



Memorandum

DATE: January 3, 2013

TO: Menasha Common Council

FROM: Mark Radtke, Director of Public Works *MR*

RE: Resolution Pertaining to Sewer Service Charges and Surcharges

Enclosed is Resolution R-1-13 and the supporting report regarding an update to the User Charge System (UCS) for the City of Menasha sanitary sewer system. The Board of Public Works directive was to transfer the budgeted \$200,000 legal costs from the fixed charge to the volume charge and use \$100,000 of the fund balance to reduce the necessary overall revenue increase for this UCS update.

In the UCS report, the budgeted legal costs were moved from the fixed charge to the volume charge. The Wisconsin Department of Administration would not approve the use of fund balance to reduce the necessary revenue to meet debt coverage requirements; however, they would allow us to reduce other Operation and Maintenance costs exceeding \$100,000 in aggregate to effect the same results desired by the Board of Public Works.

The net effect of these changes results in a fixed charge of \$11.04/month for a typical residential user (5/8" or 3/4" meter) and a volume charge of \$4.60/1,000 gallons. The proposed rates will increase sanitary sewer department revenue from \$2,034,667 (2011) to \$2,424,392, a 19.2% increase. The actual increase to users will be greatly affected by water use so a table indicating the rate increase according to water usage is included in the UCS report.

Enclosures

RESOLUTION R-1-13

RESOLUTION PERTAINING TO SEWER SERVICE CHARGES AND SURCHARGES

Introduced by Ald. Taylor

WHEREAS, the ordinance providing for sewerage systems contains a provision that various sewer service charges may be changed no more than twice each year by resolution.

THEREFORE, BE IT RESOLVED that the operation, maintenance and replacement charge shall be as follows:

<u>Fixed Charge:</u>	<u>Meter size (in)</u>	<u>User charge factor</u>	<u>Monthly charge</u>
	0.625 and 0.75	1.0	\$ 11.04
	1	2.5	27.60
	1.25	3.7	40.85
	1.5	5.0	55.20
	2	8.0	88.32
	2.5	12.5	138.00
	3	15.0	165.60
	4	25.0	276.00
	6	50.0	552.00
	8	80.0	883.20
	10	120.0	1,324.80

Volume charge: \$4.60/1,000 gallons

Surcharge for wastewater greater than domestic strength:

\$0.2615 per pound BOD

\$0.1288 per pound suspended solids

The surcharges shall be adjusted as needed based on the NMSC unit charges.

BE IT FURTHER RESOLVED that the contents of this resolution will be applicable to service billed by the Menasha Utilities or the City of Menasha on or after February 1, 2013.

BE IT FURTHER RESOLVED that normal domestic wastewater shall mean wastewater that has a BOD concentration of not more than four hundred seventeen (417) milligrams per liter and a suspended solids concentration of not more than seven hundred twenty-eight (728) milligrams per liter.

BE IT FURTHER RESOLVED that the Comptroller and Director of Public Works shall report to the Mayor and the Common Council as to whether the rates are still appropriate at least once every two years.

BE IT FURTHER RESOLVED that Resolution R-22-10 previously approved on October 4, 2010 is hereby repealed.

Passed and approved this 6th day of January, 2013.

Donald Merkes, Mayor

Deborah A. Galeazzi, City Clerk

APPENDIX A

USER CHARGE SYSTEM

City of Menasha, Wisconsin

The User Charge System (UCS) is intended to provide for an equitable distribution of the debt retirement costs, operation and maintenance (O & M) costs, and replacement costs of the wastewater collection system and Neenah-Menasha Sewerage Commission (NMSC) wastewater treatment plant (WWTP). The distribution of variable sewer user charges shall be based on the volume and strength of wastewater discharged to ensure a proportional distribution of costs to each sewer user.

The wastewater discharges from August 2009 through July of 2012 and revenue requirements budgeted for 2013 were used to establish the sewer user charges. The City should review, at least every two (2) years, the sewer user charges in order to maintain proportionate distribution of costs and to generate sufficient revenue.

The City of Menasha should notify each sewer user, in conjunction with a regular bill, when user charge rates change.

Methodology of Distributing User Charges

The Sewer Use Ordinance has established two user classes:

- Domestic-Strength Wastewater
- High-Strength Wastewater

Domestic-Strength Wastewater shall mean wastewater discharged from residential sewer users, exclusive of infiltration and inflow. Residential sewer users can include commercial and industrial businesses that discharge only restroom wastewater. The biochemical oxygen demand (BOD₅) concentration and suspended solids concentration of domestic-strength wastewater is established in this UCS.

High-Strength Wastewater shall mean wastewater discharged from non-residential significant sewer users, exclusive of infiltration and inflow. The BOD₅ concentration and suspended solids concentration of high-strength wastewater is determined from periodic monitoring of the dischargers.

This UCS shall generate all debt retirement, operation, maintenance, and replacement revenue for providing sewer service. The revenue shall cover the expenses for collection system debt retirement; collection system O & M; collection system replacement fund; and NMSC WWTP O & M, replacement, and capital charges. The UCS will include revenue for the debt retirement of the Clean Water Fund (CWF) loans obtained for the Ninth Street Sewage Lift Station Improvements project and the NMSC WWTP Improvements project.

The wastewater flows and loadings discharged by the City of Menasha to the NMSC WWTP are estimated for 2013. The wastewater flow is estimated to be 84.25 million gallons per month (1,011.0 million gallons per year). The wastewater loadings are estimated to be 109,800 pounds per month (1,317,600 pounds per year) for BOD₅ and 190,000 pounds per month (2,280,000 pounds per year) for suspended solids.

O & M costs will be recovered through fixed and volume charges. A summary of the 2013 budget is summarized in Table 1. The NMSC costs are based on their recently completed 2013 budget.

Table 1 Distribution of Annual Sewer Department Costs to Fixed and Variable (Volume) Charges

Item	Cost, Dollars
<u>Costs Distributed to Fixed Charges</u>	
Insurance	2,900
Tools and Equipment	1,800
Capital Outlay	
CWF Loan P&I (CWF #5101-02)	63,100
CWF Loan P&I (CWF #5101-03)	165,900
CWF Loan P&I (CWF #5101-04)	51,700
CWF Loan P&I for future Ninth St. SLS Improvements	37,000
Capital Outlay (NMSC)-CWF Loan	405,500
Debt Coverage for City CWF Loans(a)	21,800
City Replacement Fund	10,000
In-House Technical Services	5,200
TOTAL COST - FIXED CHARGE	764,900
<u>Costs Distributed to Volume Charge</u>	
Labor	235,700
Vehicle Usage	53,300
Supplies	100
Telephone	3,800
Electricity	2,000
Maintenance-Mains	50,000
Maintenance-Sewage Lift Stations	8,300
Professional Services	73,400
Outside/Contract Services (Menasha Utility billing)	210,000
Legal Expenses	200,000
Replacement Charges (NMSC)	64,300
Operations and Maintenance Charges (NMSC)	757,100
TOTAL COST - VARIABLE CHARGE	1,658,000

(a)Debt coverage is calculated as follows: 10 percent of total City CWF loans P & I minus replacement fund.

The fixed user costs will recover revenue for the annual CWF loan payments for the Phase 2, Phase 3, and Phase 4 Wastewater Collection System Rehabilitation Improvements projects; estimated CWF loan payment for the Ninth Street Sewage Lift Station Improvements project; estimated CWF loan payment for the estimated capital outlay charges (CWF loan payment) for the NMSC WWTP Improvements project, City replacement fund; debt coverage for City CWF loans; insurance expense; tools and equipment expense, and in-house technical services expenses. The fixed charges will be recovered from wastewater dischargers according to their user charge meter equivalent (UCME) based on water meter size or size of effluent wastewater meter. The City billed a total of 5,775 UCMEs in 2011.

The volume charge will include variable O & M costs including labor, vehicle usage, supplies, telephone, electricity, maintenance-mains, maintenance-sewage lift stations, professional services, outside/contract services for billing, legal expenses, NMSC replacement charges, and NMSC operation and maintenance charges. The volume charge will be recovered from domestic strength dischargers based on water used and discharged to the sanitary sewer. The volume charge will be recovered from significant sewer users (wastewater discharge with concentrations of BOD₅ and suspended solids greater than domestic strength) based on volume of wastewater discharged and loadings greater than domestic strength. Volume will be determined from water use or wastewater metering.

Fixed Meter Charge Calculation

The total fixed costs of \$764,900 are divided by the number of UCMEs to determine the annual fixed charge per UCME. Following is a summary of the fixed user charge calculation.

Fixed Cost Distributed to UCME	\$764,900
Number of UCMEs	5,775
Fixed Charge/UCME	
= \$764,900 ÷ 5,775 UCMEs = \$132.48/yr	(\$11.04 month)

Volume User Charge Calculation

The volume user charge will recover revenue for variable O & M costs of \$1,658,000. The volume user charge will include a volume charge per 1,000 gallons for domestic strength wastewater and a surcharge for BOD₅ and suspended solids greater than domestic strength.

Significant Sewer Users. The significant sewer users having high strength wastewater were monitored to determine the volume of wastewater, BOD₅ loadings greater than domestic strength, and suspended solids loadings greater than domestic strength. A summary of the high strength dischargers is presented in Table 2.

Table 2 Summary of High Strength Dischargers

<u>BOD₅ > Domestic</u>	<u>Million Gallons per Year</u>	<u>Pounds per Year</u>
Albany International	0.477	2,099
Graphic Packaging	0.360	2,201
Gunderson Cleaners	13.706	49,903
Intertape Polymer Group	2.015	79,150
Whiting Paper Company	<u>34.540</u>	<u>199,701</u>
TOTAL	51.098	333,054
<u>Suspended Solids > Domestic</u>	<u>Million Gallons per Year</u>	<u>Pounds per Year</u>
Dura Fibre	2.644	40,649
Water Treatment Plant	<u>27.115</u>	<u>394,685</u>
TOTAL	29.759	435,334

Calculation of Domestic Strength Wastewater Characteristics

The total volume of water discharged to sanitary sewer in 2011 was 333,715,000 gallons (216,014,000 gallons of water use billed by utility + 31,970,000 gallons of water use by minor dischargers billed by City + 85,731,000 gallons of wastewater flow from significant industrial dischargers billed by the City). The domestic strength BOD₅ and suspended solids concentrations are calculated using the domestic strength loadings (total minus significant loadings) and water use for domestic strength dischargers (total minus significant sewer user water use or wastewater flow). The calculations of the domestic strength concentrations for BOD₅ and suspended solids are as follows:

$$\text{BOD}_5 \quad (1,317,600 \text{ lbs/yr.} - 333,054 \text{ lbs/yr.}) \div (8.34 \times 282.617 \text{ million gallons}) \\ = 417 \text{ mg/l}$$

$$\text{SS} \quad (2,280,000 \text{ lbs/yr.} - 435,334 \text{ lbs/yr.}) \div (8.34 \times 303.956 \text{ million gallons}) \\ = 728 \text{ mg/l}$$

The volume charge for domestic strength dischargers is calculated by first determining the surcharge revenue that will be collected for BOD₅ and suspended solids loadings from significant sewer users with BOD₅ and suspended solids greater than domestic strength. The unit costs for BOD₅ and suspended solids are calculated based on the treatment costs (O & M charges and replacement charges) in the NMSC WWTP 2013 Budget. The unit cost for BOD₅ is \$0.2615 per pound. The unit cost for suspended solids is \$0.1288 per pound.

$$\text{BOD}_5 \quad 155,346 \text{ lbs/yr.} \times \$0.2615/\text{lb} = \$40,623$$

$$\text{SS} \quad 254,652 \text{ lbs/yr.} \times \$0.1288/\text{lb} = \$32,799$$

$$\text{TOTAL} = \$73,422$$

The annual transportation charge for Sonoco was \$50,809 in 2011. The revenue from the surcharge for BOD₅ and suspended solids and the Sonoco transportation charge reduces the flow revenue required from sewer users.

The balance of revenue, required for costs distributed to the volume charge, is calculated as follows:

$$\begin{aligned} \text{Flow Revenue Required} &= \$1,658,000 - \$73,422 - \$50,809 \\ &= \$1,533,769 \end{aligned}$$

$$\begin{aligned} \text{Flow Unit Charge} &= \$1,533,769 \div 333,715,000 \text{ gallons} \\ &= \$4.60/1,000 \text{ gal.} \end{aligned}$$

The significant sewer users will be surcharged for treatment of wastewater with BOD₅ and suspended solids loadings greater than domestic strength at the actual NMSC unit charges in affect when the significant sewer users are billed. The BOD₅ and suspended solids surcharges are as follows.

BOD₅ Surcharge

$$\text{BOD}_5 \text{ Unit Loading} > 3.47 \text{ lbs/1,000 gallons}$$

Suspended Solids Surcharge

$$\text{Suspended Solids Unit Loading} > 6.07 \text{ lbs/1,000 gallons}$$

Comparison of Existing and Proposed Rates

The following is a comparison of sewer user rates for a residential customer with a ¾-inch or ¾-inch meter and 38,500 gallons water use per year in 2011:

Existing Rate (Adopted in 2000)

$$\text{Fixed Charge} = \$122.40/\text{yr.} (\$10.20/\text{mo.})$$

$$\begin{aligned} \text{Vol. Charge} &= \$3.90/1,000 \times 38,500 \text{ gallons} \\ &= \$150.15/\text{yr.} \end{aligned}$$

$$\text{TOTAL} = \$272.55/\text{yr.}$$

Proposed Rate

Fixed Charge = \$132.48/yr. (\$11.04/mo.)

Vol. Charge = \$4.60/1,000 gal. x 38,500 gallons
= \$177.10

TOTAL = \$309.58/yr. [13.6% increase for residential customer with
5/8" or 3/4" meter and 38,500 gallon/yr water
consumption.]

The proposed rates will increase sewer department revenue from \$2,034,667 (2011) to \$2,424,392 (19.2% increase).

SUMMARY OF EXISTING AND PROPOSED USER CHARGES

Revenue Source	Existing User Charges	Proposed User Charges
Fixed Charge	\$10.20/mo/UCME	\$11.04/mo/UCME
Volume Charge	\$ 3.90/1,000 gal.	\$ 4.60/1,000 gal.

SUMMARY OF RESIDENTIAL SEWER USER CHARGES(a)

Water Use	Existing User Charge			Proposed User Charge			% Increase
	Fixed	Volume(a)	Total	Fixed	Volume(a)	Total	
30,000	\$122.40	\$117.00	\$ 239.40	\$132.48	\$138.00	\$ 270.48	13.0
35,000	\$122.40	\$136.50	\$ 258.90	\$132.48	\$161.00	\$ 293.48	13.4
38,500	\$122.40	\$150.15	\$ 272.55	\$132.48	\$177.10	\$ 309.58	13.6
40,000	\$122.40	\$156.00	\$ 278.40	\$132.48	\$184.00	\$ 316.48	13.7
45,000	\$122.40	\$175.50	\$ 297.90	\$132.48	\$207.00	\$ 339.48	14.0
50,000	\$122.40	\$195.00	\$ 317.40	\$132.48	\$230.00	\$ 362.48	14.2
55,000	\$122.40	\$214.50	\$ 336.90	\$132.48	\$253.00	\$ 385.48	14.4
60,000	\$122.40	\$234.00	\$ 356.40	\$132.48	\$276.00	\$ 408.48	14.6

(a) Assumes residential customer has 3/4-inch or 1/2-inch meter

SUMMARY OF DEBT COVERAGE CALCULATION WITH PROPOSED RATES

Revenue-User Charges

Fixed Charge	\$765,072
Volume Charge	1,535,089
Surcharges	73,422
Sonoco Transportation Charge	<u>50,809</u>
TOTAL	\$2,424,392

Sewer Department O & M Expenses (w/o debt, replacement charge, and debt coverage)

Fixed Costs	\$9,900
Volume Costs	<u>1,593,700</u>
TOTAL	\$1,603,600

Excess Revenue For Debt	\$2,424,392
	<u>(1,603,600)</u>
	\$820,792

Total Excess Revenue Required for Debt Service With 10% Coverage

$$\begin{aligned} &= \$723,200 \text{ Annual Debt Service} \times 1.10 \\ &= \$795,520 \end{aligned}$$

The excess revenue (\$820,792) is greater than the required excess revenue for debt service (\$795,520) so the proposed rates are adequate.

Note: The DOA will not accept O & M costs less than the amount in the 2011 Audit. DOA has accepted an O & M cost of \$1,600,365 for 2011.

COMPARISON OF RESIDENTIAL SEWER USER CHARGES

Community	Est. 2012 Population	Annual Cost, Dollars			Effective Date
		Fixed(a)	Volume(b)	Total	
Village of Combined Locks	3,372	204.00	485.00	689.00	7/1/11
Village of Hortonville	2,705	162.80	524.00	686.80	3/18/10
City of Kaukauna	15,627	36.00	418.00	454.00	12/1/10
Village of Little Chute	10,432	36.00	375.00	411.00	9/9/11
Village of Kimberly	6,559	6.00	387.50	393.50	--
City of Menasha (Proposed)	17,407	132.48	230.00	362.48	
Darboy Sanitary District	4,200(c)	96.92	259.50	356.42	--
Waverly Sanitary District	1,813(c)	133.56	199.00	332.56	7/1/12
City of Menasha (Existing)	17,407	122.40	195.00	317.40	
City of Shawano	9,259	91.80	214.50	306.30	11/1/02
Town of Menasha	--	39.52	264.00	303.52	1/1/13
City of Marinette	10,929	120.00	127.00	247.00	6/10/10
City of Neenah	25,723	85.80	156.65	242.45	1/1/14(d)
City of Appleton	72,810	54.40	136.36	190.76	7/1/11

(a) Fixed charge based on 3/4-inch meter

(b) Volume charge based on 50,000 gal/yr. consumption

(c) Number of customers - 2010

(d) City of Neenah will have 15 percent rate increase effective on 1/1/13 and 15 percent rate increase effective on 1/1/14.

Annual costs shown are after 1/1/14 rate increase.