

ORDINANCE NO. 276

AN ORDINANCE TO AMEND THE CODE OF THE CITY OF BESSEMER BY ADDING A NEW CHAPTER, WHICH NEW CHAPTER SHALL BE DESIGNATED AS CHAPTER 26 OF TITLE II OF SAID CODE.

THE CITY OF BESSEMER HEREBY ORDAINS:

SEWER USER CHARGE SYSTEM ORDINANCE

FOR

CITY OF BESSEMER

Gogebic County, Michigan

2.401 DEFINITIONS

2.402 INTRODUCTION

2.403 REVENUES

2.404 BILLING

2.405 ACCOUNTING

2.406 REVISIONS

APPENDIX A Methodology for Determining
User Charges

2.401 DEFINITIONS

Unless the context specifically indicates otherwise the following terms as used in this ordinance shall have the meanings hereinafter designated:

- (a) "Ammonia Nitrogen" ($\text{NH}_3\text{-N}$) means the form of nitrogen that has a chemical makeup of NH_3 , expressed in terms of weight and volume (milligrams per liter). Quantitative determination of $\text{NH}_3\text{-N}$ shall be made in accordance with procedures set forth below in "(z) Standard Methods.
- (b) "Approving Authority" means the board, commission or council that manages the City of Bessemer Sewerage Department.
- (c) "Bessemer Area Sewer Authority" means the public corporation incorporated by the City of Bessemer and Township of Bessemer and to acquire, own, improve, enlarge, extend and operate a sewage disposal system within the corporate boundaries of the above mentioned Contracting Members.
- (d) "Biochemical Oxygen Demand" (BOD) means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures in five (5) days at 20°C , expressed in terms of weight and volume (milligrams per liter). Quantitative determination of BOD shall be made in accordance with procedures set forth below in "(z) Standard Methods".
- (e) "Commerical User" is a user whose premises are used for practices related to or connected with trade and traffic or commerce in general and that primarily discharges wastes of a domestic nature. Commercial user shall include multiple family units having two or more dwelling units served by a single water meter. Commercial

user shall include all non-residential, non-governmental, non-industrial and non institutional users.

- (f) "Contracting Member" means a duly organized and existing municipal corporation under the laws of the State of Michigan that has entered into a contractual agreement for wastewater treatment system service with the Bessemer Area Sewer Authority.
- (g) "Debt Service Charge" is a charge that is required to pay the loan/bond principal and interest payments for the capital improvements of the facilities.
- (h) "Governmental User" is a user whose premises are used primarily by a Federal, State or local unit of government and that primarily discharge wastes of a domestic nature.
- (i) "Industrial User" is a user who discharges wastewater from industrial, manufacturing, trade or businesses processes, or has a wastewater discharge from any structure with these characteristics, as distinct from their employees domestic waste or waste from sanitary conveniences.
- (j) "Institutional User" is a user whose premises are publically owned and are used primarily for public purposes related to the medical and government sponsored housing professions, and that primarily discharge wastes of a domestic nature.
- (k) "Normal Wastewater Concentrations" means a BOD content of not more than 300 milligrams per liter, a suspended solids content of not more than 300 milligrams per liter, an ammonia-nitrogen content of not more than 45 milligrams per liter and a total phosphorus content of not more than 10 milligrams per liter.

- (l) "Operation and Maintenance" are activities required to assure the dependable and economical functions of treatment works.
- (i) Maintenance: Preservation of functional integrity and efficiency of equipment and structures. This includes preventive maintenance, corrective maintenance and replacement of equipment as needed.
- (ii) Operation: Control of the unit processes and equipment which make up the treatment works. This includes financial and personnel management records, laboratory control, process control, safety and emergency operation planning.
- (m) "Parts per Million" shall be a weight ratio as the parts per million value multiplied by the factor of 8.345 shall be equivalent to pounds per million gallons of water.
- (n) "pH" means the logarithm of the reciprocal of the concentration of hydrogen ions in grams per liter of solution.
- (o) "Phosphorus" means the total forms of phosphorus including orthophosphates, condensed phosphates, organic phosphorus and inorganic phosphorus expressed in terms of weight and volume (milligrams per liter). Quantitative determination of total phosphorus shall be made in accordance with procedures set forth below in "(z) Standard Methods".
- (p) "Pretreatment" means application of physical, chemical or biological processes to reduce the amount of pollutants in or alter the nature of the pollutant properties in a wastewater prior to discharging such wastewater into the publicly owned wastewater treatment system.

- (q) "Pretreatment Standards" means all applicable federal, state and local statutes, laws, ordinances, rules and regulations. In cases of conflicting standards or regulations, the more stringent thereof shall control.
- (r) "Replacement" means expenditures for obtaining and installing equipment, accessories, or appurtenances which are necessary during the useful life of the treatment works to maintain the capacity and performance for which such works were designed and constructed.
- (s) "Residential User" is a single family dwelling unit that primarily discharges wastes of a domestic nature.
- (t) "Sanitary Sewage" means a combination of water carried wastes from residences, business buildings, institutions and industrial plants (other than industrial wastes from such plants) together with such ground, surface or storm waters as may be present.
- (u) "Sanitary Sewer" means a sewer which carries wastewater and to which storm surface and groundwaters are not intentionally admitted.
- (v) "Sewer Service Charge" is a charge levied on the users of a sewer system for the users proportionate share of the cost of the operation and maintenance (including replacement) of such works and for the users share of the debt service.
- (w) "Significant Industrial User" means any industrial user of the wastewater treatment system whose flow exceeds (i) 10,000 gallons per day, or (ii) five percent (5%) of the daily capacity of the treatment system or contains (iii) greater than normal wastewater concentrations, or (iv) toxic pollutants.

- (x) "Shall" is mandatory.
- (y) "Slug" means any discharge of sewage or industrial waste which in concentration of any given constituent exceeds more than five times the average 24-hour concentration during normal operation.
- (z) "Standard Methods" means the examination and analytical procedures set forth in the most recent edition of "Standard Methods for the Examination of Water, Sewage and Industrial Wastes", published by the American Public Health Association, the American Water Works Association and the Federation of Sewage and Industrial Wastes Associations.
- (aa) "Storm Water" means any flow occurring during or following any form of natural precipitation and resulting therefrom.
- (bb) "Superintendent" means the City Manager of the City of Bessemer or his duly appointed deputy, agent or representative.
- (cc) "Suspended Solids" (SS) means the total suspended matter that floats on the surface of, or is suspended in, water, wastewater, or other liquids, a high percentage of which is removable by laboratory filtering. Measurements of quantities of suspended solids shall be made in accordance with procedures set forth above in "(z) Standard Methods".
- (dd) "Unpolluted Water" means water free from pollutants in excess of the quantities limited or prohibited by the federal, state or local effluent standards in effect, or water whose discharge will not cause any violation of federal, state or local receiving water quality standards.
- (ee) "User" means any person who discharges, causes or permits the discharge of wastewater into the wastewater treatment system.

- (ff) "User Charge" is a charge levied on users of a treatment works for the user's proportionate share of the cost of operation and maintenance (including replacement) of such works.
- (gg) "User Classification" means a classification of user based on the 1972 (or subsequent) edition of the Standard Industrial Classification (SIC) Manual prepared by the U.S. Office of Management and Budget.
- (hh) "Wastewater" means the liquid and water-carried industrial or domestic wastes from dwellings, commercial buildings, industrial facilities, and institutions, together with any groundwater, surface water, and storm water that may be present, whether treated or untreated, which is discharged into or permitted to enter the system.
- (ii) "Wastewater Treatment System" means any publicly owned devices, facilities, structures, equipment or works used for the purpose of the collection, transmission, storage, treatment, recycling and reclamation of industrial and domestic wastewaters.

2.402 INTRODUCTION

- a) All users now receiving sanitary sewer service from the City of Bessemer, or who may hereafter make application therefor, are deemed to be bound by this Ordinance, which shall be known as, referred to, or cited as the "Sewer User Charge System Ordinance for the City of Bessemer", and hereinafter referred to as the Ordinance.

- b) The City of Bessemer hereby finds that the requirements for the issuance of federal grants and the acceptance of such grants by the Bessemer Area Sewer Authority, of which it is a member, under Title II of the Federal Water Pollution Control Act Amendments of 1972, as amended, (Public Law 92-500, as amended) and the regulations of the U.S. Environmental Protection Agency as promulgated in the September 27, 1978, Federal Register, Volume 43, Number 188, part III, for the construction of wastewater treatment facilities to improve the quality of effluent discharges from the City of Bessemer, establish the necessity of adopting a user charge system that would be proportionate to all classes of users and produce the revenue required to sustain the sewage collection facilities and wastewater treatment facilities. No party is eligible for free service regarding user charges. User charges shall be proportionate for all classes of users of the City.
- c) In their interpretation and application, the provisions of this Ordinance shall be held to be minimum requirements and shall be liberally construed in favor of the City of Bessemer and shall not be deemed a limitation or repeal of any other power granted by the statutes of the State of Michigan.
- d) If any section, provision, or portion of this Ordinance is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of the Ordinance shall not be affected thereby.
- e) All other ordinances or parts of ordinances of the City of Bessemer inconsistent or conflicting with this Ordinance, to the extent of the inconsistency only, are hereby repealed.

- f) The Ordinance shall become effective after adoption by the City of Bessemer and publication or posting as provided by law.

2.403 REVENUES

- a) A sewer service charge shall be assessed to all users by the City of Bessemer in accordance with the provisions of the Ordinance. The sewer service charge shall consist of operation and maintenance charges, equipment replacement charges, and debt retirement charges.
- b) The City of Bessemer may under applicable statutes of the State of Michigan and local Ordinances, levy ad valorem taxes for general obligation bond principal and interest payments and any other purpose provided by law not related to the operation, maintenance, and replacement charges of the wastewater collection and treatment facilities. All remaining principal and interest payments not collected from ad valorem taxes shall be recovered through the sewer service charge.
- c) User Charge System
- (1) Budget

The City of Bessemer shall annually prepare an estimate of the anticipated costs of the wastewater collection and treatment systems for the forthcoming fiscal year. The budget shall be revised annually by the City of Bessemer on or near the first day of July of each year and shall be based on the actual operation and maintenance costs of the previous year.

(2) Operation and Maintenance Charges

Operation and maintenance costs shall be recovered through user charges. The costs shall be distributed in accordance with wastewater volume and strength discharging to the facilities. It is anticipated that all customers at start-up will discharge wastewater at or below "normal wastewater concentrations". Under this condition, operation, maintenance and replacement costs for the collection and treatment facilities shall be allocated on metered water volume (or estimated water volume) at each users location. When customers discharge above "normal wastewater concentrations", operation, maintenance and replacement costs for the collection and treatment facilities shall be allocated based on volume and strength of wastewater.

(3) Replacement Charges

The replacement charge shall be sufficient to replace any equipment in the wastewater collection facilities owned by the City of Bessemer and wastewater treatment facilities owned by the Bessemer Area Sewer Authority of which the City is a Contracting Member, as required, in order to assume the continued peak performance of the equipment and to maintain the capacity for which the facilities were designed and constructed. The service life for each piece of equipment shall be established by the Superintendent, in cooperation with the City's or Authority's consulting engineer and auditor, in accordance with Federal guidelines and accepted accounting procedures.

Each piece of equipment shall be evaluated annually to determine if its useful life has been extended as a result of preventative maintenance programs or repairs. The replacement costs shall be recovered through user charges, and shall be distributed in accordance with wastewater volume and strength discharged to the facilities. It is anticipated that all customers at start-up will discharge wastewater at or below "normal wastewater concentrations". Under this condition, operation, maintenance and replacement costs for the collection and treatment facilities shall be allocated on metered water volume (or estimated water volume) at each users location. When customers discharge above "normal wastewater concentrations", operation, maintenance and replacement costs for the collection and treatment facilities shall be allocated based on volume and strength of wastewater.

(4) Debt Retirement Charges

All debt retirement costs for general obligation bond principal and interest payments, not recovered from ad valorem taxes, shall be recovered through the sewer service charge. The cost shall be distributed on the basis of water meter size utilizing user charge factors as follows:

<u>METER SIZE</u>	<u>FACTOR</u>
3/4"	1
1"	2.5
1½"	4
2"	6
3"	10
4"	16
6"	30

- d) Revenues shall be collected through the sewer service charge from each user and shall consist of (1) a minimum quarterly billing including the debt retirement charges, and that part of the operation and maintenance costs that are customer related (fixed) and (2) a unit price per volume of water utilized including the operation and maintenance charges and the replacement charges. The City of Bessemer must generate sufficient revenue to pay it's share of the Bessemer Area Sewer Authority's total operation and maintenance costs.
- e) Water meter or Sewer meter readings shall be used to determine the actual volume for sewer use. If a portion of the water furnished to any customer is not discharged into the sewer system, the quantity of such water will be deducted in computing the charge for sewer service, provided a meter has been installed to measure such water. The customer must, at his own expense, make necessary changes in the water piping, and install couplings so that a meter can be set. A charge of \$1.75 per quarter shall be made for each such meter, up to a 1-inch meter. The charge for all larger meters shall be \$3.00 per quarter.
- f) Sewer users with an unmetered water supply and users with no history of billable flow shall have their billable flow estimated by averaging the billable flow of other users in the same class. The flow for residential users shall be not less than 13,700 gallons per quarter. The determination for equivalent meter size and estimated flow shall be made by the Superintendent with concurrence by the City of Bessemer.

- g) The methodology of determining the user charges is given in Appendix A. The City of Bessemer will maintain the proportionate distribution of operation, maintenance, and replacement costs among users and user classes.
- h) The user charges, and this ordinance, shall be reviewed not less than biennially. Such review shall be performed by the City of Bessemer and a certified public accountant. User charges shall be adjusted, as required, to reflect actual volumes of billable flow and actual costs. The budget costs as approved by the City of Bessemer shall be the basis for establishing new rates for the forthcoming year. Any excess revenues collected from a user class in the previous year will be applied to operation and maintenance costs attributable to that class for the next year.
- i) The City of Bessemer shall annually notify all users of the portion of the user charges which are necessary for debt retirement, operation and maintenance and replacement.

2.404 BILLING

- a) A bill shall be produced and submitted to each user once every quarter on a billing cycle established by the City Manager.
- b) Bills shall be come due and payable on the first of the month following the period for which service is rendered. A late payment charge equivalent to the prevailing short term loan interest rate available to the City plus 1.0% for administrative costs will be added to bills not paid within 20 days of issuance.
- c) The user may be given a written notice that the bill is overdue not sooner than 20 days after the bill is issued, and, unless payment

or satisfactory arrangements for payment is made within the next 8 days, the water service may be disconnected.

- d) The owner of any premises in which sewer service is provided shall be charged for all sewer use thereon, and shall be liable for the payment thereof, regardless of who may occupy such premises or use such sewer. Upon request, sewer use bills may be made out in the name of a tenant, but in such case the owner of the premises is not relieved of any liability for the payment of such sewer use bills. All delinquent sewer use bills will be placed on tax roll at year end. A 10% penalty charge will be added to all sewer use bills placed on the tax roll.

2.405 ACCOUNTING

- a) Monies

All user charge monies, and ad valorem tax receipts, shall be placed in a separate fund throughout the year. At the end of each year the monies collected as replacement charges for the collection system shall be placed in an accrued replacement reserve account.

- b) Expenditures

Expenditures shall be made from the user charges monies by the City Manager in accordance with the detailed annual budget and ordinances authorized by the City of Bessemer. Payments for operation and maintenance charges, debt service charges and replacement charges for the wastewater treatment facilities shall be made to Bessemer Area Sewer Authority on a monthly basis.

- c) Replacement Reserve Expenditures

Expenditures from the accrued replacement reserve on facilities shall be for making renewals to accommodate wear of physical ele-

ments and/or moveable property that would result in an extended useful life or meet the anticipated useful life.

d) Renewals

Renewals to accommodate wear of physical elements and/or movable property shall be capital expenditures that cause the annual estimate for accrued reserves from depreciation and replacement to be evaluated in terms of extended useful life as a result of preventive maintenance programs or of such renewals. The expenditures to overcome physical and/or functional obsolescence shall be capitalized against the element of the facility and charged to the fixed-assets groups of accounts as an improvement to such element. Future estimates of accrued reserve requirements shall be evaluated and reflected in the replacement reserve requirements.

e) Audit

An audit shall be performed annually by a certified public accountant selected by the City of Bessemer.

2.406 REVISIONS

a) This ordinance has been developed based on the fact that all present sewer users discharge wastewaters of Domestic nature only. The wastewater treatment facilities have been designed to accept wastewaters during dry-weather flow conditions with organic load concentrations at the facilities as follows:

BOD (5-day)	=	300 mg/l
Total Suspended Solids	=	300 mg/l
Total Phosphorus	=	10 mg/l
pH	=	6.0 to 9.0 mg/l
Ammonia-Nitrogen	=	45 mg/l

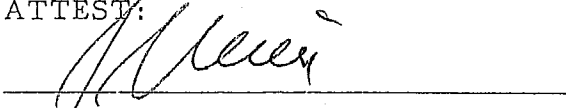
b) This ordinance shall be revised if an industrial user is authorized to discharge to the facilities, or any user is found to be discharging wastewaters containing concentrations of BOD, TSS, total phosphorus, pH and ammonia-nitrogen greater than those concentrations given in (a) above, or any other materials which are compatible with the treatment facilities but which increase operation and maintenance costs.

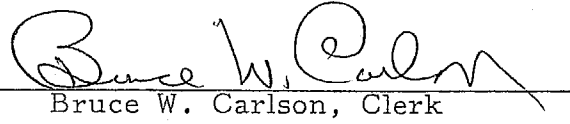
Passed and adopted by the City of Bessemer, Gogebic County, Michigan.



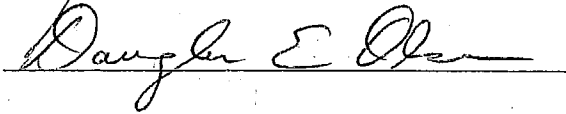
Joseph C. Bonovetz, Mayor

ATTEST:





Bruce W. Carlson, Clerk



PASSED: June 1, 1987

ADOPTED: June 1, 1987

PUBLISHED:

APPENDIX A

METHODOLOGY FOR DETERMINING
USER CHARGES

The methodology to be utilized by the City of Bessemer in determining the minimum quarterly billing per customer for sewer use, as well as the variable, unit price cost for sewer use is as follows: The user charges should be reviewed and updated no less than annually. It should be noted that the values given in this Appendix are for example purposes only. It will be necessary for the City of Bessemer to utilize the actual values, as determined by the annual audit, for (a) debt retirement, (b) operation and maintenance costs, (c) replacement costs, and (d) number of customers, each time the sewer use costs are determined. While the debt retirement, and replacement amounts may remain fairly constant, the other costs and numbers of customers may vary considerably at each review.

METHODOLOGY FOR DETERMINING SEWER USE CHARGES

I. SUMMARY OF ANTICIPATED USER COSTS

The debt retirement and fixed costs for each Contracting Member of the Bessemer Area Sewer Authority can be summarized as follows:

	<u>City of Bessemer</u>	<u>Bessemer Township</u>	<u>Grand View Hospital</u>
A. Annual Debt Retirement			
1. Wastewater Treatment Facility	\$45,121	\$ 4,405	\$ 2,788
2. Main Interceptor	6,347	283	179
3. Bessemer Tn. Interceptor	0	2,732	6,376
4. Other Sewers	31,269	0	0
	<hr/>	<hr/>	<hr/>
Subtotal	\$82,737	\$ 7,420	\$ 9,343
B. Annual Customer Related Fixed Costs			
Subtotal	\$ 8,921	\$ 35	\$ 9
C. Quarterly			
Debt Retirement	\$20,684.25	\$ 1,855.00	\$ 2,335.75
Fixed	<u>2,230.25</u>	<u>8.75</u>	<u>2.25</u>
TOTAL	\$22,914.50	\$ 1,863.75	\$ 2,338.00

The estimated annual operation and maintenance charge, replacement charge and debt retirement charge for each Contracting Member of the Bessemer Area Sewer Authority is summarized as follows:

	<u>City of Bessemer</u>	<u>Bessemer Township</u>	<u>Grand View Hospital</u>
A. Annual Debt Retirement Charges (Fixed)	\$ 82,737	\$ 7,420	\$ 9,343
B. Annual Treatment O & M and Replacement Charges			
(i) Variable	78,774	280	8,141
(ii) Fixed	8,921	35	9
C. Annual Collection O & M and Replacement Charges -			
(i) Variable	<u>38,500</u>	<u>101</u>	<u>5,389</u>
TOTAL	\$ 208,932	\$ 7,836	\$ 22,882

II. MINIMUM QUARTERLY BILLING

The minimum quarterly billing, per the Sewer User Charge System Ordinance, shall consist of debt retirement costs and that part of the Operation and Maintenance costs that are customer related (fixed) and not based on the wastewater discharge characteristics of volume or quantity. The debt retirement costs for the City have been estimated to be \$82,737. The customer related "fixed costs" have been estimated at \$8,921. The present number of users and total user charge factors are as given in Table 1.

Table 1
User Charge Factors

<u>Water Meter Size</u>	<u>Present Number of Customers</u>	<u>User Charge Factor</u>	<u>Total User Charge Factors</u>
5/8"-3/4"	994	1	994
1"-1 1/4"	7	2.5	17.5
1 1/2"-1-3/4"	2	4	8
2"	5	6	30
3"	0	10	0
4"	0	16	0
6"	0	30	0
<u>Unmetered</u>			
3/4"	2	1	2
	<u>1,010</u>		<u>1051.5</u>

The minimum quarterly charge for each meter size can be determined as follows:

1. Annual Debt Retirement

Total		=	\$82,737
a. Quarterly Minimum Cost:	$\frac{\$ 82,737}{4}$	=	\$20,684.25
b. Minimum Quarterly Cost per User Charge Factor:	$\frac{\$ 20,684.25}{1051.5}$	=	\$19.67

2. Customer Fixed Cost

a. Total Charges		=	\$8,921
b. Quarterly Minimum Cost:	$\frac{\$ 8,921}{4}$	=	\$2,230.25
c. Minimum Quarterly Cost per Customer:	$\frac{\$ 2,230.25}{1010}$	=	\$2.21

The minimum quarterly charge per meter size would then be determined as shown in Table 2.

Table 2 - Calculation of Minimum Quarterly Charge - City of Bessemer

Water Meter Size	User Charge Factor		Debt Cost Per Single UCF	=	Debt Cost Per User	+	Customer Cost	=	Total Debt Cost Per User	x	Number of Users	=	TOTAL
5/8"-3/4"	1	x	19.67	=	19.67	+	2.21	=	21.88	x	994	=	\$ 21,748.72
1'-1 1/2"	2.5	x	19.67	=	49.18	+	2.21	=	51.39	x	7	=	359.73
1 1/2"-1-3/4"	4	x	19.67	=	78.68	+	2.21	=	80.89	x	2	=	161.78
2"	6	x	19.67	=	118.02	+	2.21	=	120.23	x	5	=	601.15
Subtotal												=	\$ 22,871.38
Unmetered													
3/4" Equiv.	1	x	19.67	=	19.67	+	2.21	=	21.88	x	2	=	43.76
Subtotal												=	\$ 43.76
MINIMUM QUARTERLY												=	\$ 22,915.14
YEARLY TOTAL												=	\$ 91,660.56

C. VARIABLE QUARTERLY BILLING

(Unit Price Per Volume)

The cost to operate and maintain the sewage works will be paid by the users of the system on the basis of water utilized by such customers, as defined in the Sewer User Charges System Ordinance. As noted therein, operation and maintenance costs are defined, per the requirements of the U.S. Environmental Protection Agency, to include replacement costs. That is, a separate fund must be established in which monies will be accumulated to pay the cost "... for obtaining and installing equipment, accessories or appurtenances which are necessary to maintain the capacity and performance (of the sewage works) during (its) service life..." The method of determining the replacement costs is to utilize the installed cost of these facilities, excluding the cost for technical, legal, administrative and other fees since such costs will generally not be required when the item is replaced, and to assign a service life to such facilities in order to estimate when replacement will be required. A "sinking fund factor", at seven percent, is then utilized to determine the amount of money to be collected per year for replacement. It is anticipated that such funds will be invested by the City of Bessemer and Bessemer Area Sewer Authority in an interest-bearing account until required. The replacement costs for the wastewater treatment facility have been estimated to be \$9,206 by the Bessemer Area Sewer Authority.

While the replacement costs are fixed and must be collected from the users each year, the cost to operate and maintain the sewage works will most probably vary from year to year. For purposes of illustrating the method of determining the sewer use cost on a unit price per volume of water

utilized basis, it is assumed, based on 1987 projected budget costs, that the City's share of the treatment facilities annual operation and maintenance and replacement cost (excluding customer fixed costs) will be \$78,774 and that the operation and maintenance cost of the collection system will be \$38,500. Then the variable cost rate will be as follows:

DETERMINATION OF VARIABLE RATE

1. Total Annual Cost

a)	Operation and Maintenance and Replacement Cost of Treatment Facility	=	\$ 78,774
b)	Operation and Maintenance Cost of the Collection System	=	<u>\$ 38,500</u>
	TOTAL	=	\$117,274

2. Volume of Metered Water (Estimate of Use Volume from 1984 Meter Records)

56,500,000 gals/yr.

3. Sewer Use Variable Charge

a) Treatment

$$\frac{\$78,774}{56,500} = \$1.3942/1,000 \text{ gallons}$$

b) Collection

$$\frac{\$38,500}{56,500} = \$0.6814/1,000 \text{ gallons}$$

c) Total

$$\frac{\$117,274}{56,500} = \$2.0756/1,000 \text{ gallons}$$

The estimated treatment facility operation, maintenance and replacement cost for the various class of users is as follows:

I. City of Bessemer - Treatment

	MG <u>Per Year</u>	<u>Rate</u>	<u>Annual Cost</u>
Residential Class	43.4	1.3942	\$ 60,510
Commercial Class	11.1	1.3942	15,476
Governmental Class	2.0	1.3942	2,788
Institutional Class	<u>0</u>	1.3942	<u>0</u>
TOTAL	56.5		\$ 78,774

The estimated collection system operation, maintenance and replacement cost for the various class of users is as follows:

II. City of Bessemer - Collection

	<u>MG</u> <u>Per Year</u>	<u>Rate</u>	<u>Annual</u> <u>Cost</u>
Residential Class	43.4	0.6814	\$ 29,573
Commercial Class	11.1	0.6814	7,564
Governmental Class	2.0	0.6814	1,363
Institutional Class	<u>0</u>	0.6814	<u>0</u>
TOTAL	56.5		\$ 38,500

The estimated collection and treatment facilities operation, maintenance and replacement cost for the various class of users is as follows:

III. City of Bessemer - Collection and Treatment

	<u>MG</u> <u>Per Year</u>	<u>Rate</u>	<u>Annual</u> <u>Cost</u>
Residential Class	43.4	2.0756	\$ 90,083
Commercial Class	11.1	2.0756	23,040
Governmental Class	2.0	2.0756	4,151
Institutional Class	<u>0</u>	2.0756	<u>0</u>
TOTAL	56.5		\$ 117,274

To illustrate the cost to various classes of customers, assume the following water volumes were used by the customers as shown.

<u>Meter Size</u>	<u>Volume Water Used</u>	<u>Minimum Quarterly Charge</u>	<u>Cost Per 1,000 Gallon</u>		<u>1987 Total Quarterly Bill</u>
			<u>Unit Cost</u>	<u>Total</u>	
1. Residential 5/8"-3/4"	13,700	\$ 21.88	\$2.0756	\$ 28.44	\$ 50.32
2. Commercial 5/8"-3/4"	28,700	\$ 21.88	\$2.0756	\$ 59.57	\$ 81.45
1"-1 1/4"	59,700	\$ 51.39	\$2.0756	\$123.91	\$175.30
1 1/2"-1-3/4"	67,700	\$ 80.89	\$2.0756	\$140.52	\$221.41
2"	284,800	\$120.23	\$2.0756	\$591.13	\$711.36
3. Public Authority 5/8"-3/4"	68,800	\$ 21.88	\$2.0756	\$142.80	\$164.68
1"-1 1/4"	117,800	\$ 51.39	\$2.0756	\$244.51	\$295.90

It is likely that many of the large volume users do not discharge all of the water uses to the sanitary sewer system and that adjustments will be made to the volume charge.