operations Section has a significant increase in workload due to the CMOM Program. As such the City Engineer has determined that the section requires an additional supervisor to assure that the section is able to meet these additional responsibilities.

The reallocation of one existing Public Works Foreperson to a higher level Public Works General Supervisor has already been approved and included in the 2016 operating budget. The Engineering Division has not yet proceeded with this reallocation as it does not make sense to do so without an additional foreperson being added.

CMOM alone justifies adding another supervisor to the Operations Section. That said it should be acknowledged that the Operations Section has grown considerably since 1999. This growth is not limited to more field staff performing the same activities. The Operations Section has also increased the scope and complexity of services provided.

In 1999 the City of Madison Engineering Division's Operations Section was responsible for sewer cleaning, CCTV inspection and repairs along with landfill monitoring and maintenance. It had 35 FTE positions including an Engineering Operations Supervisor and three Public Works Forepersons. The employee to supervisor ratio was 8.75:1. An organizational chart showing 1999 structure is included as Attachment A.

Today the Operations Section employs 89 full-time permanent and 11 seasonal/hourly employees. It is led by an Operations Manager and four Public Works General Forepersons. This is an increase of one supervisory position since 1999. The current employee to supervisor ratio has more than double to 19:1. The work performed has increased in volume as well as diversity and complexity. An organizational chart showing the current structure is included as Attachment B.

### Span of Control - Comparison to Other PW Agencies

The table below compares the employee to supervisor ratio for Engineering with that of other City Public Works agencies. The average ratio is 10.12 employees to 1 supervisor for permanent employees. The

Engineering Division's ratio of 16.8:1 is 66% higher than this average. When factoring in seasonal and hourly employees the average ratio increases to 14.01:1. The Engineering Division's ratio for all employees including seasonal is 19:1, or 36% higher than the average.

	Eng	Parks - Ops	TE - OPS	TE - PU	Streets	Water	Fleet	Total
<b>Mgr</b>	1.00	2.00	1.00	1.00	1.00	1.00	2.00	9.00
<b>Spvr</b>	4.00	13.00	3.0	3	15	5.00	2.00	45.00
<b>Prof</b>	3.00	-	0.00	0.00	0.00	0.00	0.00	3.00
<b>Admin</b>	3.50	0.60	3.00	6.50	3.00	3.00	2.00	21.60
<b>Labor - Perm</b>	77.50	98.80	37.00	57.55	162	60.00	29.00	521.85
<b>Labor - Hrly</b>	11.00	135.00	5.00	24.00	30.00	5.00	0.00	210.00
<b>Employees per Supervisor</b>								
<b>Permanent</b>	16.80	6.63	10.00	16.01	10.31	10.50	7.75	10.12
<b>Permanent &amp; Seasonal/Hourly</b>	19.00	15.63	11.25	22.01	12.19	11.33	7.75	14.01

Sources of Data: Perm Positions: Org Charts – HR; Seasonal and Hrly Positions - Munis

Determining the number of employees one person can be expected to effectively supervise is not an exact science. Factors to be considered include the number of employees as well as the type, diversity and complexity of functions.

That said, Operations Section supervisors have been maxed out on the number of employees they can effectively supervise. This is not only due to the increase in the number of employees supervised. The work performed encompasses a wider range of activities and is more complex. Supervisors feel that they are constantly behind and do not have adequate time to perform their jobs at the level they want to.

In 2015 Operations Section supervisors worked 2,039.39 extra hours or an average of 407.88 extra hours each. Very little of this time was emergency related. Operations supervisors expect to have to work in excess of 40 hours per week. But expecting supervisors to regularly work more than 45 hours per week is not sustainable and a recipe for burnout.