

Compliance Maintenance Annual Report

Madison City

Last Updated: Reporting For:
5/30/2019 **2018**

Financial Management

<p>1. Provider of Financial Information</p> <p>Name: <input style="width: 300px;" type="text" value="Steve Danner-Rivers"/></p> <p>Telephone: <input style="width: 150px;" type="text" value="(608) 261-9689"/> (XXX) XXX-XXXX</p> <p>E-Mail Address (optional): <input style="width: 300px;" type="text" value="sdannerrivers@cityofmadison.com"/></p>																	
<p>2. Treatment Works Operating Revenues</p> <p>2.1 Are User Charges or other revenues sufficient to cover O&M expenses for your wastewater treatment plant AND/OR collection system ?</p> <p>● Yes (0 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ No (40 points)</p> <p>If No, please explain:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>2.2 When was the User Charge System or other revenue source(s) last reviewed and/or revised?</p> <p>Year: <input style="width: 100px;" type="text" value="2019"/></p> <p>● 0-2 years ago (0 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ 3 or more years ago (20 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ N/A (private facility)</p> <p>2.3 Did you have a special account (e.g., CFWP required segregated Replacement Fund, etc.) or financial resources available for repairing or replacing equipment for your wastewater treatment plant and/or collection system?</p> <p>● Yes (0 points)</p> <p>○ No (40 points)</p>	0																
<p>REPLACEMENT FUNDS [PUBLIC MUNICIPAL FACILITIES SHALL COMPLETE QUESTION 3]</p>																	
<p>3. Equipment Replacement Funds</p> <p>3.1 When was the Equipment Replacement Fund last reviewed and/or revised?</p> <p>Year: <input style="width: 100px;" type="text" value="2018"/></p> <p>● 1-2 years ago (0 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ 3 or more years ago (20 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ N/A</p> <p>If N/A, please explain:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div>																	
<p>3.2 Equipment Replacement Fund Activity</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">3.2.1 Ending Balance Reported on Last Year's CMAR</td> <td style="width: 5%;"></td> <td style="width: 5%; text-align: right;">\$</td> <td style="width: 30%; text-align: right;"><input style="width: 150px;" type="text" value="462,503.39"/></td> </tr> <tr> <td>3.2.2 Adjustments - if necessary (e.g. earned interest, audit correction, withdrawal of excess funds, increase making up previous shortfall, etc.)</td> <td style="text-align: center;">-</td> <td style="text-align: right;">\$</td> <td style="text-align: right;"><input style="width: 150px;" type="text" value="87,165.90"/></td> </tr> <tr> <td>3.2.3 Adjusted January 1st Beginning Balance</td> <td></td> <td style="text-align: right;">\$</td> <td style="text-align: right;"><input style="width: 150px;" type="text" value="375,337.49"/></td> </tr> <tr> <td>3.2.4 Additions to Fund (e.g. portion of User Fee, earned interest, etc.)</td> <td style="text-align: center;">+</td> <td style="text-align: right;">\$</td> <td style="text-align: right;"><input style="width: 150px;" type="text" value="62,000.00"/></td> </tr> </table>	3.2.1 Ending Balance Reported on Last Year's CMAR		\$	<input style="width: 150px;" type="text" value="462,503.39"/>	3.2.2 Adjustments - if necessary (e.g. earned interest, audit correction, withdrawal of excess funds, increase making up previous shortfall, etc.)	-	\$	<input style="width: 150px;" type="text" value="87,165.90"/>	3.2.3 Adjusted January 1st Beginning Balance		\$	<input style="width: 150px;" type="text" value="375,337.49"/>	3.2.4 Additions to Fund (e.g. portion of User Fee, earned interest, etc.)	+	\$	<input style="width: 150px;" type="text" value="62,000.00"/>	
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3.2.5 Subtractions from Fund (e.g., equipment replacement, major repairs - use description box 3.2.6.1 below*) -

\$ 31,166.46

3.2.6 Ending Balance as of December 31st for CMAR Reporting Year

\$ 406,171.03

All Sources: This ending balance should include all Equipment Replacement Funds whether held in a bank account(s), certificate(s) of deposit, etc.

3.2.6.1 Indicate adjustments, equipment purchases, and/or major repairs from 3.2.5 above.

Telemetry at ANG & Diemer Lift Stations
Design Work for Thurber, James & Regent Lift Station Rehabilitations

3.3 What amount should be in your Replacement Fund?

\$ 0.00

0

Please note: If you had a CWFPP loan, this amount was originally based on the Financial Assistance Agreement (FAA) and should be regularly updated as needed. Further calculation instructions and an example can be found by clicking the SectionInstructions link under Info header in the left-side menu.

3.3.1 Is the December 31 Ending Balance in your Replacement Fund above, (#3.2.6) equal to, or greater than the amount that should be in it (#3.3)?

- Yes
- No

If No, please explain.

4. Future Planning

4.1 During the next ten years, will you be involved in formal planning for upgrading, rehabilitating, or new construction of your treatment facility or collection system?

- Yes - If Yes, please provide major project information, if not already listed below.
- No

Project #	Project Description	Estimated Cost	Approximate Construction Year
1	Sewer Impact Fee Districts: This program extends sanitary sewer service to developing areas of the City that require sewer infrastructure installation. The program is funded entirely by Impact Fees, and review for planned projects is conducted annually as dictated by demand for development. Amount shown is the estimate for 2019-2022.	7,482,000	
2	Sewer Reconstruction: This project involves the replacement of older, problematic sewers in coordination with the City's Street Reconstruction and Pavement Management Program or as 'stand alone' projects. Typically this provides for the replacement of clay sewers that are difficult to maintain, nearing the end of their service life, have significant repair costs or are undersized. Also, the Sewer Utility encourages residents to replace the portion of their sewer lateral that lies within the public right-of-way by offering to fund 75% of the cost. Six-inch mains under streets that are being reconstructed will be replaced because they do not meet current codes. Sewers beneath streets being resurfaced are evaluated for replacement on a case-by-case basis. Amount shown is the estimate for 2019-2024.	72,115,000	

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3	Trenchless Sewer Rehabilitations: This program rehabilitates failing sewers that meet certain criteria but do not necessitate the need for a complete replacement by means of open cutting. New technology allows the lining of existing sewer mains using cameras and remote controlled tools. Some are also rehabilitated (or lined) to address inflow and infiltration problems, where clear water flow enters the sewer system, reducing pipe capacity and increasing treatment costs. The amount budgeted will repair approximately seven miles of sewer main at a number of strategically selected locations, based on citywide need. This item may also include replacement of inaccessible sewers by a 'direct bore' method, which is a relatively new technology for replacement of gravity sewer mains. Backyard sewer mains are a focus. Amount shown is the estimate for 2019-2024.	9,683,300	
4	Citywide Pumping Stations-Emergency Power Stationary Generators: This program funds the installation of emergency power stationary generators at the City's pumping stations. The goal of the program is to ensure continuous service in the event of a power loss. Amount shown is for 2019-2024.	345,000	

5. Financial Management General Comments

Annually, the City of Madison adopts a Capital Budget which funds equipment replacement and infrastructure improvements, listed in a project format. Each project is reviewed and the funding amount for the next budget year is determined. In addition, the budget details future year estimates for the five subsequent years for each project.

ENERGY EFFICIENCY AND USE

6. Collection System

6.1 Energy Usage

6.1.1 Enter the monthly energy usage from the different energy sources:

COLLECTION SYSTEM PUMPAGE: Total Power Consumed

Number of Municipally Owned Pump/Lift Stations:

	Electricity Consumed (kWh)	Natural Gas Consumed (therms)
January	51,973	141
February	49,766	200
March	48,379	140
April	47,834	97
May	46,972	16
June	44,614	13
July	40,536	15
August	49,135	18
September	43,532	14
October	51,673	15
November	52,571	113
December	53,114	151
Total	580,099	933
Average	48,342	78

6.1.2 Comments:

6.2 Energy Related Processes and Equipment

6.2.1 Indicate equipment and practices utilized at your pump/lift stations (Check all that apply):

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- Comminution or Screening
- Extended Shaft Pumps
- Flow Metering and Recording
- Pneumatic Pumping
- SCADA System
- Self-Priming Pumps
- Submersible Pumps
- Variable Speed Drives
- Other:

6.2.2 Comments:

6.3 Has an Energy Study been performed for your pump/lift stations?

No

Yes

Year:

By Whom:

Describe and Comment:

6.4 Future Energy Related Equipment

6.4.1 What energy efficient equipment or practices do you have planned for the future for your pump/lift stations?

City plans to replace 6 lift stations within the next 5 years because the stations require excessive repair work or they have reached the end of their service life(50+ years old). The new pumps and equipment will be more energy efficient than the old equipment.

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

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Sanitary Sewer Collection Systems

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

1.1 Do you have a CMOM program that is being implemented?

- Yes
- No

If No, explain:

1.2 Do you have a CMOM program that contains all the applicable components and items according to Wisc. Adm Code NR 210.23 (4)?

- Yes
- No (30 points)
- N/A

If No or N/A, explain:

1.3 Does your CMOM program contain the following components and items? (check the components and items that apply)

- Goals [NR 210.23 (4)(a)]

Describe the major goals you had for your collection system last year:

II. Goals & Objectives

A. DNR Required

The City of Madison's CMOM program is designed to ensure that the following general standards as articulated in NR 210.23 are met:

1. The sewage collection system is properly managed, operated, and maintained at all times.
2. The sewage collection system provides adequate capacity to convey all peak design flows.
3. All feasible steps are taken to eliminate excessive infiltration and inflow as defined in s. NR 110.03 (13c), cease sanitary sewer overflows and sewage treatment facility overflows and mitigate the impact of such overflows on waters of the state, the environment, and public health.

4. A process is in place to notify the public and other directly affected parties of any incidents of overflows from the sewerage system.

5. Annual reports are submitted in accordance with the provisions of ch. NR 208.

B. MSU Specific

The City of Madison's goals for the operation and maintenance of its wastewater collection system are:

- Convey wastewater to the Nine Springs Wastewater Treatment Plant with minimum inflow, infiltration and exfiltration.
- Prevent public health hazards.
- Reduce inconvenience and damage by responsibly handling service interruptions.
- Eliminate claims and legal fees related to backup by providing immediate, concerned and efficient service to all emergency calls.
- Protect municipal investment by increasing the useful life and capacities of the system and parts.
- Use operating funds efficiently.
- Perform all activities safely and avoid injury.

Did you accomplish them?

- Yes
- No

If No, explain:

- Organization [NR 210.23 (4) (b)]

Does this chapter of your CMOM include:

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- Organizational structure and positions (eg. organizational chart and position descriptions)
- Internal and external lines of communication responsibilities
- Person(s) responsible for reporting overflow events to the department and the public
- Legal Authority [NR 210.23 (4) (c)]

What is the legally binding document that regulates the use of your sewer system?

Chapter 35 of the Madison General Ordinances The Public Sewage System

If you have a Sewer Use Ordinance or other similar document, when was it last reviewed and revised? (MM/DD/YYYY) 2018-03-28

Does your sewer use ordinance or other legally binding document address the following:

- Private property inflow and infiltration
- New sewer and building sewer design, construction, installation, testing and inspection
- Rehabilitated sewer and lift station installation, testing and inspection
- Sewage flows satellite system and large private users are monitored and controlled, as necessary
- Fat, oil and grease control
- Enforcement procedures for sewer use non-compliance
- Operation and Maintenance [NR 210.23 (4) (d)]

Does your operation and maintenance program and equipment include the following:

- Equipment and replacement part inventories
- Up-to-date sewer system map
- A management system (computer database and/or file system) for collection system information for O&M activities, investigation and rehabilitation
- A description of routine operation and maintenance activities (see question 2 below)
- Capacity assessment program
- Basement back assessment and correction
- Regular O&M training

- Design and Performance Provisions [NR 210.23 (4) (e)]

What standards and procedures are established for the design, construction, and inspection of the sewer collection system, including building sewers and interceptor sewers on private property?

- State Plumbing Code, DNR NR 110 Standards and/or local Municipal Code Requirements
- Construction, Inspection, and Testing
- Others:

City of Madison Standard Specifications for Public Works Construction

- Overflow Emergency Response Plan [NR 210.23 (4) (f)]

Does your emergency response capability include:

- Responsible personnel communication procedures
- Response order, timing and clean-up
- Public notification protocols
- Training
- Emergency operation protocols and implementation procedures
- Annual Self-Auditing of your CMOM Program [NR 210.23 (5)]
- Special Studies Last Year (check only those that apply):

- Infiltration/Inflow (I/I) Analysis
- Sewer System Evaluation Survey (SSES)
- Sewer Evaluation and Capacity Management Plan (SECAP)
- Lift Station Evaluation Report
- Others:

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I/I Analysis- The City has been focusing its efforts to reduce I/I in the following 3 areas due to high pump run times at the stations that serve these basins.

- Johns Street/ Hargrove Area – In 2018 we replaced 7,236 LF of old VCP sewer mains with PVC; upsized as needed to meet future growth projections. In 2019 we intend to replace an additional 5,849 LF of older mains in this basin.
- Truax Airport Lift Station Basin - In 2019, we intend to CIPP line 2,756 ft of sewer mains and 29 manholes in this basin on and in the area the Air National Guard base. We also intend to line 29 manholes in this basin. This manhole lining project was bid in 2018 but the contractor has until the end of October, 2019 to complete the work.
- Mid-Town Basin – Despite having raised castings using additional barrel sections and wrapped the manhole joints. We believe that the problem is that foundation floor drains are exposed while the numerous homes in this area are under construction. We will continue to monitor pump run times in this area.

In 2018, the City experienced 2 major rain events on the west side exceeding 2 inches, June 16th (4.5 inches in 4 hours) and August 20th (11 inches in 11 hours) depending on where it was measured. The Charmany Farms gauge used for data analysis shows 9.62" and 2.7" of rainfall during those two storm events. The largest rainfall event was 11" on 8/20/18.

According to the City's Pump data (Midtown), we experienced an 887% of normal flow spike during rain event over normal flows (average flow 176,814 gpd, 1,567,800 gpd during rain event). On June 16th, we experienced a 220% of normal flow spike during rain event over normal flows (average flow 176,814 gpd, 388,440 gpd during rain event). On the East side, we had our largest rain events on 8/20/2018 (3.78") and 10/1/2018 (2.05"). We observed flow spikes in the Johns Street basin MMSD Pump Station #6 (1.84 MGD Average, 3.52 MGD Peak 8/21/2018, 191% of average flow) and on 10/8/2018, we had 3.70 MGD of flow (201% over average flow). This pump station appears to have a lag with flow increases a day after the event. In the Truax basin on 8/20/2018 the storm event, we experienced 1,524,000 gallon vs 564,510 gallon average flow (270% average flow) and on the 10/1/2018 storm event we experienced 858,000 gallon vs 564,510 gallon average flow (152% average flow). The highest volume pumped at this station was on 11/1/2018 but there was no storm event of record during this time period. The station pumped 1,626,000 gallon vs 564,510 gallon average flow (288% average flow)

SSSES- On average, the City televises 85 Miles of sewer per year to evaluate how the sewers are performing and how we plan to improve the collection system based upon pipe defects(broken, fractured pipe, root obstructions, sags) or capacity concerns (pipe appears to be running at high levels).

SECAP- While the City is not required to have a formal SECAP plan, we have been closely monitoring the downtown redevelopment monitoring our capacity needs and upsizing sewer interceptors where it is needed. The City did do a study in 2015 of the sewer capacity needs in the near east side and the campus area where there has been a significant high density residential growth. The City had planned to upsize the sanitary sewer on Frances Street from Dayton Street north to University Ave., 1,158' of sewer to a 27" diameter sewer within the next 5 years. In 2016, as a result of a 836 bedroom development at Bassett and University, the City installed a diversion sewer on Bassett Street to take flow off of the Frances Street sewer. In 2018, the City installed 2 flow monitors downtown in the UW campus area: one Frances St. and one on Langdon/ Lake Street. As a result of the sewer flow diversion, the Frances Street sewer appears to have residual capacity (4.18 cfs residual of the total 6.15 cfs capacity). The next area where we plan to install the monitors will be the area east of capital between the Capitol and the Yahara River (Thornton Ave.)

Lift Station Evaluation Report - The City's Lift Stations are maintained and operated by the Madison Metropolitan Sewerage District. MMSD provides the City updates if there are pump run time spikes and or if there are problems with operation of the stations. The City also meets annually with MMSD to identify which stations have been problematic through the year. They also notify the City which stations are in need of upgrades whether it being upgrading pumps, electrical upgrades or complete pumping station renovation.

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2.1 Did your sanitary sewer collection system maintenance program include the following maintenance activities? Complete all that apply and indicate the amount maintained.

Cleaning	56.52	% of system/year
Root removal	0.80	% of system/year
Flow monitoring	4	% of system/year
Smoke testing	0	% of system/year
Sewer line televising	6.51	% of system/year
Manhole inspections	1.77	% of system/year
Lift station O&M	73	# per L.S./year
Manhole rehabilitation	1.39	% of manholes rehabbed
Mainline rehabilitation	1.02	% of sewer lines rehabbed
Private sewer inspections	0	% of system/year
Private sewer I/I removal	0	% of private services
River or water crossings	32.06	% of pipe crossings evaluated or maintained

Please include additional comments about your sanitary sewer collection system below:

3. Performance Indicators

3.1 Provide the following collection system and flow information for the past year.

50.64	Total actual amount of precipitation last year in inches
34.44	Annual average precipitation (for your location)
805.5	Miles of sanitary sewer
30	Number of lift stations
2	Number of lift station failures
11	Number of sewer pipe failures
19	Number of basement backup occurrences
31	Number of complaints
29.754	Average daily flow in MGD (if available)
	Peak monthly flow in MGD (if available)
	Peak hourly flow in MGD (if available)

3.2 Performance ratios for the past year:

0.07	Lift station failures (failures/year)
0.01	Sewer pipe failures (pipe failures/sewer mile/yr)
0.00	Sanitary sewer overflows (number/sewer mile/yr)
0.02	Basement backups (number/sewer mile)
0.04	Complaints (number/sewer mile)
0.0	Peaking factor ratio (Peak Monthly:Annual Daily Avg)
0.0	Peaking factor ratio (Peak Hourly:Annual Daily Avg)

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4. Overflows

LIST OF SANITARY SEWER (SSO) AND TREATMENT FACILITY (TFO) OFERFLOWS REPORTED **

Date	Location	Cause	Estimated Volume (MG)
None reported			

** If there were any SSOs or TFOs that are not listed above, please contact the DNR and stop work on this section until corrected.

5. Infiltration / Inflow (I/I)

5.1 Was infiltration/inflow (I/I) significant in your community last year?

- Yes
- No

If Yes, please describe:

Yes, In 2018, the City of Madison experience significant I/I. In 2018, the City experienced 2 major rain events on the west side exceeding 2 inches, June 16th (4.5 inches in 4 hours) and August 20th (11 inches in 11 hours) depending on where it was measured. This resulted in MMSD and City of Madison sewers surcharging causing an unknown number of basement backups in homes not equipped with backwater valves. Madison is the largest customer of MMSD and based upon our pump run time data, we contribute to the problem.

5.2 Has infiltration/inflow and resultant high flows affected performance or created problems in your collection system, lift stations, or treatment plant at any time in the past year?

- Yes
- No

If Yes, please describe:

Yes - high flows surcharged the City's system during the June 16th and August 20th rain events.

5.3 Explain any infiltration/inflow (I/I) changes this year from previous years:

The 2 storm events of 2018 were more significant storm events than we have had in the past.

5.4 What is being done to address infiltration/inflow in your collection system?

The City continues to study areas where we have observed Infiltration/ Inflow(I/I) and address the problem with projects as we discover them. The primary method to correct I/I has been the City's aggressive Cured in Place Lining program (approximately 7 miles of pipe lined per year). The other method to address I/I has been replacing sewer mains and laterals with street reconstruction projects. Manholes installed in high groundwater areas with construction projects are wrapped at the joints to prevent seepage of groundwater into the sanitary sewer. All sanitary manholes installed near street low points include internal chimney seals to prevent water from entering the sanitary sewer through the manhole's adjustment rings. The City has a City wide manhole lining project planned for construction in 2019 (bid in 2018) to also address I/I (53 manholes to be lined).

Beyond construction projects, clearwater sources such as roof drain and sump pump connections are eliminated as they are discovered with our studies, smoke testing, and through televising. Smoke testing has not been utilized by the City recently but if we continue to observe I/I in basins where we feel that we have addressed the defective sanitary sewer mains, we will plan to utilize it.

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

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Grading Summary

WPDES No: 0047341

SECTIONS	LETTER GRADE	GRADE POINTS	WEIGHTING FACTORS	SECTION POINTS
Financial	A	4	1	4
Collection	A	4	3	12
TOTALS			4	16
GRADE POINT AVERAGE (GPA) = 4.00				

Notes:

- A = Voluntary Range (Response Optional)
- B = Voluntary Range (Response Optional)
- C = Recommendation Range (Response Required)
- D = Action Range (Response Required)
- F = Action Range (Response Required)

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Resolution or Owner's Statement

Name of Governing
Body or Owner:

Date of Resolution or
Action Taken:

Resolution Number:

Date of Submittal:

ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO SPECIFIC CMAR SECTIONS (Optional for grade A or B. Required for grade C, D, or F):

Financial Management: Grade = A

Collection Systems: Grade = A

(Regardless of grade, response required for Collection Systems if SSOs were reported)

ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO THE OVERALL GRADE POINT AVERAGE AND ANY GENERAL COMMENTS

(Optional for G.P.A. greater than or equal to 3.00, required for G.P.A. less than 3.00)

G.P.A. = 4.00