

MODEL WASTEWATER USER CHARGE ORDINANCE
(Actual Use Methodology)

Ordinance No. 2020-04

An ordinance establishing a User Charge System for the City of Meadville, County of Linn, State of Missouri to provide funds needed to pay for all expenses associated with the City's wastewater system.

Whereas, the City of Meadville, County of Linn, State of Missouri, owns and operates a public wastewater system (the "Wastewater System"); and

Whereas, the City must pay all expenses associated with said Wastewater System and charge the users of said Wastewater System accordingly;

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF ALDERMEN OF THE CITY OF MEADVILLE, COUNTY OF LINN, STATE OF MISSOURI AS FOLLOWS:

Article I

It is hereby determined and declared to be necessary and conducive to the protection of the public health, safety, welfare, and convenience of the City to collect charges from all users who contribute wastewater to the City's Wastewater System and to establish a user charge system as set forth herein. The proceeds of such charges so derived will be used for the purpose of operating, maintaining, and retiring the debt for said Wastewater System.

Article II

Unless the context specifically indicates otherwise, the meaning of terms used in this Ordinance shall be as follows:

Section 1: "BOD" (denoting Biochemical Oxygen Demand) shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five (5) days at 20°C, expressed in milligrams per liter (mg/l).

Section 2: "Normal Domestic Wastewater" shall mean wastewater that has a BOD concentration of not more than 250 mg/l and a suspended solids concentration of not more than 300 mg/l.

Section 3: "Operation and Maintenance" shall mean all expenditures during the useful life of the Wastewater System for materials, labor, utilities, and other items which are necessary for managing and maintaining the wastewater system to achieve the capacity and performance for which said wastewater system was designed and constructed. The term "Operation and Maintenance" includes Replacement.

Section 4: “Replacement” shall mean expenditures for obtaining and installing equipment, accessories, or appurtenances which are necessary during the useful life of the Wastewater System to maintain the capacity and performance for which such works were designed and constructed.

Section 5: “Residential Contributor” shall mean any contributor to the City’s Wastewater System whose lot, parcel of real estate, or building is used for domestic dwelling purposes only.

Section 6: “Shall” is mandatory; “may” is permissive.

Section 7: “SS” (denoting suspended solids) shall mean the solids that either float on the surface of or are in suspension in water, sewage, or other liquids and which are removable by laboratory filtering.

Section 8: “System Revenue Bonds” means all revenue bonds or other obligations that are payable from the net revenues of the Wastewater System (after the payment of the cost of operation and maintenance thereof).

Section 9: “Wastewater System” shall mean any devices and systems for the storage, treatment, recycling, and reclamation of municipal sewage, domestic sewage, or liquid industrial wastes. These include interceptor sewers, outfall sewers, sewage collection systems, individual systems, pumping, power, and other equipment and their appurtenances; extensions, improvements, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities; and any works including site acquisition of land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment including land for composting sludge, temporary storage of such compost, and land used for storage of treated wastewater in land treatment systems before land application; or any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste or industrial waste, including waste in combined storm water and sanitary sewer systems.

Section 10: “Useful Life” shall mean the estimated period during which the Wastewater System will be operated.

Section 11: “User Charge” shall mean that portion of the total wastewater service charge which is levied in a proportional and adequate manner for the cost of operation, maintenance, and replacement of the Wastewater System.

Section 12: “Water Meter” shall mean a water volume measuring and recording device, furnished and/or installed by the City or furnished and/or installed by a user and approved by the City.

Article III

Section 1: The User Charge System established by this Ordinance shall generate adequate annual revenues to pay the costs of annual operation and maintenance including

replacement and cost associated with the City's revenue bonds issued to finance or refinance improvements to the Wastewater System (including, but not limited to, the payment of principal, interest and redemption premium, if any, on said bonds) which the City may by ordinance designate to be paid by the user charge system. To the extent any term or provision set forth in the ordinance pursuant to which the City's revenue bonds have been issued conflicts with this Ordinance, the Ordinance pursuant to which the City's revenue bonds have been issued shall control.

Section 2: There are hereby created or ratified and ordered to be established and maintained in the treasury of the City the following separate funds and accounts to be known respectively as the:

- a. Wastewater System Revenue Fund (the "Revenue Fund").
- b. Wastewater System Operation and Maintenance Account (the "Operation and Maintenance Account").
- c. Wastewater System Replacement Account (the "Replacement Account").

Section 3: All of the total user charge imposed and collected pursuant to this Ordinance shall, as and when received, be paid and deposited into the Revenue Fund unless otherwise specifically stipulated in this Ordinance and/or any ordinance pursuant to which the City's revenue bonds have been issued. Said revenues shall be segregated and kept separate and apart from all other moneys, revenues, funds and accounts of the City and shall not be commingled with any other moneys, revenues, funds and accounts of the City. The Revenue Fund shall be administered and applied solely for the purposes and in the manner specified in this Ordinance and any ordinance pursuant to which the City's revenue bonds have been issued.

Section 4: On the first day of each month, beginning in the month following the month in which this Ordinance goes into effect, administer and allocate the moneys then held in the Revenue Fund as follows:

(a) Operation and Maintenance Account. There shall first be paid and credited to the Operation and Maintenance Account an amount sufficient to pay the estimated cost of Operation and Maintenance during the ensuing month; provided, however, that deposits into the Operation and Maintenance Account shall equal at least \$ 79,380 annually. (This amount shall equal Total Annual Expense, less costs for power, Mowing and maintenance, Replacement, Debt Service, and Insurance) set forth in Appendix A or $\$29,500 = \$107,200 - \$410.53 - \$15,000 - \$11,459.47 - \$32,230 - \$5400$). All amounts paid and credited to the Operation and Maintenance Account shall be expended and used by the City solely for the purpose of paying the Operation and Maintenance expenses of the Wastewater System.

(b) Replacement Account. After all payments and credits required at the time to be made under paragraph (a) of this Section and subject to the provisions of any ordinance pursuant to which the City's revenue bonds have been issued relating to

payments required to be made to debt service accounts, debt service reserve accounts or administrative fees for said bonds have been made, there shall next be paid and credited to the Replacement Account, the amount of \$ 954.96 each month (\$ 11,459.47 annually). (This amount shall equal annual Replacement Costs set forth in Appendix A). Moneys in the Replacement Account shall be expended and used by the City, if no other funds are available therefor, solely for the purpose of ensuring Replacement needs over the useful life of the Wastewater System as may be necessary to keep the Wastewater System in good repair and working order and to assure the continued effective and efficient operation thereof.

(c) All remaining funds on deposit in the Revenue Fund shall be administered and applied pursuant to the provisions of the ordinance under which the City's revenue bonds have been issued.

Section 5: Fiscal year-end balances in the Operation and Maintenance Account and the Replacement Account shall be carried over to the same accounts in each subsequent fiscal year, and shall be used for no other purposes than those designated for these accounts. Monies which have been transferred from other sources to meet temporary shortages in the Operation and Maintenance Account and the Replacement Account shall be returned to their respective accounts upon appropriate adjustment of the user charge rates for Operation and Maintenance and Replacement. The user charge rate(s) shall be adjusted such that the transferred monies will be returned to their respective accounts within the fiscal year following the fiscal year in which the monies were borrowed.

Article IV

Section 1: Each user shall pay for the services provided by the City based on their use of the Wastewater System as determined by water meter(s) acceptable to the City.

Section 2: For residential, industrial and commercial contributors, user charges shall be based on water used during the current month. If a commercial or industrial contributor has a consumptive use of water, or in some other manner uses water which is not returned to the wastewater collection system, the user charge for that contributor may be based on wastewater meter(s) or separate water meter(s) installed and maintained at the contributor's expense, and in a manner acceptable to the City.

Section 3: The City hereby imposes the following charges for services:

The minimum charge per month as set forth in **Appendix A** shall be \$35 availability + \$4.50 unit charge or \$39.50 for the first 1000 gallons of water as determined in the preceding section. In addition, each contributor shall pay a user unit charge of \$ 4.50 per 1,000 gallons of water above the amount included in the minimum charge, as determined in the preceding section.

Section 4: For those contributors which contribute wastewater, the strength of which is greater than normal domestic sewage, a surcharge in addition to the normal user charge will be collected. The surcharge for operation, maintenance, and replacement as set forth in **Appendix A** is:

\$ 0.56 per pound of BOD

\$ 0.47 per pound of SS

Section 5: Any user which discharges any toxic pollutants which cause an increase in the cost of managing the effluent or the sludge from the City's Wastewater System, or any user which discharges any substance which singly or by interaction with other substances causes identifiable increases in the cost of operation, maintenance, or replacement of the Wastewater System, shall pay for such increased costs. The charge to each user shall be as determined by the responsible plant operating personnel and approved by the Board of Aldermen.

Section 6: The user charge rates established in this article apply to all users of the City's Wastewater System, regardless of the user's location.

Article V

Section 1: All users shall be billed by the end of each month for the month's usage. Payments are due by the 10th of the month following.

Section 2: A late payment penalty of 10 percent of the user charge bill will be added to each delinquent bill not paid on or before the 10th of the month following. If any bill remains unpaid by the 25th of the month, provision of water service to such premises shall be discontinued until such bill is paid along with a \$100 service reconnection fee.

Article VI

Section 1: The City shall review the user charge system annually and revise user charge rates as necessary to ensure that the Wastewater System generates adequate revenues to pay the costs of annual Operation and Maintenance including Replacement and cost associated with the City's revenue bonds issued to finance or refinance improvements to the Wastewater System (including, but not limited to, the payment of principal, interest and redemption premium, if any, on said bonds) and that the Wastewater System continues to provide for the proportional distribution of said costs among users. The City shall fix, establish, maintain and collect rates and charges for the use and services furnished by or through the Wastewater System to produce income and revenues sufficient to meet any rate covenant applicable to its System Revenue Bonds at the time outstanding.

Section 2: The City will notify each user at least annually, in conjunction with a regular bill, of the rate being charged pursuant to the user charge system.

Article VII

This Ordinance shall be in full force and effect from and after 1st day of December, 2022.

PASSED and APPROVED by the City of Meadville, County of Linn, State of Missouri
on this 9th day of November, 2020, by the following vote:

Ayes 4 Namely Brad Coin, Nelson Dinmore, Tim Kasey, Debbie Bennett
Nayes 0 Namely _____

Ruth Mungerman _____, Mayor
Signature

Ruth Mungerman Mayor
Name and title, typewritten or printed

Attest:

Bobbi Jo Meneely _____, City Clerk
Signature

Bobbi Jo Meneely, city clerk
Name and title, typewritten or printed



**APPENDIX "A" TO USER
CHARGE (ORDINANCE/RESOLUTION)
(Actual Use Rate Methodology)**

This appendix presents the methodology to be used in calculating user charge rates and surcharges, and illustrates the calculations 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.

1. Expenses: The total annual expenses associated with the Wastewater System, as defined in Article II, Section 8, are estimated as follows:

<u>ITEM</u>	<u>ANNUAL EXPENSE</u>
Power	\$ 13,200.00
Telephone	\$ 600.00
Water and other utilities	\$ 500.00
Trucking	\$ 1,500.00
Mowing and maintenance	\$ 2,090.53
Drip Line Repairs	\$ 700.00
Other contractual	\$ 20,300.00
Soil Testing	\$ 1,200.00
Permits	\$ 4,000.00
Payroll and expenses	\$ 15,000.00
Replacement Costs (See Appendix B)	\$ 11,459.47
Debt Service (existing and proposed x 110%)	\$ 32,230.00
Billing and office supplies	\$ 700.00

Insurance	\$ 5,400.00
TOTAL COST	\$ 108,880.00

$$\begin{aligned}
 2. \text{ Fixed Costs} &= \text{Power} + \text{Mowing and Maintenance} + \text{Payroll and expenses} + \\
 &\text{Replacement Costs} + \text{Debt Service} + \text{Insurance} \\
 &= \$13,200 + \$2,090.53 + \$15,000 + \$11,459.47 + \$32,230 + \$5,400 \\
 &= \$79,380
 \end{aligned}$$

$$\begin{aligned}
 \text{Other Costs} &= \text{Total Cost} - \text{Fixed Costs} \\
 &= \$108,880 - \$79,380 = \$29,500
 \end{aligned}$$

Allocation of Expenses: The total operation and maintenance, including replacement expenses, is allocated to the appropriate pollutants in the following manner.

Annual \$ to Treat Annual Flow	=	40% x \$ 29,500
	=	\$ 11,800
Annual \$ to Treat Annual BOD	=	30% x \$ 29,500
	=	\$ 8850
Annual \$ to Treat Annual SS	=	30% x \$ 74,259.47
	=	\$ 8850
Annual \$ to Treat Annual Other	=	0% x \$ 74,259.47
	=	\$ 0.00

3. Loadings:

The number of users is 189. The initial hydraulic loading is expected to be 3,748 gallons per month per user based upon potable water demand.

$$189 \text{ users} \times 3,748 \text{ gallons/month} \times 12 \text{ months} = 8,500,000 \text{ gallons/year}$$

The initial BOD loading is estimated to be 15,748 pounds/year (assuming 250 mg BOD/L).

The initial SS loading is estimated to be 18,898 pounds/year (assuming 300 mg SS/L).

The initial other pollutant loading is estimated to be 0 pounds/year.

4. Unit Costs:

$$\text{Initial unit cost for flow in \$/gallon} = \frac{\text{Annual \$ to treat annual flow}}{\text{Estimated annual hydraulic loading}}$$

$$\begin{aligned}
 &= \frac{\$ 11,800}{8,500,000} \\
 &= \$ 0.00139/\text{gallon or } \$ 1.39/1000 \text{ gallons}
 \end{aligned}$$

$$\begin{aligned}
 \text{Initial unit cost for BOD in } \$/\text{pound} &= \frac{\text{Annual \$ to treat annual BOD}}{\text{Estimated annual BOD loading}} \\
 &= \frac{\$ 8850}{15,748} \\
 &= \$ 0.56/\text{pound}
 \end{aligned}$$

$$\begin{aligned}
 \text{Initial unit cost for SS in } \$/\text{pound} &= \frac{\text{Annual \$ to treat annual SS}}{\text{Estimated annual SS loading}} \\
 &= \frac{\$ 88550}{18,898} \\
 &= \$ 0.47/\text{pound}
 \end{aligned}$$

$$\begin{aligned}
 \text{Initial unit cost for other} & & \text{Annual \$ to treat annual other pollutant(s)} \\
 \text{Pollutant(s) in } \$/\text{pound} &= \frac{\text{Estimated annual other pollutant loading}}{\text{Estimated annual other pollutant loading}} = 0
 \end{aligned}$$

5. Minimum Charge:

$$\text{Total Annual Minimum Cost} = \$ 79,380$$

Minimum charge/user/billing period to cover Minimum costs:

$$\$79,380/189 \text{ users}/12 \text{ months} = \$35.00 \text{ per month per household}$$

Then add cost of treatment per 1000 gallons:

$$\text{Minimum Charge/User/Billing Period} = \$39.50$$

6. Residential User Unit Charge: \$ 4.50

Minimum monthly user charge including 1000 gallons = \$35.00 + \$4.50 = \$39.50

An example user charge calculation for a residential user of the City of Meadville follows:

Assume a monthly water usage of 5,000 gallons.

$$\text{\$ } 39.50 + [(4,000/1,000) \times \text{\$ } 4.50] = \text{\$ } 57.50 \text{ per month}$$

Based upon City information, actual initial water usage is assumed to be 3,400 gallons per month per household. Monthly cost per household for 3,400 gallons:

$$\text{\$ } 39.50 + (2,400/1,000) \times \text{\$ } 4.50 = \text{\$ } 50.30 \text{ per month}$$

7. Extra Strength Users: For users who contribute wastewater that has a greater strength than Normal Domestic wastewater, the user charge will be calculated as follows:

Total monthly charge for extra strength user = Minimum Charge + Residential Unit Charge + surcharge For BOD (if applicable) + surcharge for SS (if applicable) + surcharge for other pollutants (if applicable).

Total monthly charge for extra strength user = Minimum Charge + $v(\text{Residential Unit Charge}) + v(\text{unit BOD charge})(\text{BOD}_{\text{ES}} - \text{BOD}_{\text{ND}})(.00834) + v(\text{unit SS charge})(\text{SS}_{\text{ES}} - \text{SS}_{\text{ND}})(.00834) + \text{and so on for any other appropriate pollutant(s)}.$

Where:

- Total monthly charge to extra strength user is in dollars;
- Minimum charge is in dollars as calculated in paragraph 5;
- v is the volume of wastewater in 1000 gallons discharged by the extra strength user during the month;
- Residential unit charge is in \$/1000 gallons as calculated in paragraph 6;
- Unit BOD charge is in \$/pound BOD from paragraph 4;
- Unit SS charge is in \$/pound SS from paragraph 4;
- BOD_{ES} is the average BOD concentration in milligrams per liter (mg/l) contributed by the extra strength user during the month;
- SS_{ES} is the average SS concentration in mg/l contributed by the extra strength user during the month;
- BOD_{ND} is the Normal Domestic BOD strength in mg/l as defined in Article II, Section 2, of the ordinance;
- SS_{ND} is the Normal Domestic SS strength in mg/l as defined in Article II, Section 2, of the ordinance; and,
- .00834 is a unit conversion factor.

An example user charge calculation for an extra strength user of the City's Wastewater System follows:

Assume 30,000 gallons/month, BOD_{ES} is 540 mg/l, and SS_{ES} is 400 mg/l.

$$\begin{aligned} & \$ 39.50 + [(30,000/1,000) \times \$ 1.39] + [(30,000/1,000)(\$ 0.56)(540 - 250)(0.00834)] + \\ & [(30,000/1,000)(\$ 0.47)(400 - 300)(0.00834)] \end{aligned}$$

$$= \$ 39.50 + \$41.70 + \$72.56 + \$ 11.76$$

$$= \$ 165.52 \text{ per month}$$

8. User Rate Verification Calculation:

Revenue from Minimum charge (includes cost for 1st 1000 gallons)

$$189 \text{ users} \times 12 \text{ billing periods} \times \$ 39.50 = \$ 89,586.00$$

Revenue from Residential Unit Charge

Total flow = 8,500,000 gallons

Less minimum flow = 189 users x 12 months x 1000 gallons

$$= 2,268,000 \text{ gallons}$$

Total flow less minimum = 6,232,000 gallons

$$6,232,000/1,000 \times \$ 4.50 = \$ 28,044.00$$

Total User Charge Revenue is Minimum Charge + Residential Charge:

$$\text{Total User Charge Revenue}^* = \$ 117,630.00$$

$$\text{Less Annual Budget} = \$ 108,880.00$$

$$\text{Surplus/(Deficit)} = \$ 8,750.00$$

* Does not include any revenue from surcharges to extra strength users.

APPENDIX "B" TO USER CHARGE ORDINANCE

This appendix contains a replacement schedule that was developed to determine the amount of revenue needed to fund the Replacement Account. The replacement schedule lists the equipment in the Wastewater System, the estimated dates when the equipment will have to be replaced, and the estimated cost of replacement (based on current day costs) over the useful life of the Wastewater System. The replacement dates and costs shown are estimates; the actual replacement dates and costs could be significantly different from those shown. If the actual replacement expenses differ significantly from those listed in the replacement schedule, the funding of the Replacement Account shall be adjusted accordingly. The Replacement Fund Calculation includes factors for inflation and interest. These should also be adjusted to reflect actual interest and inflation rates.

REPLACEMENT SCHEDULE

Years from Treatment Works in Operation	Items	Cost Per Item	Yearly Total
1	Sewer repairs and maintenance	\$ 2,000	
	Truck Repairs and maintenance	\$ 500	
	structure repair	\$ 700	
	electrical work	\$ 600	
	Tube/valve repair and maintenance	\$ 500	
	manhole repair and maintenance	\$ 500	
	Pump Station Repairs and Maintenance	\$ 2,000	
	SUBTOTAL:		\$ 6,800
2	One Year Items	\$ 6,800	
	SUBTOTAL:		\$ 6,800
3	One Year Items	\$ 6,800	
	SUBTOTAL:		\$ 6,800
4	Two Year Items	\$ 6,800	
	SUBTOTAL:		\$ 6,800
5	One Year Items	\$ 6,800	
	Motor Rebuilding	\$ 1,000	
	SUBTOTAL:		\$ 7,800
6	Three Year Items		\$ 6,800
7	One Year Items		\$ 6,800
8	Four Year Items		\$ 6,800
9	One Year Items		\$ 6,800
10	Five Year Items	\$ 7,800	
	Electric Control Panel	\$ 2,500	

	Pump Rebuilding	\$ 2,500	
	SUBTOTAL:		\$ 12,800
11	One Year Items		\$ 6,800
12	Six Year Items		\$ 6,800
13	One Year Items		\$ 6,800
14	Seven Year Items		\$ 6,800
15	Five Year Items		\$ 7,800
16	Eight Year Items		\$ 6,800
17	One Year Items		\$ 6,800
18	Nine Year Items		\$ 6,800
19	One Year Items		\$ 6,800
20	Ten Year Items	\$ 12,800	
	Lift Station and Flow Control Structure Upgrades	\$ 3,000	
	SUBTOTAL:		\$ 15,800
	TOTAL:		\$ 153,000

Inflation: 4.00%

Interest: 3.00%

