C. C. 106

City of Cambridge

MASSACHUSETTS

In City Council _____ 198

C. Walsh / Ament Water Cafe SG fire dept. / Re: 7.5% for

Adj 23 Nays

	YEA	NAY	ABSENT	PRESENT
Mr. Thomas W. Danehy				
Mr. Francis H. Duehay				
Ms. Saundra Graham				
Mrs. Sheila T. Russell				
Mr. David E. Sullivan				
Mr. Walter J. Sullivan				
Mr. William H. Walsh				
Ms. Alice K. Wolf				
Mayor Alfred E. Vellucci				

Ch. Wm. C. Walsh

C. C. 106

City of Cambridge

MASSACHUSETTS

In City Council November 28 1985

Agenda Item #8 - Water Rate Block Structure

	YEA	NAY	ABSENT	PRESENT
Mr. Thomas W. Danehy				
Mr. Francis H. Duehay				
Ms. Saundra Graham				
Mrs. Sheila T. Russell				
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Mayor Alfred E. Vellucci				

CAMBRIDGE, MASSACHUSETTS

REPORT ON RETAIL WATER & SEWER RATE STRUCTURES

November, 1988

Camp Dresser & McKee Inc.
One Center Plaza
Boston, Massachusetts 02108

1. BACKGROUND

The following is an interim report which is part of the Water and Sewer Rate Study for the City of Cambridge (City) being completed by Camp Dresser & McKee Inc. The purpose of this report is to present the water conservation issues related to rates and rate structures.

Conservation is an important concern to the City of Cambridge due to several factors. The City currently consumes more water on average than the safe yield of their watershed. This means that the City could face severe shortages of water during a drought. The City's water supply has been periodically supplemented by the Massachusetts Water Resources Authority (MWRA), a regional wholesaler of water. This arrangement serves to minimize the effects of demand in excess of safe yield. However the City's contract for this emergency supply expires in December 1989. The City is concerned that the MWRA may not renew its contract to supply water on an "as needed" basis because the MWRA also has a limited quantity of water available.

As part of its water supply policies the MWRA is implementing numerous conservation related programs designed to reduce overall demand, thereby extending the useful life of its existing sources of supplies. The programs which the MWRA is undertaking for its member communities include, but are not limited to, domestic device retrofits, leak detection, and technical assistance on water pricing as a way to reduce consumption. The MWRA has included "...protecting the Cambridge Reservoir System" to prevent the loss of this water supply as an item in their water supply policies. Thus conservation is important in order to avoid, as much as possible, investments in new sources of water supply which may be both difficult to find and costly to obtain.

In addition, conservation can also serve to reduce the overall cost to the City of water supply and may, in the future, reduce the cost of wastewater treatment and disposal services from the MWRA. Water supplied by the MWRA will become increasingly more costly. The Authority has already forecast water rate increases averaging 30% over the next two years and has raised the potential need for future capital investments (including

possible water filtration) which could make MWRA water very expensive in the next decade. Thus minimizing unnecessary demands on the MWRA as a source of supply will avoid these increases. The MWRA has, from time to time, considered establishing sewer charges based on wastewater flow, in lieu of the current method of apportionment which is based on population and population equivalents. If this is done by the MWRA any water saved as a result of conservation will result in an automatic lowering of future MWRA wastewater charges.

Conservation is an issue which must be addressed by the Water Department due to the limited supply of the existing Cambridge watershed, the lack of available new supplies within the City, the MWRA's stated conservation goals, the financial advantages of conservation, and the demands being created by new connections to the City's water system due to economic expansion in the City.

It is possible to achieve water conservation through different programs. Water conservation programs include:

- mandatory restrictions on water use;
- flow reduction devices;
- leak detection surveys;
- public education campaigns;
- subsides for conservation related investments; and
- pricing incentives.

This report is concerned with the pricing incentives for water conservation. As with all commodities there is a relationship between the price of water and its demand (consumption), where the demand for water will generally decrease as the price of water increases. In Cambridge nearly all water consumers use the sewer system. Therefore, the maximum economic incentives for water conservation in Cambridge are derived by instituting incentives in both the water and sewer charges.

Pricing incentives at the local governmental level are implemented through the water and sewer billing systems. Two issues are important relative to conservation. The first is the

structure of the rates -- that is, how the bills to various customers are computed. The second issue is the level of the rates -- that is, what are the price(s) charged.

There are three typical rate structures used to bill customers for water and sewer service. These three rate structures are called: declining block rates; uniform rates; and increasing block rates.

The term "block" refers to a range of consumption over a given period of time for each customer. The blocks are used to sub-divide the total consumption of each customer for billing purposes. Once the total consumption is sub-divided the unit rate for consumption within each block is applied to the consumption in each block. The total charges for consumption in all the blocks equals the charges for each customer.

In a declining block rate structure the price per unit of water decreases in the progressively higher consumption blocks. Thus, the greater the consumption, the lower the cost, both between blocks and on average. Because the cost of water (or sewer service) drops as consumption increases, some view this type of rate structure as discouraging conservation.

A uniform rate structure charges the same price per unit of water service for all blocks. This form of a rate structure provides greater conservation incentives than does a declining block rate structure.

An increasing block rate structure raises the price per unit of water service in the blocks for higher consumption. Logically, this form of a rate structure provides the greatest incentive for conservation. Large water consumers pay the least amount under a decreasing block and the most under an increasing block. Because higher prices promote conservation the maximum economic incentive for water conservation is created by increasing block rate structures.

The effectiveness of economic incentives for water conservation are directly related to payback period related to the investment in water conserving fixtures and/or changes in operation. The payback period related to an investment is the number of years that it would take for the expected savings to equal the original investment. To promote water conservation the City can shorten the expected payback period for conservation equipment by:

- publicizing future rate increases;

- increasing the magnitude of its water and sewer rates; and/or

- changing its rate structure.

If a company is considering an investment in new equipment that could cut water consumption and/or reduce wastewater discharge it would be interested in the payback period of the investment. By publicizing the magnitude of anticipated increases it is possible to convince consumers to invest in water conservation immediately rather than waiting for the increases to take effect. Likewise, a rate increase would reduce the expected payback period for conservation equipment and make investments in conservation equipment more attractive to all consumers. Lastly, an increasing block rate structure also reduces the expected payback period for conservation equipment by raising the rates in the high consumption rate blocks.

Since previous rate increases have not reduced consumption to a level at or below the City's safe yield, a change in the rate structure can be one way used to reduce consumption. At any given rate an added incentive would be created by an increasing block rate structure in which the per unit charge increases as total consumption increases. This would tend to encourage customers to reduce their water consumption, particularly the large volume users that will have the greatest impact.

To maximize water conservation, the most appropriate structure for pricing water and sewer services is one based on increasing blocks. This type of structure can be effective in promoting conservation and be equitable to various types of customers while satisfying legal constraints. An increasing rate block structure should also help the City renegotiate its contract for emergency water supply from the Massachusetts Water Resources Authority (MWRA) which encourages increasing blocks.

2. IMPLEMENTATION CONSIDERATIONS

As the name implies an increasing block rate structure charges more per unit of consumption in successively higher usage levels. Once an increasing block rate structure is chosen two issues must be resolved. The first issue is the number and size of the blocks, and the second issue is the difference in the rates between each block.

NUMBER OF BLOCKS

Increasing block rate structures must provide:

- an opportunity to all customers to significantly reduce average rates through conservation, and
- blocks which can be understood by its customers.

The number of blocks in a water and/or sewer rate schedule should generally reflect the number of customer classifications. Most utilities have three customer classifications -- residential, commercial and industrial. In Cambridge, there are five classifications. These are:

- residential;
- commercial;
- industrial;
- institutional and;
- a miscellaneous category called other.

In an attempt to keep the rate schedule simple to understand it is desirable to implement as few blocks as possible. By implementing fewer blocks customers should be able to understand the rate structure better.

It is recommended that Cambridge use five blocks when implementing an increasing block rate structure to provide at least one block for each customer category without complicating the rate structure unnecessarily.

Once the number of blocks have been determined it is important to set the cutoffs for each block in a manner which reflects the consumption characteristics of each customer classification. In Cambridge there is a significant overlap in the consumption characteristics of the five customer categories. For this reason blocks were set in an attempt to place an equal amount of consumption in each block. The blocks were also set at annual limits which are divisible by four. (By making the annual limits in each block divisible by four the implementation of quarterly rates and the explanation of the new rate structure to customers should be simplified in the future.)

The proposed rate blocks for water and sewer service are:

Annual Use	Quarterly Use
0 - 40 Ccf	0 - 10 Ccf
41 - 400 Ccf	11 - 100 Ccf
401 - 2,000 Ccf	101 - 500 Ccf
2,001 - 10,000 Ccf	501 - 2,500 Ccf
over 10,000 Ccf	over 2,500 Ccf

The proposed blocks for water and sewer customers with the percentage of customers in each block are shown in Table 1 for combined water and sewer usage. This table was compiled from consumption data covering the period of July 1, 1987 through June 30, 1988 supplied by the City.

In determining consumption by rate block an adjustment was made to the City's records. At present, multiunit residential and commercial buildings with a single master meter (measuring consumption for the entire building) are billed as if they were one account. Under a block rate system, it is appropriate to "disaggregate" the building's total consumption into that consumption that takes place in each unit when possible. Because

most of these buildings have only a single master meter, there is no consumption data for each residential unit. [1]

Increasing block rates place an unfair burden on tenants of multi-unit buildings. Individual units in a multi-unit building should be billed like a single detached unit where the billing is based on the use of one unit. To calculate bills in a manner which treats tenants of multi-unit buildings as individual units utilities divide the multi-unit building's total metered use by the number of units. The utility then calculates a bill for a single unit based on the average use per unit, and then multiplies that bill by the total number of units to determine the building's total charges. This type of disaggregation of multiunit buildings has been done for this study, and all subsequent tables and figures reflect this adjustment.

There is a relatively good fit between the various rate blocks identified in Table 1 and the customer categories. In general, residential customers fall into the first two blocks. "Other" customers fall into the second and third blocks, while commercial customers fall into the third and fourth blocks. Finally the large industrial and institutional customers comprising most of the consumption in the highest blocks fall into the fourth and fifth blocks.

A graphical representation of the cumulative consumption data is contained in Figure 1. The X axis presents the volume consumed in hundreds of cubic feet per year. (One hundred cubic feet of water equals 748 gallons.) The Y axis presents the percentage of total use less than or equal to the consumption amount on the X axis..

Figure 2 presents the cumulative number of accounts by consumption level.

PRICE ELASTICITY

The adoption of an increasing block rate structure is intended to reduce water consumption and wastewater discharge through price incentives. The amount of decrease in use that can be expected is based on the elasticity of the price of water and wastewater service. For a perfectly elastic commodity, a doubling of price will result in

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1 It is common practice to master meter multi-unit buildings. If each unit had an individual meter it would be more costly for both parties -- the building owner would have significant additional plumbing expenses and the City would have many more meters to read and bills to prepare, send and collect.

TABLE 1

CITY OF CAMBRIDGE WATER AND WASTEWATER USAGE
WATER/SEWER BLOCK INFORMATION BY UNIT

PERCENT CONSUMPTION IN EACH BLOCK BASED ON FY 1988 CONSUMPTION

	Proposed Blocks							
Block Number	Lower Limit (CcF)	Upper Limit (CcF)	Residential	Commercial	Industrial	Institutional	Other	Total
1	0	40	37.20%	3.09%	0.79%	1.55%	7.16%	17.59%
2	41	400	37.93%	15.78%	5.43%	8.64%	29.60%	23.47%
3	401	2,000	13.32%	28.27%	14.65%	18.60%	28.64%	18.50%
4	2,001	10,000	8.80%	29.72%	34.81%	32.58%	19.43%	21.29%
5	10,000		2.75%	23.13%	44.33%	38.64%	15.17%	19.15%
			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

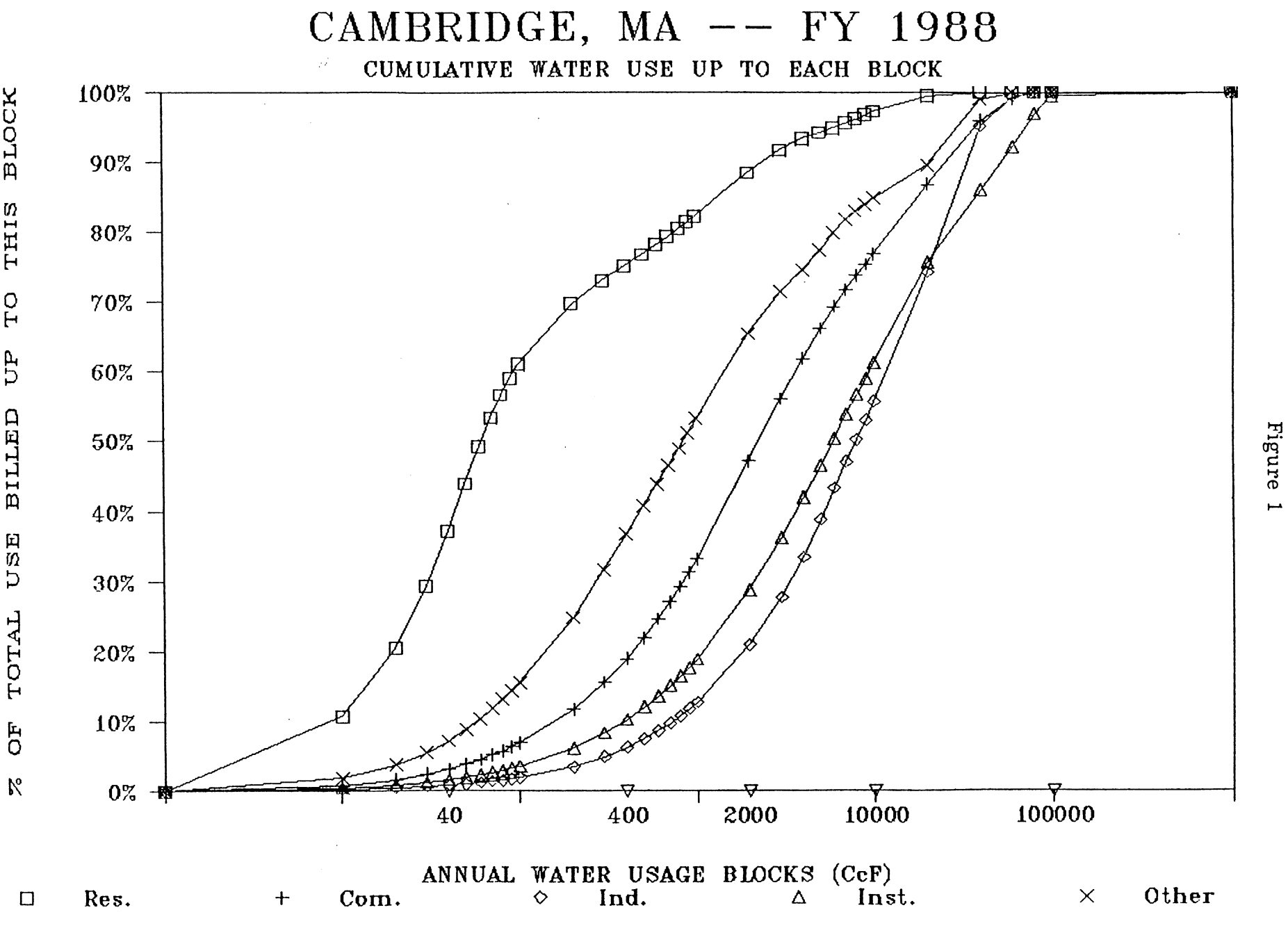
CAMBRIDGE, MA -- FY 1988
CUMULATIVE WATER USE UP TO EACH BLOCK
% OF TOTAL USE BILLED UP TO THIS BLOCK
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
40
400
2000
10000
100000
ANNUAL WATER USAGE BLOCKS (CcF)
Res.
Com.
Ind.
Inst.
Other

Figure 1

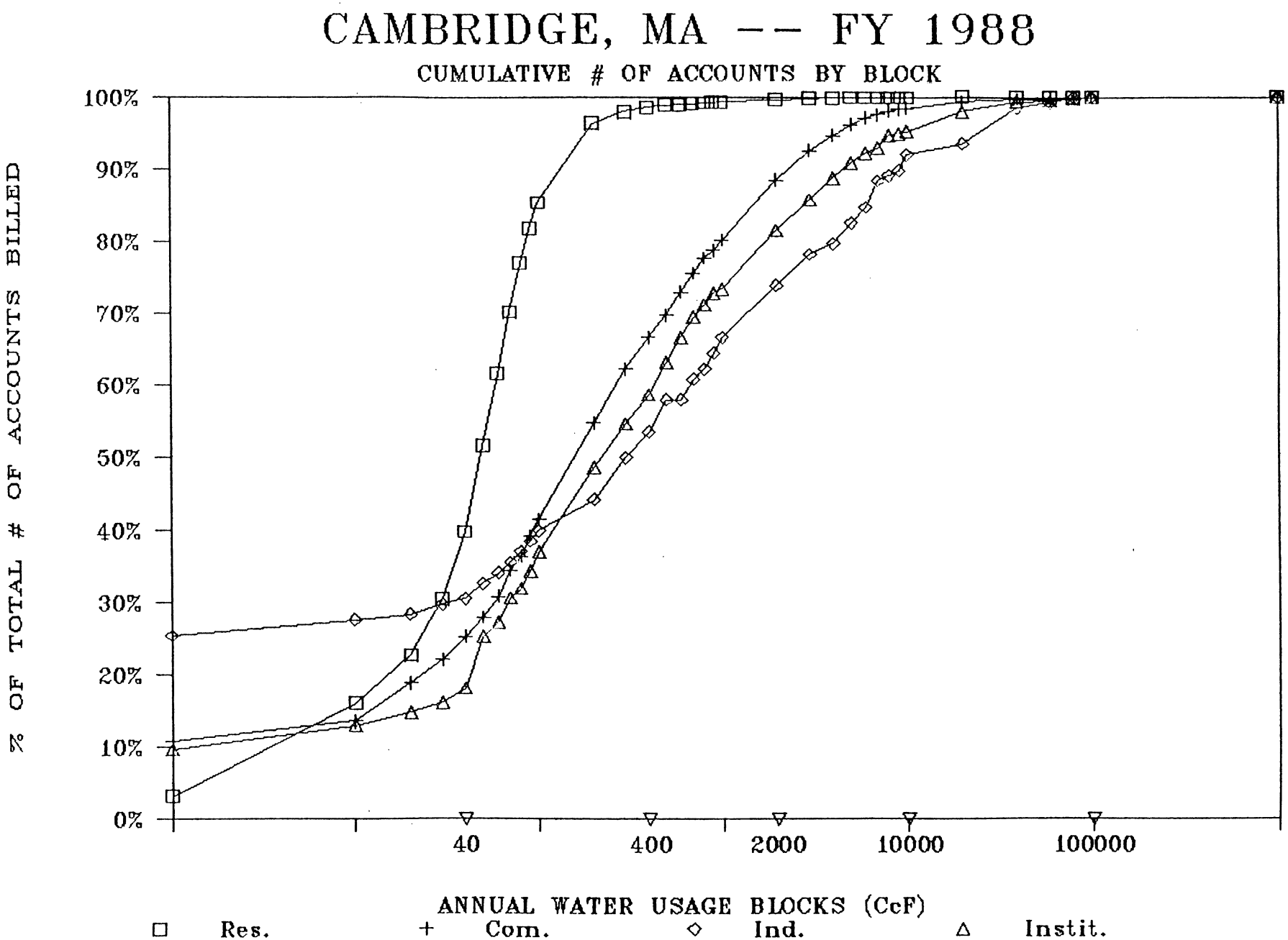
CAMBRIDGE, MA -- FY 1988
CUMULATIVE # OF ACCOUNTS BY BLOCK
% OF TOTAL # OF ACCOUNTS BILLED
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
40
400
2000
10000
100000
ANNUAL WATER USAGE BLOCKS (CcF)
Res.
Com.
Ind.
Instit.

Figure 2

use being reduced by a factor of two. For a less elastic commodity, a doubling of the price will result in decreases in use that are less than half.

There has been considerable research on the price elasticity of water and wastewater service, with widely varying elasticity measurements reported in the literature. In general, the consumptive response will depend on the user, how important the product (water) is to the consumer, and if there is a substitute product that can be obtained less expensively.

In general, there are no less expensive substitutes for water. Customers can purchase bottled water, however it is significantly more expensive than that provided by the City. However, some residential uses are discretionary, and can be significantly reduced without a hardship. These types of discretionary use include irrigation and car washing. Further, the amount of use by residential customers can generally be reduced by taking shorter showers or not allowing water to run needlessly. Finally, water saving plumbing devices, such as low volume toilets or shower restrictors can be installed to reduce demand.

For non-residential uses it is more difficult to determine elasticity due to the wide variations in non-residential uses of water. Generally, non-residential users will evaluate the cost of the product (water and wastewater service) vs. the cost of installing water saving or recycling devices. If the cost of water is high enough, it is worth the one-time cost of installing these devices or changing operations.

For purposes of this interim report we have assumed no reduction in water use for the balance of this fiscal year even if the Council adopts the proposed rates for implementation on January 1, 1989. Though customers may hear of the new rate structure, we believe that many customers will not react until they actually see the new bills reflecting the rate structure change. Further, new connections to the water system may offset reductions in consumption by existing customers.

For fiscal year 1990 we believe there will be a response. The decrease in use by existing customers will however be offset by the growth in the customer base that has been occurring over the past few years. Accordingly, for purposes of this report, we have assumed no net change in metered water consumption. As explained above it is very difficult to predict how customers will respond to a change in the rate structure. The City

should closely monitor metered water consumption over the coming year and adjust this assumption as needed.

Lastly, there are other factors which influence water use. One primary factor is rainfall amcunts and intensity. In years with frequent spring and summer rainfalls there will be less need for irrigation. As a result, customers will tend to reduce consumption independent of price considerations. The City should be somewhat conservative in estimating future metered water use to ensure that the combined effects of a new rate structure and frequent spring and summer rains will not reduce consumption to such an extent that revenues will fall short of needs.

3. SETTING RATES FOR EACH BLOCK

To implement the increasing block rate structure a differential in the rate between each block has to be determined. The first block will pay the lowest rate. Each subsequent block pays an additional amount above the previous block's rate.

In setting the rates for the increasing blocks several alternative differentials were considered. A minimum differential of 1% was compared to differentials of 2.5% and 5%. In the case where the differential is set at five percent the first block is set to the lowest rate. The second block rate is then set equal to five percent more than the first block. Then the third block is set equal to five percent more than the second block, and so on.

When setting the increasing block rates, the City must be assured that the consumption charges will pay for all expenses, including capital costs. The rates which are recommended for each block will be adequate to recover the City's total cost of service on an annualized basis. To avoid customer dissatisfaction, any group of customers should not be burdened with excessive increases over a short run period -- what constitutes an excessive increase is somewhat subjective.

The increasing block rates for sewer service were determined in the same manner as the water rates. It should be noted however, that according to EPA construction grant requirements the operation and maintenance expenses must be recovered in a uniform rate. The recovery mechanism for non- operation and maintenance costs (MWRA debt, for example) is not constrained by the EPA regulations. For this reason, the lowest block sewer rate must be greater than or equal to the operation and maintenance cost divided by the expected billable sewer volume. Due to debt service assessments from the MWRA the lowest sewer rate is always greater than the operation and maintenance expenses divided by the expected billable sewer volume. For this reason, increasing blocks for sewer service can be set up in a manner identical to the increasing blocks for water service.

Increasing block water or sewer rate structures are equitable when the same rate structure is applied to all customers. Those proposed herein are also equitable in the sense that the absolute increase between each step (block) is the same amount. Furthermore, each customer's bill is computed by applying each block rate to the usage which falls in each block. Therefore a customer using 30,000 hundred cu. ft. per year pays the same unit amount for his first 40 hundred cu. ft. per year as a customer using only 20 hundred cu. ft. per year.

Growing awareness and concern for conservation of water resources has led to acceptance of economic incentives for conservation in many areas, particularly where demand for water is exceeding or approaching supply limitations (as in the case of Cambridge). Despite the need for conservation, and despite the attempt to equitably implement the increasing block rate structure it is important that the water and sewer customers understand that this change is being implemented for the benefit of all customers by helping to preserve adequate supply for all customers.

4. COMPARISON OF ALTERNATIVE DIFFERENTIALS

Once the revenue required and the expected consumption in each block is determined, the real issue is the differential in the rate that would be applied to each block.

The differential between the rates in each block are predicated on the need to conserve water and reduce wastewater discharge. In general, the higher the differential, the greater the expected reduction in use. However, larger differentials in the rate blocks will also result in greater bill impacts for large volume users and less revenue stability.

Comparisons of four differentials were made including 0%, 1%, 2.5%, and 5%. The percentage increase in the rates for each block which results from each differential is presented in Table 2. The percentage increases and decreases indicated in this table are those that would result from implementing the stated differential with the same revenue recovery.

The rates and charges that result from each differential for fiscal years 1990, 1991 and 1992 are presented in Tables 3, 4, and 5 respectively. In evaluating which differential is most equitable City officials may wish to consider the rates and charges of other cities and towns in the Commonwealth that have adopted increasing rate blocks which are presented in Tables 6, and 7. Table 8 presents the charges that various customers in Cambridge would be billed in other cities and towns that have increasing block rates, as a percent of the FY 1989 charges in Cambridge.

TABLE 2

CITY OF CAMBRIDGE COMBINED WATER & SEWER USAGE

% RATE INCREASE RELATED TO CHANGE IN BLOCK STRUCTURE

	Differential Between Blocks			
Block	0%	1%	2.5%	5%
1	0.0%	-2.0%	-4.9%	-9.5%
2	0.0%	-1.0%	-2.5%	-5.0%
3	0.0%	0.0%	-0.1%	-0.3%
4	0.0%	1.0%	2.4%	4.7%
5	0.0%	2.0%	5.0%	10.0%

Note: Unit Consumption is the basis for charging this consumption. Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

TABLE 3

CITY OF CAMBRIDGE COMBINED WATER & SEWER USAGE

1990 RATES UNDER VARIOUS DIFFERENTIALS ($/100 CuFt)

Block	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
1	$2.462	$2.413	$2.342	$2.227
2	$2.462	$2.437	$2.401	$2.338
3	$2.462	$2.462	$2.461	$2.455
4	$2.462	$2.486	$2.522	$2.578
5	$2.462	$2.511	$2.585	$2.707

Note: Unit Consumption is the basis for charging this consumption. Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

TABLE 4

CITY OF CAMBRIDGE COMBINED WATER & SEWER USAGE

1991 RATES UNDER VARIOUS DIFFERENTIALS ($/100 CuFt)

	Differential Between Blocks			
Block	0.00%	1.00%	2.50%	5.00%
1	$3.236	$3.172	$3.078	$2.927
2	$3.236	$3.204	$3.155	$3.073
3	$3.236	$3.236	$3.234	$3.227
4	$3.236	$3.268	$3.315	$3.388
5	$3.236	$3.301	$3.398	$3.558

Note: Unit Consumption is the basis for charging this consumption. Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

TABLE 5

CITY OF CAMBRIDGE COMBINED WATER & SEWER USAGE

1992 RATES UNDER VARIOUS DIFFERENTIALS ($/100 CuFt)

	Differential Between Blocks			
Block	0.00%	1.00%	2.50%	5.00%
1	$4.200	$4.117	$3.995	$3.799
2	$4.200	$4.158	$4.095	$3.989
3	$4.200	$4.200	$4.197	$4.188
4	$4.200	$4.242	$4.302	$4.398
5	$4.200	$4.284	$4.410	$4.618

Note: Unit Consumption is the basis for charging this consumption. Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

TABLE 6

EXAMPLES OF WATER AND SEWER INCREASING RATE BLOCKS IN MASSACHUSETTS

	Blocks	CcF	WATER	SEWER
Boston	First	69	$1.223/CcF	$1.193/CcF
	Up to	142	$1.225/CcF	$1.208/CcF
	Up to	325	$1.228/CcF	$1.222/CcF
	Up to	580	$1.232/CcF	$1.235/CcF
	Up to	1274	$1.235/CcF	$1.249/CcF
	Up to	2186	$1.237/CcF	$1.263/CcF
	Up to	4741	$1.240/CcF	$1.277/CcF
	Up to	10946	$1.243/CcF	$1.291/CcF
	Up to	21896	$1.245/CcF	$1.305/CcF
	Over	21896	$1.248/CcF	$1.319/CcF

Hanover

$17.25 basic charge
5 CcF or > $1.50/CcF
5 - 30 CcF $2.45/CcF
> 30 CcF $3.00/CcF

No sewer rates for the City of Hanover.

Melrose

50 CcF or < $0.82/CcF
50 - 100 CcF $0.92/CcF
100 - 150 CcF $1.02/CcF
> 150 CcF $1.07/CcF

Sewer - Take 90% of water consumption and bill at $1.15/CcF.

Newton

40 CcF or < $1.04/CcF
40 - 80 CcF $1.23/CcF
> 80 CcF $1.42/CcF

Sewer rates are exactly the same as water rates.

Shrewsbury

6.68 CcF or < $10.00
6.68 - 66.85 CcF $0.56/CcF
66.85 CcF or > $0.73/CcF

Sewer - $1.09/1.37 CcF of water consumption.

TABLE 7

Presentation of Charges in
Comparable Cities and Towns

COMBINED WATER AND SEWER SERVICES

CHARGE PER YEAR TO TYPICAL CUSTOMERS		Cambridge FY 1989 FLAT RATE	Boston	Melrose	Newton	Shrews.
Small Residential Unit	32 CcF/Yr	$60	$77	$59	$66	$50
1 Avg. Residential Unit	86 CcF/Yr	$162	$208	$163	$199	$124
2 Unit Residential Bldg	172 CcF/Yr	$324	$418	$340	$443	$255
3 Unit Residential Bldg	258 CcF/Yr	$487	$629	$521	$687	$387
4 Unit Residential Bldg	344 CcF/Yr	$649	$840	$702	$931	$518
Avg Unclassified Unit	511 CcF/Yr	$964	$1,252	$1,053	$1,406	$772
Avg Commercial Unit	1,066 CcF/Yr	$2,011	$2,629	$2,221	$2,982	$1,619
Avg Institutional Unit	2,050 CcF/Yr	$3,867	$5,086	$4,293	$5,776	$3,120
Avg Industrial Unit	3,643 CcF/Yr	$6,871	$9,093	$7,646	$10,301	$5,543
Largest Industr. Unit	63,087 CcF/Yr	$118,982	$161,240	$132,776	$179,121	$96,235
Largest Commerc. Unit	69,001 CcF/Yr	$130,136	$176,421	$145,225	$195,917	$105,257
Largest Instit. Unit	107,345 CcF/Yr	$202,456	$274,850	$225,939	$304,814	$163,753

NOTE: Based on rates as of October 1988.

TABLE 8

COMBINED WATER AND SEWER CHARGES
As a Percent Of Cambridge's Charges

CHARGE PER YEAR TO TYPICAL CUSTOMERS		Cambridge FY 1989 FLAT RATE	Boston	Melrose	Newton	Shrews.
Small Residential Unit	32 CcF/Yr	100%	129%	99%	110%	83%
1 Avg. Residential Unit	86 CcF/Yr	100%	128%	101%	123%	77%
2 Unit Residential Bldg	172 CcF/Yr	100%	129%	105%	137%	79%
3 Unit Residential Bldg	258 CcF/Yr	100%	129%	107%	141%	79%
4 Unit Residential Bldg	344 CcF/Yr	100%	129%	108%	144%	80%
Avg Unclassified Unit	511 CcF/Yr	100%	130%	109%	146%	80%
Avg Commercial Unit	1,066 CcF/Yr	100%	131%	110%	148%	81%
Avg Institutional Unit	2,050 CcF/Yr	100%	132%	111%	149%	81%
Avg Industrial Unit	3,643 CcF/Yr	100%	132%	111%	150%	81%
Largest Industr. Unit	63,087 CcF/Yr	100%	136%	112%	151%	81%
Largest Commerc. Unit	69,001 CcF/Yr	100%	136%	112%	151%	81%
Largest Instit. Unit	107,345 CcF/Yr	100%	136%	112%	151%	81%

NOTE: Based on rates as of October 1988.

5. RATE DIFFERENTIAL

There is no rule that specifies what the differentials between rate blocks should be in the City of Cambridge, nor that the differential between each rate block should be the same. The differential between each block is essentially a policy decision that the City will have to make. While it is recommended that the differentials between each block are the same to keep explanations of the rate structure simple, the differentials between each block could be varied if the City desires. In making this determination, there are several factors to consider.

From the City's perspective as a utility operator it is important to consider the issue of revenue stability. If the differential between each block is extreme and provokes severe cutbacks in consumption in the more expensive rate blocks then the City could experience a revenue shortfall as a result of water conservation.

Another consideration that the City must consider is the possibility of a legal challenge due to the magnitude of the differential. If any class of customers believes that the differential places an unfair burden on their classification then the City could face a legal challenge. The multiple blocks included herein should help limit the City's exposure to a lawsuit, but multiple blocks do not eliminate the concern. For this reason customer acceptance should be considered when choosing the magnitude of the differential between the rate blocks.

Finally, the City should allow customers an opportunity to become aware of a new rate policy before a differential is adopted. This will allow customers to modify their water use habits and/or install new water saving devices.

6. SUMMARY

An increasing block rate structure will maximize the economic incentives for conservation. The most appropriate rate structure for the City would have five blocks. Through these multiple blocks the City would provide an opportunity to all of its customers to benefit economically from their water conservation efforts.

Considering the rate structures in other communities in the Commonwealth as well as the other factors presented, a rate structure with a 5% differential is recommended for adoption prior to January 1, 1989 that will be effective on billings in FY 1990. This does not result in severe short-term impacts on any customer, but will send the proper pricing signals to all customers. It should allow customers time to revise their water use habits or make decisions to purchase water saving devices. If, after a year or two, consumption does not decrease (after accounting for customer growth), the City should consider a greater differential in the blocks to achieve conservation.

Table 9 presents the rates proposed for adoption by the City Council, effective on bills after July 1, 1989. These rates reflect the 5% differential in the rate blocks discussed above. They were designed to recover the revenue needs for FY 1990. Table 10 presents the impact of the rate structure change on various types of customers.

TABLE 9

CITY OF CAMBRIDGE COMBINED WATER & SEWER USAGE

FY 1990 RATES ($/100 CuFt)

Block	Proposed Blocks: Lower Limit (CcF)	Proposed Blocks: Upper Limit (CcF)	5.00% Differential: Water	5.00% Differential: Sewer
1	0	40	$0.806	$1.361
2	41	400	$0.846	$1.429
3	401	2,000	$0.889	$1.501
4	2,001	10,000	$0.933	$1.576
5	10,000		$0.980	$1.654

Note: Unit Consumption is the basis for charging this consumption. Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

TABLE 10 - C

CITY OF CAMBRIDGE COMBINED WATER & SEWER USAGE

1990 ANNUAL CONSUMPTION CHARGES UNDER VARIOUS DIFFERENTIALS

	Customer	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
Small Residential Unit	32 CcF/Yr	$78	$77	$74	$71
1 Avg Residential Unit	86 CcF/Yr	$212	$209	$204	$197
2 Unit Residential Bldg	172 CcF/Yr	$423	$417	$408	$393
3 Unit Residential Bldg	258 CcF/Yr	$635	$626	$612	$590
4 Unit Residential Bldg	344 CcF/Yr	$847	$834	$817	$787
Avg Unclassified Unit	511 CcF/Yr	$1,258	$1,247	$1,231	$1,203
Avg Commercial Unit	1,066 CcF/Yr	$2,624	$2,614	$2,597	$2,566
Avg Institutional Unit	2,050 CcF/Yr	$5,047	$5,037	$5,022	$4,988
Avg Industrial Unit	3,643 CcF/Yr	$8,969	$8,998	$9,039	$9,094
Largest Industr. Unit	63,087 CcF/Yr	$155,320	$158,102	$162,302	$169,189
Largest Commerc. Unit	69,001 CcF/Yr	$169,880	$172,953	$177,589	$185,198
Largest Institu. Unit	107,347 CcF/Yr	$264,288	$269,239	$276,714	$289,001

TABLE 10 - W

CITY OF CAMBRIDGE WATER DEPARTMENT

1990 ANNUAL CONSUMPTION CHARGES UNDER VARIOUS DIFFERENTIALS

	Customer	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
Small Residential Unit	32 CcF/Yr	$28	$28	$27	$26
1 Avg Residential Unit	86 CcF/Yr	$77	$75	$74	$71
2 Unit Residential Bldg	172 CcF/Yr	$153	$151	$148	$142
3 Unit Residential Bldg	258 CcF/Yr	$230	$226	$221	$213
4 Unit Residential Bldg	344 CcF/Yr	$307	$302	$295	$285
Avg Unclassified Unit	511 CcF/Yr	$455	$451	$445	$435
Avg Commercial Unit	1,066 CcF/Yr	$950	$946	$939	$929
Avg Institutional Unit	2,050 CcF/Yr	$1,827	$1,823	$1,816	$1,806
Avg Industrial Unit	3,643 CcF/Yr	$3,246	$3,255	$3,269	$3,292
Largest Industr. Unit	63,087 CcF/Yr	$56,211	$57,173	$58,703	$61,248
Largest Commerc. Unit	69,001 CcF/Yr	$61,480	$62,543	$64,232	$67,044
Largest Institu. Unit	107,347 CcF/Yr	$95,646	$97,361	$100,086	$104,623

TABLE 10 - S

CITY OF CAMBRIDGE SEWER SERVICE

1990 ANNUAL CONSUMPTION CHARGES UNDER VARIOUS DIFFERENTIALS

	Customer	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
Small Residential Unit	32 CcF/Yr	$48	$47	$45	$43
1 Avg Residential Unit	86 CcF/Yr	$129	$127	$125	$120
2 Unit Residential Bldg	172 CcF/Yr	$259	$255	$249	$240
3 Unit Residential Bldg	258 CcF/Yr	$388	$382	$374	$361
4 Unit Residential Bldg	344 CcF/Yr	$517	$510	$499	$481
Avg Unclassified Unit	511 CcF/Yr	$769	$762	$752	$735
Avg Commercial Unit	1,066 CcF/Yr	$1,603	$1,597	$1,586	$1,569
Avg Institutional Unit	2,050 CcF/Yr	$3,083	$3,077	$3,067	$3,049
Avg Industrial Unit	3,643 CcF/Yr	$5,479	$5,497	$5,522	$5,560
Largest Industr. Unit	63,087 CcF/Yr	$94,883	$96,589	$99,196	$103,384
Largest Commerc. Unit	69,001 CcF/Yr	$103,778	$105,661	$108,540	$113,166
Largest Institu. Unit	107,347 CcF/Yr	$161,450	$164,484	$169,126	$176,590

APPENDIX

CITY OF CAMBRIDGE COMBINED WATER & SEWER USAGE

MULTIUNIT CONSUMPTION CHARGE SAVINGS

Differential Between Blocks	1990	1991	1992
0.00%	$0	$0	$0
1.00%	$15,589	$14,837	$24,120
2.50%	$32,851	$42,398	$54,538
5.00%	$61,587	$81,696	$105,052

Note: This table presents the anticipated aggregate saving enjoyed by tenants of multi-unit buildings that is directly related to the use of the number of units in the calculation of the rate blocks.

Since Cambridge had the number of units in each account it became possible to determine the consumption of each unit within a multi-unit dwelling. Using the consumption on a per unit basis then shifts the account into a lower rate block in many cases.

APPENDIX

CITY OF CAMBRIDGE WATER DEPARTMENT

MULTIUNIT CONSUMPTION CHARGE SAVINGS

Differential Between Blocks	1990	1991	1992
0.00%	$0	$0	$0
1.00%	$6,541	$5,200	$6,965
2.50%	$14,045	$15,101	$18,061
5.00%	$25,422	$27,239	$31,551

Note: This table presents the anticipated aggregate saving enjoyed by tenants of multi-unit buildings that is directly related to the use of the number of units in the calculation of the rate blocks.

Since Cambridge had the number of units in each account it became possible to determine the consumption of each unit within a multi-unit dwelling. Using the consumption on a per unit basis then shifts the account into a lower rate block in many cases.

APPENDIX

CITY OF CAMBRIDGE SEWER SERVICE

MULTIUNIT CONSUMPTION CHARGE SAVINGS

Differential Between Blocks	1990	1991	1992
0.00%	$0	$0	$0
1.00%	$9,047	$9,637	$17,155
2.50%	$18,806	$27,297	$36,477
5.00%	$36,165	$54,457	$73,501

Note: This table presents the anticipated aggregate saving enjoyed by tenants of multi-unit buildings that is directly related to the use of the number of units in the calculation of the rate blocks.

Since Cambridge had the number of units in each account it became possible to determine the consumption of each unit within a multi-unit dwelling. Using the consumption on a per unit basis then shifts the account into a lower rate block in many cases.

APPENDIX

CITY OF CAMBRIDGE COMBINED WATER & SEWER USAGE

1991 ANNUAL CONSUMPTION CHARGES UNDER VARIOUS DIFFERENTIALS
FOR RESIDENTIAL CUSTOMERS

	Customer	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
Small Residential Unit	32 CcF/Yr	$103	$101	$98	$93
1 Avg Residential Unit	86 CcF/Yr	$278	$274	$268	$258
2 Unit Residential Bldg	172 CcF/Yr	$557	$549	$537	$517
3 Unit Residential Bldg	258 CcF/Yr	$835	$823	$805	$775
4 Unit Residential Bldg	344 CcF/Yr	$1,113	$1,097	$1,073	$1,034
Avg Unclassified Unit	511 CcF/Yr	$1,654	$1,640	$1,618	$1,582
Avg Commercial Unit	1,066 CcF/Yr	$3,450	$3,435	$3,413	$3,373
Avg Institutional Unit	2,050 CcF/Yr	$6,634	$6,621	$6,599	$6,556
Avg Industrial Unit	3,643 CcF/Yr	$11,789	$11,827	$11,880	$11,953
Largest Industr. Unit	63,087 CcF/Yr	$204,150	$207,842	$213,343	$222,374
Largest Commerc. Unit	69,001 CcF/Yr	$223,287	$227,364	$233,439	$243,416
Largest Institu. Unit	107,347 CcF/Yr	$347,375	$353,944	$363,738	$379,851

Note: Unit Consumption is the basis for charging this consumption.
Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

APPENDIX

CITY OF CAMBRIDGE WATER DEPARTMENT

1991 ANNUAL CONSUMPTION CHARGES UNDER VARIOUS DIFFERENTIALS
FOR RESIDENTIAL CUSTOMERS

	Customer	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
Small Residential Unit	32 CcF/Yr	$33	$33	$32	$30
1 Avg Residential Unit	86 CcF/Yr	$90	$89	$87	$84
2 Unit Residential Bldg	172 CcF/Yr	$180	$177	$173	$167
3 Unit Residential Bldg	258 CcF/Yr	$270	$266	$260	$251
4 Unit Residential Bldg	344 CcF/Yr	$359	$354	$347	$334
Avg Unclassified Unit	511 CcF/Yr	$534	$530	$522	$511
Avg Commercial Unit	1,066 CcF/Yr	$1,114	$1,110	$1,102	$1,090
Avg Institutional Unit	2,050 CcF/Yr	$2,142	$2,140	$2,131	$2,119
Avg Industrial Unit	3,643 CcF/Yr	$3,807	$3,822	$3,835	$3,863
Largest Industr. Unit	63,087 CcF/Yr	$65,926	$67,179	$68,873	$71,874
Largest Commerc. Unit	69,001 CcF/Yr	$72,106	$73,489	$75,361	$78,675
Largest Institu. Unit	107,347 CcF/Yr	$112,178	$114,404	$117,427	$122,773

Note: Unit Consumption is the basis for charging this consumption.
Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

APPENDIX

CITY OF CAMBRIDGE SEWER SERVICE

1991 ANNUAL CONSUMPTION CHARGES UNDER VARIOUS DIFFERENTIALS
FOR RESIDENTIAL CUSTOMERS

	Customer	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
Small Residential Unit	32 CcF/Yr	$67	$66	$64	$61
1 Avg Residential Unit	86 CcF/Yr	$182	$180	$176	$169
2 Unit Residential Bldg	172 CcF/Yr	$364	$359	$351	$338
3 Unit Residential Bldg	258 CcF/Yr	$546	$539	$527	$507
4 Unit Residential Bldg	344 CcF/Yr	$729	$718	$702	$676
Avg Unclassified Unit	511 CcF/Yr	$1,082	$1,073	$1,058	$1,035
Avg Commercial Unit	1,066 CcF/Yr	$2,258	$2,249	$2,233	$2,206
Avg Institutional Unit	2,050 CcF/Yr	$4,342	$4,334	$4,318	$4,289
Avg Industrial Unit	3,643 CcF/Yr	$7,716	$7,741	$7,773	$7,821
Largest Industr. Unit	63,087 CcF/Yr	$133,618	$136,007	$139,574	$145,501
Largest Commerc. Unit	69,001 CcF/Yr	$146,144	$148,781	$152,720	$159,268
Largest Institu. Unit	107,347 CcF/Yr	$227,361	$231,608	$237,964	$248,538

Note: Unit Consumption is the basis for charging this consumption.
Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

APPENDIX

CITY OF CAMBRIDGE COMBINED WATER & SEWER USAGE

1992 ANNUAL CONSUMPTION CHARGES UNDER VARIOUS DIFFERENTIALS
FOR RESIDENTIAL CUSTOMERS

	Customer	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
Small Residential Unit	32 CcF/Yr	$133	$131	$127	$120
1 Avg Residential Unit	86 CcF/Yr	$361	$356	$348	$335
2 Unit Residential Bldg	172 CcF/Yr	$722	$712	$696	$671
3 Unit Residential Bldg	258 CcF/Yr	$1,084	$1,068	$1,045	$1,006
4 Unit Residential Bldg	344 CcF/Yr	$1,445	$1,424	$1,393	$1,342
Avg Unclassified Unit	511 CcF/Yr	$2,146	$2,128	$2,100	$2,053
Avg Commercial Unit	1,066 CcF/Yr	$4,477	$4,459	$4,429	$4,377
Avg Institutional Unit	2,050 CcF/Yr	$8,610	$8,594	$8,564	$8,509
Avg Industrial Unit	3,643 CcF/Yr	$15,301	$15,351	$15,417	$15,515
Largest Industr. Unit	63,087 CcF/Yr	$264,965	$269,742	$276,879	$288,629
Largest Commerc. Unit	69,001 CcF/Yr	$289,804	$295,078	$302,960	$315,939
Largest Institu. Unit	107,347 CcF/Yr	$450,857	$459,352	$472,065	$493,021

Note: Unit Consumption is the basis for charging this consumption.
Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

APPENDIX

CITY OF CAMBRIDGE WATER DEPARTMENT

1992 ANNUAL CONSUMPTION CHARGES UNDER VARIOUS DIFFERENTIALS
FOR RESIDENTIAL CUSTOMERS

	Customer	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
Small Residential Unit	32 CcF/Yr	$38	$37	$36	$34
1 Avg Residential Unit	86 CcF/Yr	$103	$102	$99	$96
2 Unit Residential Bldg	172 CcF/Yr	$206	$203	$198	$191
3 Unit Residential Bldg	258 CcF/Yr	$309	$305	$298	$287
4 Unit Residential Bldg	344 CcF/Yr	$412	$406	$397	$383
Avg Unclassified Unit	511 CcF/Yr	$612	$607	$599	$586
Avg Commercial Unit	1,066 CcF/Yr	$1,277	$1,272	$1,263	$1,249
Avg Institutional Unit	2,050 CcF/Yr	$2,456	$2,451	$2,442	$2,428
Avg Industrial Unit	3,643 CcF/Yr	$4,364	$4,379	$4,397	$4,427
Largest Industr. Unit	63,087 CcF/Yr	$75,578	$76,943	$78,927	$82,374
Largest Commerc. Unit	69,001 CcF/Yr	$82,663	$84,170	$86,361	$90,168
Largest Institu. Unit	107,347 CcF/Yr	$128,602	$131,029	$134,562	$140,708

Note: Unit Consumption is the basis for charging this consumption.
Unit consumption is defined as the consumption of an account divided by
the number of units in the building(s) served by the account.

APPENDIX

CITY OF CAMBRIDGE SEWER SERVICE

1992 ANNUAL CONSUMPTION CHARGES UNDER VARIOUS DIFFERENTIALS
FOR RESIDENTIAL CUSTOMERS

	Customer	Differential Between Blocks 0.00%	1.00%	2.50%	5.00%
Small Residential Unit	32 CcF/Yr	$93	$91	$88	$84
1 Avg Residential Unit	86 CcF/Yr	$252	$248	$243	$234
2 Unit Residential Bldg	172 CcF/Yr	$503	$496	$485	$467
3 Unit Residential Bldg	258 CcF/Yr	$755	$744	$728	$701
4 Unit Residential Bldg	344 CcF/Yr	$1,007	$992	$970	$935
Avg Unclassified Unit	511 CcF/Yr	$1,496	$1,482	$1,463	$1,430
Avg Commercial Unit	1,066 CcF/Yr	$3,120	$3,106	$3,086	$3,050
Avg Institutional Unit	2,050 CcF/Yr	$6,000	$5,987	$5,967	$5,928
Avg Industrial Unit	3,643 CcF/Yr	$10,663	$10,694	$10,741	$10,809
Largest Industr. Unit	63,087 CcF/Yr	$184,656	$187,891	$192,876	$201,068
Largest Commerc. Unit	69,001 CcF/Yr	$201,966	$205,538	$211,044	$220,093
Largest Institu. Unit	107,347 CcF/Yr	$314,205	$319,963	$328,843	$343,452

Note: Unit Consumption is the basis for charging this consumption.
Unit consumption is defined as the consumption of an account divided by the number of units in the building(s) served by the account.

RECOMMENDATION: That effective January 1, 1989, water and sewer rates be changed to the following block rate structure.

	ANNUAL CONSUMPTION	WATER RATE (PER CcF)	SEWER RATE (PER CcF)
Block 1	0-40 CcF	.81	1.37
Block 2	41-400 CcF	.85	1.43
Block 3	401-2,000 CcF	.89	1.51
Block 4	2,001-10,000 CcF	.94	1.58
Block 5	Over 100,000 CcF	.98	1.66

BACKGROUND: In the spring of 1988, the City Council passed an order requesting that the City classify water and sewer rates in a method similar tc the classification process used for the purposes of property taxation. A review of existing legislation by the Law Department found that Chapter 40, section 39J, of the General Laws, would allow the City to establish a varying rate for water and sewer use for the purposes of encouraging water conservation. The City Council accepted Chapter 40, section 39J in April and directed that an increasing block rate structure be devised for billing for the use of the City's water and sewer systems. An increasing block rate billing system is one which sets various blocks of rates with each block related to a particular consumption level. All customers pay the same rate as they pass through each block, however, the largest consumers (generally commercial, industrial, and institutional customers) will pay more and residential customers less under an increasing block rate system.

The major concern of the City in proposing an increasing block rate structure for water and sewer use is the encouragement of water conservation. As the City Council may be aware, Cambridge is currently exceeding the daily maximum safe yield of its watershed by approximately 3,000,000 gallons of water per day. The accepted daily maximum yield is 13 million gallons per day; through October, the City was averaging 16.8 million gallons of water consumption per day.

As a result of its current consumption levels, Cambridge could face a water shortage if a severe drought were to occur. While water consumptions levels today are more than twenty percent below the levels of the early 1970's, more must be done to conserve water. The Massachusetts Water Resource Authority (MWRA), which serves as a back-up water supply to the City's system, concurs and has set a community's water conservation efforts as major factor in determining if the MWRA will continue to serve as that community's supplier, either primary or secondary. In fact, they have directed all users to investigate financial incentives as a means of achieving the Authority's conservation goals. It's my belief that an increasing block rate structure for water and sewer is the best financial incentive available to further water conservation efforts.

ISSUES: In order to help develop a new rate structure for water and sewer use, the City retained an engineering consulting firm to work with the

City's Finance and Water Departments. I have included a copy of the consultant's full report for your review. While the promotion of water conservation was the major goal of their work, equity and fairness in any rate structures were also major considerations. It is both my business belief and a legal consideration that no customer group should bear an excessive burden under an increasing block rate system.

During the rate study, two issues arose that needed to be addressed. The first dealt with how to handle multi-residential units (both condominiums and apartments) whose total consumption is generally measured by one master meter. The second issue concerned the timing of the implementation of the new rates.

Because an increasing block rate billing system tends to be more costly to larger users and because Cambridge has a high number of multi-unit condominium and apartment buildings whose consumption is usually measured by one master meter, it was determined that a method had to be developed that would allow multi-unit residential building consumption to be divided by the number of units within a particular building. In order to be able to accomplish this, all water and sewer accounts had to be matched to all real estate accounts (which contained information regarding the number of units within a building). Because this information did not exist before and due to the fact that water and sewer account addresses are frequently different from real estate addresses, the vast majority of this information had to be researched and entered manually, a time consuming task. However, by doing so, I feel that the residents of multi-unit buildings have been protected from an unfair bill increase.

A second issue that was addressed by the study was the timing of the rate increases. As the City Council is aware, Cambridge has historically set rates effective for all bills issued after July 1 of a given year for water consumed during the previous six months. New rates were always made effective with bills of July 1 in order to ensure that the expenses of water and sewer operations were fully funded. This rate cycle has been used by the City because if rates were set prospectively, (water consumed as of July 1 but not billed until after the following January 1) the City would need to double the projected rate increase in order to ensure sufficient revenue for a given fiscal year.

Beginning with these proposed rate changes and for all future rate changes, I recommend that the City set rates in the fall for the following fiscal year. This may result in some revenue shortfalls in a given year because of the need to project revenue well before City and MWRA budgets are set. However, any shortfalls can be made up with a mid-year rate change or in the following year. For FY 1989-90, I have proposed approximately a 7% increase in water and sewer operations and a 25% increase in the MWRA assessment.

The following table indicates how annual water and sewer costs will change for the average customer in various categories under the new block rate structure.

1990 ANNUAL PROJECTED CONSUMPTION CHARGE COMPARISON

	Annual Consumption	Annual Cost Flat Rate	Annual Cost 5% Block Rate
Small Residential Unit	32 CcF/Yr	$78	$71
1 Avg. Residential Unit	86 CcF/Yr	$212	$197
2 Unit Residential Bldg.	172 CcF/Yr	$423	$393
3 Unit Residential Bldg.	258 CcF/Yr	$635	$590
4 Unit Residential Bldg.	344 CcF/Yr	$847	$787
Avg. Unclassified Unit	511 CcF/Yr	$1,258	$1,203
Avg. Commercial Unit	1,066 CcF/Yr	$2,624	$2,566
Avg. Institutional Unit	2,050 CcF/Yr	$5,047	$4,988
Avg. Industrial Unit	3,643 CcF/Yr	$8,969	$9,094
Largest Industrial Unit	63,087 CcF/Yr	$155,320	$169,189
Largest Commercial Unit	69,001 CcF/Yr	$169,880	$185,198
Largest Institutional Unit	107,347 CcF/Yr	$264,288	$289,001

It is important to note that while the annual cost under a block rate goes down for some customers when compared against a flat rate all customers will be paying more in FY 1989-90 than in the current year because of increased budget costs.

CONCLUSION: As I said earlier in this report, the major purpose of the recommended rate revisions is to promote water conservation through a fair and equitable rate system. I feel very strongly that the rates recommended in this report accomplish the goals of equity and fairness and strongly recommend their approval.

8.

CITY OF CAMBRIDGE

CAMBRIDGE, MASSACHUSETTS 02139
TEL. 498-9011

EXECUTIVE DEPARTMENT
ROBERT W. HEALY
City Manager

RICHARD C. ROSSI
Deputy City Manager

November 21, 1988

To the Honorable, the City Council:

Enclosed please find a copy of my recommendation for changes in the block rate structure of the water and sewer rates, effective January 1, 1989. Also, I request that a public hearing be scheduled to discuss this matter.

Very truly yours,

Robert W. ~~Healy~~
City Manager

RWH/mbf
Enc.

Agenda Item No. 8 F-523

Re: enclosed recommended change for the block rate structure of hte water & sewer rates, effective January 1, 1989 & request for a public hearing to be held on this matter.

In City Council,

November 21, 1988

11-21-88

Hearing Scheduled For-
11-28-88 @ 6:00 PM