

APPENDIX NO. 1

USER CHARGE SYSTEM

This appendix presents the methodology to be used in calculating user charge rates and surcharges and illustrates the calculation followed in arriving at the first year's user charges and surcharges. The unit costs established in this appendix are based on estimates of expenses and loadings. The actual expenses and loadings that occur may differ from these estimates and certainly they will change as time passes. Therefore, the unit costs must be reestablished whenever necessary to reflect actual expenses and loadings. Once the system is in use, the expenses and loadings can be determined from operating records and the unit costs can be adjusted based on these figures.

(A) **Engineering Data.** The following data has been utilized in the determination of the user charge for the Mt. Sterling Wastewater Facilities. This data was gathered from billing records of the City of Mt. Sterling and the **Facilities Plan for Wastewater Facilities**, as prepared by Klinger & Associates, P.C.

Number of Sewer Users:	1075
Billable Flow in System:	111.417 MG per year
BOD Load on Facilities: (4800 persons x 0.17 lb/per/day x 365)	297,840 lb. BOD per year
SS Load on Facilities: (4800 persons x 0.20 lb/per/day x 365 days)	350,440 lb. SS per year

All users of the Mt. Sterling Wastewater Facilities are treated as one class. This methodology, as calculated below, results in a proportionate distribution of operation, maintenance, and replacement costs among all user. (**Ord. No. 9-1987-1988; 03-07-88**)

(B) **Annual Operating Costs.** The annual operating costs for the wastewater facilities is summarized in Table 1. This data will change from year to year and should be adjusted. There are two categories of expenses: Fixed Costs, and Operation, Maintenance, and Replacement Costs. Fixed Costs are those which are not dependent on the volume of wastewater conveyed and treated. Operation, Maintenance, and Replacement Costs are proportional to the volume of wastewater.

TABLE 1
ANNUAL OPERATING COSTS
WASTEWATER FACILITIES
MT. STERLING, ILLINOIS

A. FIXED COSTS

General Office Salary	\$10,000.00
Office Supplies	1,350.00
Utilities, Office	1,200.00
Insurance	4,000.00
Telephone	<u>640.00</u>
 TOTAL FIXED EXPENSES	 \$17,190.00

B. OPERATION, MAINTENANCE, AND REPLACEMENT (OM&R) COSTS

Salaries	\$42,000.00
Repairs and Maintenance	21,600.00
Engineering	1,000.00
Vehicle Expense	1,900.00
Electricity	32,000.00
Chemicals/Disinfection	3,500.00
Materials and Supplies	12,300.00
Miscellaneous	100.00
Replacement	<u>15,000.00</u>
 TOTAL OPERATION, MAINTENANCE AND REPLACEMENT	 \$129,600.00
 TOTAL COSTS	 \$146,790.00

C. ALLOCATION OF COSTS

Operation, Maintenance, and Replacement (OM&R) Costs will be allocated to flow, BOD, and SS loads on the wastewater facilities. The costs will be proportioned as follows:

$$\begin{aligned}
 \text{Cost to Treat Flow} &= \text{O M & R} \times 50\% \\
 \text{Cost to Treat BOD} &= \text{O M & R} \times 25\% \\
 \text{Cost to Treat SS} &= \text{O M & R} \times 25\%
 \end{aligned}$$

The assumption is made that the concentration of BOD and SS of the wastewater from all users is approximately the same. Therefore the O M & R costs, attributable to wastewater, will be proportioned among users according to their metered water value.

Fixed expenses, and debt service will be divided equally among all users.

D. CALCULATION OF CHARGES AND RATES

1. Debt Service Charge. The debt service charge will be the annual debt service divided by the number of users and further divided by 12 to obtain a month charge:

$$90,604 \div 1075 \text{ users} \div 12 \text{ mo. yr} = \$7.02
Say \$7.00$$

2. Minimum User Charge. The minimum user charge will be the fixed costs divided by the number of users, and further divided by 12 to obtain a monthly charge:

a. Minimum Charge Calculation

$$\$17,190 \div 1075 \text{ users} \div 12 \text{ mo./yr} = \$1.33
Say \$1.35 per month$$

3. Basic User Rate. The basic user rate will be the Operation, Maintenance, and Replacement (O M & R) Costs divided by the annual billable flow contributed to the facilities:

$$= \frac{\$129,600}{111,417} = \$1.163 \text{ per 1,000 gallons}
Say \$1.17 per 1,000 gallons$$

4. Surcharge Rates. The surcharge rate is calculated by dividing the costs allocated to BOD and SS by the pounds of BOD load and SS load, respectively:

a. Surcharge Rate for BOD

$$\begin{aligned}\text{Cost to treat BOD} &= \text{O M \& R} \times 25\% \\ &= \$129,600 \times 0.25 - \$32,400 \\ &\quad \$32,400 - 297,840 \text{ lb} = \$0.109 \text{ per lb.} \\ &\quad \text{Say } \$0.11 \text{ per lb.}\end{aligned}$$

b. Surcharge Rate for SS

$$\begin{aligned}\text{Cost to treat SS} &= \text{O M \& R} \times 25\% \\ &= \$129,600 \times 0.25 - \$32,400 \\ &\quad \$32,400 \div 350,400 \text{ lb} = \$0.092 \text{ per lb.} \\ &\quad \text{Say } \$0.10 \text{ per lb.}\end{aligned}$$

E. SUMMARY OF CHARGES AND RATES

Debt Service Charge	\$7.00 per month
Minimum User Charge	\$1.35 per month
Basic User Rate	\$1.17 per 1,000 gallons
Surcharge for BOD	\$0.11 per lb. BOD
Surcharge for SS	\$0.10 per lb. SS

F. EXAMPLE CALCULATION OF MONTHLY SERVICE CHARGE

An example calculation of a monthly service charge for a residential sewer user of the City of Mt. Sterling, using 4,000 gallons per month, is as follows:

Debt Service Charge	\$7.00
Minimum User Charge	\$1.35
Basic User Rate (4 x 1.17)	<u>\$4.68</u>
Total	\$13.03

**REPLACEMENT COSTS
WASTEWATER FACILITIES
MT. STERLING, ILLINOIS**

ITEM	LIFE YEAR	ESTIMATED COSTS	
		TOTAL	ANNUAL
1. 2-450 GPM Pumps w/25 hp motors at N.W. Lift Station	20	\$15,000	\$750
2. 2-600 GPM Pumps w/15 hp motors at N.E. Plant	20	\$20,000	\$1,000
3. 2-1700 GPM Pumps w/50 hp motors at N.E. Plant	20	\$30,000	\$1,500
4. Stand-by Diesel Generator (100 kW) at N.E. Plant	30	\$30,000	\$1,000
5. Comminutors at N.W. and N.E. Plant	20	\$10,000	\$500
6. Aeration Equipment at N.E. Plant	10	\$35,000	\$3,500
7. Flow measuring equipment at N.E. and new lagoon	10	\$10,000	\$1,000
8. Chlorination Equipment at N.W. Plant	10	\$9,000	\$900
9. Ultra-Violet Disinfection equipment at N.E. and new lagoon	10	\$30,000	\$1,500
10. Aeration Equipment at new lagoon	10	\$30,000	<u>\$3,000</u>
TOTAL ESTIMATED ANNUAL REPLACEMENT COSTS			\$14,650
		Say	\$15,000

ATTACHMENT

USER CHARGE SYSTEM

Information pertaining to the User Charge System should, as a minimum, include the following engineering/accounting data:

1. Number of Users by Class:

Residential	1061
Commercial	12
Industrial	0
Institutional/Governmental	2

2. Billable flow and loading by user Class:

	Annual Billable Flow	BOD (lbs/day)	SS (lbs/day)
Residential	43.26 MG	198	218
Commercial	9.30 MG	143	47
Industrial	0	0	0
Institutional/Governmental	58.86 MG	352	296
Total	111.42 MG	593*	561*

3. Total Annual flow (including I&I): 224.84 MG (Design)

4. Loading concentrations by user class:

	BOD (lbs/day)	SS (lbs/day)
Residential	200	220
Commercial	200	220
Industrial	0	0
Institutional/Governmental	263	220

* Based on Billable Flow

Design Totals: BOD 816 lbs/day

SS 960 lbs/day

5. O M & R costs by class (exclusive of costs for debt service):

Residential	\$56,993
Commercial	\$12,252
Industrial	0
Institutional/Governmental	\$77,545
Total OM&R Costs	\$146,790

6. Based on the proposed rates, estimated the revenues to be generated annually from each user class. This should be exclusive of revenue generated for debt service.

Residential	\$67,802
Commercial	\$11,075
Industrial	0
Institutional/Governmental	\$72,210
Total Revenue	\$151,087

7. Please provide an Equipment Replacement Schedule to support the \$36,000 replacement costs shown in Table 1 of the User Charge System.

(Ord. No. 10-1988-1989; 12-05-88) – Art. II

(Ord. No. 9-1987-1988; 03-07-88)

APPENDIX "A"

WATER PURCHASE CONTRACT BETWEEN THE CITY OF MT. STERLING, ILLINOIS AND THE VILLAGE OF RIPLEY, ILLINOIS

This contract for the sale and purchase of water is entered into as of **4th day of August, 1997**, between the City of Mt. Sterling, City Hall, 145 W. Main St., Mt. Sterling, Illinois, hereinafter referred to as the "Seller" and the Village of Ripley, Ripley, Illinois hereinafter referred to as the "Purchaser".

WITNESSETH:

Whereas, the Purchaser is organized and established under the provisions of **Chapter 65** of the **Illinois Compiled Statutes**, and Whereas Purchaser has no independent source of treated water and will require a supply of treated water, and

Whereas, the Seller owns and operates a water supply distribution system with a capacity currently capable of serving the present customers of the Seller's system and the estimated number of water users to be served by the said Purchaser as shown in the plans of the system now on file in the office of the Purchaser, and

Whereas, by **Ordinance No. 97-98-07** enacted on the **11th day of August, 1997**, by the Seller, the sale of water to the Purchaser in accordance with the provisions of this said contract was approved, and the execution of this contract carrying out the said ordinance by the Mayor, Jason Hendricker of the City of Mt. Sterling, Illinois, and attested by the City Clerk, was duly authorized and

Whereas, by Ordinance of the Village of Ripley, by the Purchaser, enacted on the **8th day of September, 1997**, the purchase of water from the Seller in accordance with the terms set forth in this said contract was approved, and the execution of the contract by the Mayor, C. Robert Livingston, for the Village of Ripley, and attested by the Village Clerk was duly authorized:

NOW, THEREFORE, in consideration of the foregoing and the mutual agreements hereinafter set forth,

A. The Seller Agrees:

1. To furnish the Purchaser at the point of delivery hereinafter specified, during the term of this contract or any renewal or extension thereof, potable treated water in such quantity as may be required by the Purchaser not to exceed **seven**

hundred fifty thousand (750,000) gallons per month at a rate not to exceed twenty-five (25) gallons per minute.

2. That water will be furnished at a reasonably constant pressure equal to the Seller's customers in the area from a 6 inch main supply at a point located at a distance **two thousand (2,000) feet** east of the boundary of the City of Mt. Sterling, Illinois. If a greater pressure than that normally available at the point of delivery is required by the Purchaser the cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply line breaks, power failure, flood, fire, and use of water to fight fire, earthquake, or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.
3. To operate and maintain at its own expense a **one (1) inch** tap and service with a **three-fourths (3/4) inch** meter at point of delivery, the necessary metering equipment, including a meter pit, and required devices of standard type for properly measuring the quantity of water delivered to the Purchaser and to calibrate such metering equipment whenever requested by the Purchaser but not more frequently than once every **twelve (12) months**. A meter registering not more than **two percent (2%)** above or below the test result shall be deemed to be accurate. The previous readings of any meter disclosed by test to be inaccurate shall be corrected for the **six (6) months** previous to such test in accordance with the percentage of inaccuracy found by such tests. If any meter fails to register for any period, the amount of water furnished during such period shall be deemed to be the amount of water delivered in the corresponding period immediately prior to the failure, unless Seller and Purchaser shall agree upon a different amount. The metering equipment shall be read monthly. An appropriate official of the Purchaser at all reasonable times shall have access to the meter for the purpose of verifying its readings.
4. To furnish the Purchaser at the above address not later than the **first (1st) day** of each month, with an itemized statement of the amount of water furnished the Purchaser during the preceding month.

B. **The Purchaser Agrees:**

1. To pay the Seller, not later than the **tenth (10th) day** of each month, for water delivered in accordance with the following schedule of rates:

First 2,000 gallons	\$7.86
Next 3,000 gallons	\$3.19
Next 495,000 gallons	\$2.92
Over 500,000 gallons	\$2.69

2. To furnish and install, at its own expense, all meters and metering equipment after point of delivery.

C. **It is Further Mutually Agreed Between the Seller and the Purchaser as Follows:**

1. That this contract shall extend for a term of **five (5) years** from the date of the initial delivery of any water as shown by the first bill submitted by the Seller to the Purchaser and, thereafter may be renewed or extended for such term, or terms, as may be agreed upon by the Seller and Purchaser.
2. When requested by the Purchaser the Seller will make available to the contractor at the point of delivery, or other point reasonably close thereto, water sufficient for testing and flushing at a flat rate charge of **One Dollar Fifty Cents (\$1.50)/one thousand (1,000) gallons** which will be paid by the Purchaser.
3. That the Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities of water required by the Purchaser. Temporary or partial failures to deliver water shall be remedied with all possible dispatch. In the event of an extended shortage of water, or the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to Purchaser's consumers shall be reduced or diminished in the same ratio or proportion as the supply to Seller's consumers is reduced or diminished.
4. That the provisions of this contract pertaining to the schedule of rates to be paid by the Purchaser for water delivered are subject to modification at the next billing after any increase in rates charged to seller. Any increase in rates shall be proportional to increases in the Seller's rates.
5. That this contract is subject to such rules, regulations, or laws as may be applicable to similar agreements in this State and the Seller and Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.
6. That the Seller shall in no way be obligated to operate or maintain the Purchaser's system.
7. That in the event of any occurrence rendering the Purchaser incapable of performing under this contract, any successor of the Purchaser, whether the result of legal process, assignment, or otherwise, shall succeed to the rights of the Purchaser hereunder.

8. That the Seller agrees to pay the additional cost necessary to maintain a **six (6) inch** line for the approximate distance of **two thousand (2,000) feet** beyond the present main extension on the Sellers eastern boundary.
9. That the cost of checking the meter utilized by the Seller in providing water to the purchaser shall be born by the Purchaser.
10. That the parties agree that the minimum water bill charged the Purchaser's customers shall be no less than the minimum water bill charged the Sellers customers.

IN WITNESS WHEREOF, the parties hereto, acting under authority of their respective governing bodies, have caused this contract to be duly executed in two counterparts, each of which shall constitute an original.

Seller:

By: /s/ Jason Hendricker

Title: Mayor

ATTEST:

/s/ Lois Urven
Clerk

/s/ C. Robert Livingston
Purchaser

ATTEST:

/s/ Mary M. Winner
Clerk