

# Sewer Utility Rate Setting

Presentation to Water Utility Board

May 26, 2015

# Definitions from Ch 35 MGO

- Demand Charge: a fixed charge which is levied by the Madison Sewer Utility in order to recover costs which do not vary with the amount of sewage contributed to the system, or could be considered as the costs resulting from the Sewer Utility's readiness to serve.

# Definitions Continued

- Equivalent Meters: the number of equivalent 5/8-inch meters and shall be based on the following (Meter Size – Equivalent Meters):

|        |   |     |
|--------|---|-----|
| 5/8"   | - | 1   |
| 3/4"   | - | 1   |
| 1"     | - | 2.5 |
| 1 1/4" | - | 3.7 |
| 1 1/2" | - | 5   |
| 2"     | - | 8   |
| 3"     | - | 15  |
| 4"     | - | 25  |
| 6"     | - | 50  |
| 8"     | - | 80  |
| 10"    | - | 120 |
| 12"    | - | 160 |

# MGO 35.02 (1) (d)

1. Expenses shall be distributed to the categories of Customer Accounting, Customer Service, Flow, Carbonaceous Biochemical Oxygen Demand, Suspended Solids, Total Kjeldahl Nitrogen, and Total Phosphorous. Other pollutants compatible with the wastewater treatment system may be added from time to time.
2. The category of customer accounting shall reflect those expenses which do not vary from customer to customer such as the cost of customer billing, meter reading, and accounting.
3. Customer service shall be those costs which are varied on the basis of the number of equivalent meters serving each customer and reflect the portion of the expenses which have been sustained to provide a service in anticipation of the maximum discharge of the customer.
4. Flow shall be based upon the estimated amount of sewerage being discharged by the customer.

# MGO 35.02 (1) (d) Continued

- 5. Carbonaceous biochemical oxygen demand (CBOD) shall be the amount of pounds of carbonaceous biochemical oxygen demand determined or estimated for each customer.
- 6. Suspended Solids (SS) shall represent the pounds estimated or determined from each customer.
- 7. Total Kjeldahl Nitrogen (TKN) shall be the number of pounds estimated or determined for each customer.
- 8. Total Phosphorus (TP) shall be the number of pounds of total phosphorus determined or estimated for each customer.

# MGO 35.02 (1) (d) Continued

9. The user charge parameters determined by the regional wastewater treatment facility shall be proportioned to customers in the same fashion that it has been levied.
  - Cost relating to rendering the bills shall be assessed against customer accounting.
  - Cost relating to the installation and maintenance of meters necessary to measure or estimate the contribution of sewerage shall be assessed to customer service.
  - The cost relating to the maintenance of the collection system shall be generally divided sixty-five percent (65%) to customer service and the remainder to flow.
  - The cost necessary to pump sewerage shall be divided ninety percent (90%) to flow and remainder to suspended solids.
  - Cost necessary to measure the amount of compatible pollutants contributed by individual customers shall be attributed to those parameters.
  - Depreciation of the collection system shall be distributed sixty-five percent (65%) to customer service and the remainder to flow except that the depreciation of pumping stations shall be attributed fifteen percent (15%) to customer service, five percent (5%) to suspended solids, and the remainder to flow.
  - Interest earned and miscellaneous revenues shall be distributed proportionately to the subtotal of the other expenses.
10. The utility shall have a net operating income sufficient to maintain its self-sufficiency.

# Sewer Rate Setting Overview

- Budget is broken down into seven categories of expense:
  - Customer Accounting: (\$0.66 million City & \$1.99 million MMSD)
    - IT, WU Customer Service, Meter Reading, WU Admin, WU Benefits and MMSD Customer Charge (debt service on excess capacity)  
Less: Penalties & Tax Roll Charges
  - Customer Service: (\$5.4 million City & \$2.2 million MMSD)
    - MMSD: admin costs such as admin salaries, user charge monitoring and billing costs, etc
  - Flow: (\$2.6 million City & \$6 million MMSD)
  - CBOD: (\$10k City & \$2.4 million MMSD)
  - SS: (\$47k City & \$4.4 million MMSD)
  - TKN: (\$9k City & \$1.2 million MMSD)
  - TP: (\$9k City & \$1.5 million MMSD)

# Rate Setting

- Sewer Base Charge (Demand Charge) is made up of Customer Accounting and Customer Service categories
  - Customer Accounting Rate = Total allocation of expenses to Customer Accounting Category / total number of meters in service
  - Customer Service Rate = Total allocation of expenses to Customer Service Category / total number of equivalent meters in service



# Rate Setting Continued

- Sewer Volume Charge (Based on water usage) is made up of the other five categories (Flow, CBOD, SS, TKN, and TP)
  - Flow Rate = Total allocation of expenses to Flow Category / Total Estimated Billable Flow
  - CBOD Rate = Total allocation of expenses to CBOD Category / Total Estimated CBOD (as determined by MMSD)
  - SS Rate = Total allocation of expenses to SS Category / Total Estimated SS (as determined by MMSD)
  - TKN Rate = Total allocation of expenses to TKN Category / Total Estimated TKN (as determined by MMSD)
  - TP Rate = Total allocation of expenses to TP Category / Total Estimated TP (as determined by MMSD)

# Rate Setting Continued

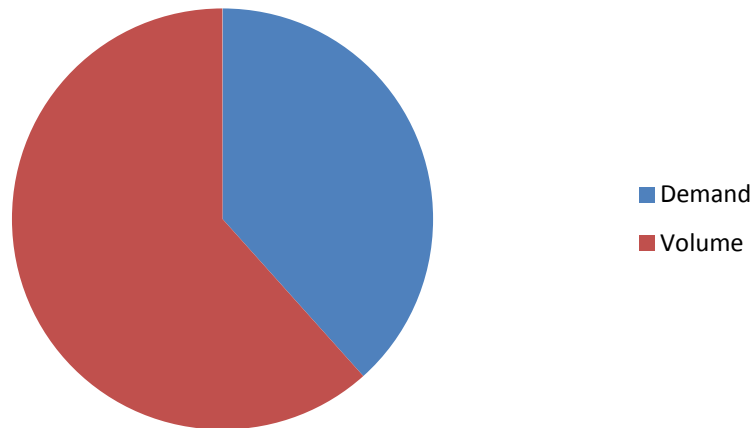
$$\begin{aligned} \text{Non-Surcharge} \\ \text{Volume Rate} = & \quad (\text{Flow Rate} * \text{Est Flat Rate Flow}) + \\ & (\text{CBOD Rate} * \text{Est Flat Rate CBOD}) + \\ & (\text{SS Rate} * \text{Est Flat Rate SS}) + \\ & (\text{TKN Rate} * \text{Est Flat Rate TKN}) + \\ & (\text{TP Rate} * \text{Est Flat Rate TP}) \\ & \hline & \text{Estimated Flat Rate Flow} \end{aligned}$$

# 2015 Sewer Rates (Average Customer)

- Demand Charge: \$12.30/month Annual Charges
  - 62% City Expenses \$7.60 \$91.19
  - 38% MMSD Expenses \$4.70 \$56.41
  - \$4.2 million \$147.60
- Volume Rate: \$2.5235/1000 gallons
  - 25% City Expenses \$0.6338 \$34.14
  - 74% MMSD Expenses \$1.8897 \$101.77
  - \$15.6 million \$135.91
- Overall Budget (\$34.2 mil): 58% MMSD & 42% City
- Average Residential Customer's Annual Bill:  
56% MMSD & 44% City

# Revenue Breakdown

- Demand Charges: \$11.5 million
- Water-only Demand Charges: \$80.5k
- Regular Volume Charges: \$18.5 million
- Surcharge Volume Charges: \$2.1 million



# A look at different Customer Classes...

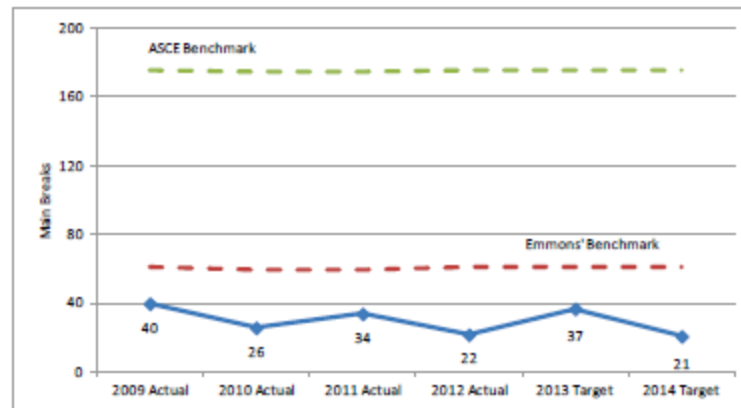
| MADISON SEWER UTILITY CHARGES |                  |             |            |                 |               |                    |          |
|-------------------------------|------------------|-------------|------------|-----------------|---------------|--------------------|----------|
| Customer Class                | Water Meter Size | Consumption |            | Base/Min Charge | Volume Charge | Total Monthly Bill | % Demand |
|                               |                  | Cubic Feet  | Gallons    |                 |               |                    |          |
| Residential                   | 5/8 inch *       | 0           | 0          | \$ 12.30        | \$ -          | \$ 12.30           | 100%     |
| Residential                   | 5/8 inch *       | 500         | 3,740      | \$ 12.30        | \$ 9.44       | \$ 21.74           | 57%      |
| Residential                   | 5/8 inch *       | 1,000       | 7,480      | \$ 12.30        | \$ 18.88      | \$ 31.18           | 39%      |
| Residential                   | 5/8 inch *       | 1,500       | 11,220     | \$ 12.30        | \$ 28.31      | \$ 40.61           | 30%      |
| Residential                   | 5/8 inch *       | 3000        | 22,440     | \$ 12.30        | \$ 56.63      | \$ 68.93           | 18%      |
| Non-residential/ commercial   | 5/8 inch *       | 3,000       | 22,440     | \$ 12.30        | \$ 56.63      | \$ 68.93           | 18%      |
| Commercial/ light industrial  | 2 inch           | 50,000      | 374,000    | \$ 71.51        | \$ 943.79     | \$ 1,015.30        | 7%       |
| Industrial                    | 4 inch           | 1,000,000   | 7,480,000  | \$ 215.30       | \$ 18,875.78  | \$ 19,091.08       | 1%       |
| Industrial                    | 8 inch           | 1,500,000   | 11,220,000 | \$ 680.51       | \$ 28,313.67  | \$ 28,994.18       | 2%       |

| MADISON WATER UTILITY CHARGES |                  |             |            |                 |               |                    |          |
|-------------------------------|------------------|-------------|------------|-----------------|---------------|--------------------|----------|
| Customer Class                | Water Meter Size | Consumption |            | Base/Min Charge | Volume Charge | Total Monthly Bill | % Demand |
|                               |                  | Cubic Feet  | Gallons    |                 |               |                    |          |
| Residential                   | 5/8 inch *       | 0           | 0          | \$ 6.00         | \$ -          | \$ 6.00            | 100%     |
| Residential                   | 5/8 inch *       | 500         | 3,740      | \$ 6.00         | \$ 10.51      | \$ 16.51           | 36%      |
| Residential                   | 5/8 inch *       | 1,000       | 7,480      | \$ 6.00         | \$ 21.02      | \$ 27.02           | 22%      |
| Residential                   | 5/8 inch *       | 1,500       | 11,220     | \$ 6.00         | \$ 31.53      | \$ 37.53           | 16%      |
| Residential                   | 5/8 inch *       | 3000        | 22,440     | \$ 6.00         | \$ 63.06      | \$ 69.06           | 9%       |
| Non-residential/ commercial   | 5/8 inch *       | 3,000       | 22,440     | \$ 6.00         | \$ 52.51      | \$ 58.51           | 10%      |
| Commercial/ light industrial  | 2 inch           | 50,000      | 374,000    | \$ 56.00        | \$ 716.21     | \$ 772.21          | 7%       |
| Industrial                    | 4 inch           | 1,000,000   | 7,480,000  | \$ 320.00       | \$ 13,720.19  | \$ 14,040.19       | 2%       |
| Industrial                    | 8 inch           | 1,500,000   | 11,220,000 | \$ 1,120.00     | \$ 20,564.39  | \$ 21,684.39       | 5%       |

# Sewer Maintenance

## Sewer Backups

|   | 2009 Actual | 2010 Actual | 2011 Actual | 2012 Actual | 2013 Actual | 2014 Actual |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Number of Sewer Backups in the City     | 40          | 26          | 34          | 22          | 37          | 21          |
| Emmons' Municipal Comparative Benchmark | 61          | 60          | 60          | 61          | 61          | 61          |
| ASCE Comparative Benchmark              | 176         | 175         | 175         | 176         | 176         | 176         |



This low incidence of sewer back up is due to the City's aggressive sewer maintenance and inspection program. The City's sanitary sewer preventive maintenance program incorporates regularly scheduled cleaning, close-circuit video inspection and main repairs to extend the useful life of pipeline and minimize service interruptions to customers. Approximate budget of \$4.1 million per year.

# Potential PSC Review

- Although the PSC does not regulate sewer systems in Wisconsin, it has limited authority over municipal sanitary sewer issues. Pursuant to Wis. Stat. § 66.0821(5)(a), any user of a sewer system may file a complaint with the Commission concerning the rates, rules, or practices of the municipality.
- Upon complaint, the PSC would review the reasonableness of the municipality's rates, rules, and practices. As these operations are not public utilities fully regulated by the PSC, it is the responsibility of the complainant to develop the basis for complaint. Generally, individual, informal complaints are reviewed by PSC staff whereas more formal or legal questions are set for hearing with parties developing a record in support of their individual positions. The Commission decides the issues based on the merits of the hearing record.