

**City of Ames, Iowa**  
**Water and Pollution Control Department**

**Staff Report on Water Rate Options**

March 24, 2009

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**Executive Summary**

*During each budget cycle, staff prepares long-range projections of the ending balance of the Water Fund. These projections forecast operations and maintenance expenses as well as anticipated Capital Improvement Plan projects. The goal of the projections are to allow revenue adjustments to be proactively made more frequently in small increments as opposed to increases that are less frequent but larger in magnitude.*

*During the 2008/09 budget preparation cycle, staff identified a need for multiple revenue increases over the next five years to fund both the on-going operations and maintenance budget and to pay the debt service for an anticipated rehabilitation/replacement of the existing water treatment plant. The first phase of these revenue increases occurred in the FY 2008/09 budget cycle with the implementation of a seasonal inclining block rate structure. This rate structure serves the dual purposes of delaying the need for expanded treatment capacity and allocating the ultimate cost for treatment capacity to those customers whose pattern of water use may drive the need for additional capacity.*

*Fund balance projections completed during the FY 2009/10 budget cycle confirmed the need for a series of revenue increases over the next four years, with each increase being somewhere in the range of 10 to 15 percent each year. A 10 percent revenue increase was recommended to Council as a part of the budget presentations in February 2009. This report describes three options for implementing the revenue increase: applying a uniform rate increase to each rate tier, applying a uniform dollar increase to each rate tier, and assigning the revenue increase to the base tiers only.*

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**Introduction**

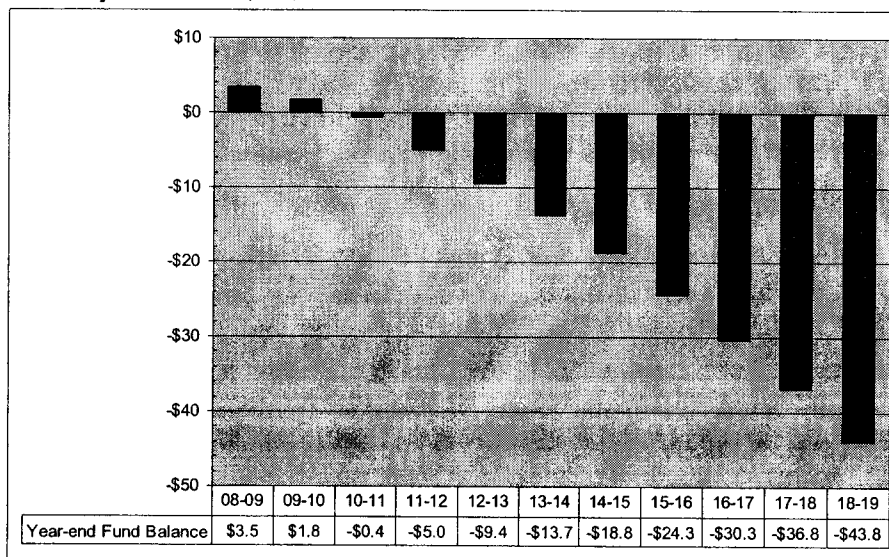
For the past four years, the Capital Improvement Plan for Water Operations has included a project identified as the "Water Plant Expansion Project." There are two primary forces leading to the inclusion of this project and its identification as the number one priority for the water utility. The first is a growth in the seasonal demand for water during the summer, and the second is the physical condition of the existing treatment facility. Work on the project began in February 2008 when selection of a consultant was initiated. The project started with a Capacity and Infrastructure Needs Assessment. That assessment phase will culminate in a Council Workshop to be held in May 2009.

At this time, it is unclear whether the best, most cost-effective solution will be to rehabilitate and modernize the existing water treatment plant or to construct a new water treatment facility. What is clear is that the condition of the existing facility will require a significant investment in drinking water treatment infrastructure in the very near future. The project is currently estimated at \$29.25 million, a number that will be refined over the next few months.

### Fund Balance Projections

The Water Fund projections completed during the FY 2009/10 budget preparation confirmed estimates that were made a year ago; namely, that the Water Fund cannot support a project of this magnitude without a revenue increase. The Water Fund will have approximately \$6.9 million in revenue in the current fiscal year. The anticipated debt service for the Water Plant Expansion Project is expected to increase expenses by \$2.4 million annually.

**Chart 1:** Projected Water Fund Balance without Revenue Adjustments, by Fiscal Year, in \$Millions



### Previous Revenue Adjustments

From 1939 through 1978, the City of Ames water rate structure was a “declining block” format, meaning that the unit rate for water decreased as the consumption increased. In 1971, a “Summer Beautification Rate” was incorporated into the sewer rate structure that reduced sewer charges during the summer, further reducing the cost for high levels of irrigation. The beautification rate was discontinued in 1977 when a severe drought placed a strain on the water utility’s ability to meet peak demands. In 1978, the water rate structure was changed to a flat rate structure, again in response to the pressure

placed on the water utility by the 1977/78 drought. The flat rate structure continued until the implementation of the seasonal inclining block rate structure last summer.

The following is a summary of the revenue adjustments that have been implemented over the past 20 years.

- 1992 – A 33% across-the-board rate increase was implemented. The unit rate increased from \$0.0071 to \$0.0095 per cubic foot, and the minimum bill charge was increased from \$3.00 to \$4.00 per month.
- 1994 – A 20% unit rate increase was implemented, with the unit rate increasing from \$0.0095 to \$0.0140 per cubic foot. The minimum bill charge was also increased from \$4.00 to \$6.00 per month.
- 1995 – A yard water minimum bill was implemented at \$1.75 per month.
- 1997 – A 10% revenue increase took place. The unit rate increased 8%, going from \$0.0114 to \$0.0123 per cubic foot. The minimum bill increased 14%, going from \$6.00 to \$6.85 per month.
- 2000 – A 10% revenue increase was implemented. The unit rate increased 13%, going from \$0.0123 to \$0.0139 per cubic foot. The minimum bill increased 7%, going from \$6.85 to \$7.30 per month.

The 1992 rate adjustment was, at 33 percent, a fairly large percentage increase. It was also the first water rate adjustment since 1978. At the time of the 1992 rate adjustments, Council established a rate philosophy that encouraged the use of more frequent rate adjustments that were of smaller percentages. Staff has continued to implement the Council philosophy by recommending increases at intervals that allow the percentage increase to be kept within 10 to 15 percent each year.

During the summer of 2008, a change was made to the water rate structure. A seasonal inclined block structure was implemented for residential and commercial accounts. The rate structure acknowledges the fact that the need for any additional treatment capacity is being driven by seasonally high usage during the summer months. Essentially, the rate structure was modified such that, for residential, irrigation, and yard water accounts, as consumption increases above preset blocks, the unit rate increases. The block thresholds and price differentials between blocks were based on the anticipated debt service to construct new treatment plant capacity in conjunction with either a rehabilitation of the existing facility or the construction of a new treatment plant. Also in 2008, commercial and industrial accounts were moved from a flat rate to a seasonal rate that only contained one block.

The seasonal rate structure did not alter the underlying base unit rate. The unit rate charged during the winter and during the summer in the first block of the residential rate was unchanged from the previous flat rate. Because of this, the majority of residential

water customers did not experience a unit rate increase as a result of the rate structure change.

### Anticipated Timing and Magnitude of Future Revenue Needs

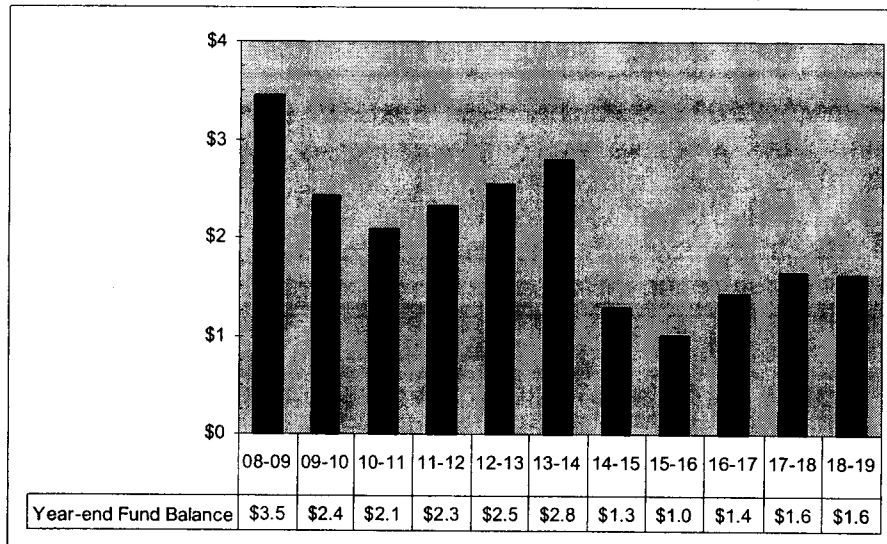
The table below shows the estimated timing for future revenue increases. The pattern of adjustments is in accordance with the 1992 rate philosophy provided by Council to keep rate increases to less than 15 percent. Note that these are projections only and subject to change as projects change in cost and priority, as well as by the funding strategy employed (GO bonds, revenue bonds, state revolving loan funds, etc.). The adjustments shown for FY 09/10 through FY 12/13 are being driven mainly by the Water Plant Expansion Project. The increase shown in FY 14/15 is due to the anticipated expansion of source water capacity.

**Table 1: Anticipated Pattern of Future Revenue Adjustments**

09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19
10%	X	X	X		X		X		

With this pattern of revenue adjustments and the anticipated pattern of operating and capital expenses, the Water Fund balance for the next ten years is projected as shown below. Note that the rate adjustments keep the ending balance in the positive for the entire 10-year period. The balances shown have had a 10 percent operating reserve subtracted but do not include likely bond covenants that will be imposed upon the sale of revenue-backed bonds.

**Chart 2: Projected Water Fund Balance with Revenue Adjustments, by Fiscal Year, in \$Millions**



**Current Year Revenue Needs**

Avoiding large rate increases in a single year requires a multi-year management strategy. Sometimes it is advantageous to implement a revenue adjustment one or two years in advance of a deficit situation simply to keep the percentage increase lower. Based on this strategy, the above projections suggest to staff that a 10 percent revenue increase is appropriate for FY 2009/2010.

The revenue increase will come from the portion of the Water Fund revenue that is generated by the rate ordinance. Rates for the two wholesale water customers (Iowa State University Central Campus and Xenia Rural Water District) are not included, as their rates are already adjusted on a regular schedule in conjunction with the actual expenses of the utility. Adjustments to other revenues, such as cell antenna leases on elevated water tanks and farm ground leases, are adjusted in accordance with the lease terms.

The rate ordinance revenues consist of four budget line items; namely, metered sales (consumption), minimum charges, yard meter minimum charges, and multi-unit charges. With a 10 percent revenue increase needed, the following dollar amounts can be assigned to each revenue line.

**Table 2:** Calendar Year 2008 Revenues

		Revenue	10%
510-0000-346.5000	Metered Sales	\$3,570,534	\$357,052
510-0000-346.5000	Minimum Charge	2,270,502	227,050
510-0000-346.5003	Yard Meter Minimum Charge	64,636	6,464
510-0000-346.5004	Multi-Unit Charge	183,397	18,340

**NOTE:** The calculations in this assessment use data from the second half of FY 2007/08 and the first half of FY 2008/09. In effect, the revenue numbers are for calendar year 2008. This allows the inclusion of the seasonal rate structure implemented last July.

It is permissible to adjust each element of the rate-derived revenue by different percentages. This would be desirable if there was data to suggest that costs were increasing at a differential rate between fixed and variable expenses. Discussions between staff and Council during the 2005 Sewer rate adjustments indicated a Council preference to not increase the minimum bill charges at a greater rate than the unit rate due to concerns that it would result in a larger percent increase to low consumption customers who were presumed to be more likely to also be low income customers. Given this philosophy, staff did not perform a detailed assessment of the fixed versus variable components, and are recommending that both the minimum bill and unit rate components increase at the same ten percent rate.

## Minimum Bill Options

From Table 2 above, there are three components that are collective referred to as the "minimum bill." This includes a "Minimum Charge" that is based on the size of an account's water meter; the "Yard Meter Minimum Charge," which is a flat rate for irrigation and yard water accounts, and a "Multi-unit Charge" for accounts where multiple dwelling units are served by a single meter. Staff is aware of no rationale to suggest that one component is increasing at a different rate than another. Consequently, staff is recommending that the existing charges for these minimum bill elements be increased across-the-board by ten percent.

## Metered Sales Rate Options

For the "Metered Sales" category, the seasonal rate structure implemented last summer provides multiple options for Council to consider for recovering the portion of the ten percent revenue increase attributable to consumption.

Staff has prepared three possible options for Council to consider. Each option will generate essentially the same revenue. Each option can be supported by a clear policy direction. This is important, as municipal water and sewer utilities are generally given wide discretion in setting rates so long as there is a rational policy that governs the rates, as opposed to setting rates arbitrarily, capriciously, or in a discriminatory manner.

### Option 1: Uniform Ten Percent Increase for All Blocks

This option is the most straight-forward option, since it simply takes the existing ordinance rates and increases them by the desired percent increase in revenues. This is the method that has historically been used in Ames when the unit rate is adjusted. This method increases every water customer's bill by the same percentage.

**Table 3:** Uniform Percent Increase, \$ per cubic foot

	<u>Existing</u>	<u>Adjusted</u>	<u>Difference</u>
Winter (All customers, all consumption)	\$0.0139	\$0.0153	\$0.0014
Summer			
Residential			
Block 1 (First 1,000 cf)	0.0139	0.0153	0.0014
Block 2 (Next 1,500 cf)	0.0278	0.0306	0.0028
Block 3 (Over 2,500 cf)	0.0417	0.0459	0.0042
Irrigation and Yard Water			
Block 1 (First 2,000 cf)	0.0209	0.0230	0.0021
Block 2 (Next 3,000 cf)	0.0417	0.0459	0.0042
Block 3 (Over 5,000 cf)	0.0695	0.0765	0.0070
Non-Residential			
All Consumption	0.0188	0.0207	0.0019
Non-peaking Industrial			
All Consumption	0.0139	0.0153	0.0014

**Option 2: Uniform \$0.0017 per Cubic Foot Increase for All Blocks**

This option takes the existing ordinance rates and increases them all by the same dollar amount. The amount of the increase is determined by taking the desired revenue increase and dividing it by the total consumption.

From the data shown above in Table 2, the desired revenue from Metered Sales is \$357,052. The total billed consumption for calendar 2008, excluding the volume billed to wholesale customers, was 212.7 million cubic feet. The uniform dollar increase then becomes \$0.0017 per cubic foot. This amount is added to each of the existing block rates to determine the new adjusted unit rates.

**Table 4: Uniform Dollar Increase, \$ per cubic foot**

	<u>Existing</u>	<u>Adjusted</u>	<u>Difference</u>
Winter (All customers, all consumption)	\$0.0139	\$0.0156	\$0.0017
Summer			
Residential			
Block 1 (First 1,000 cf)	0.0139	0.0156	0.0017
Block 2 (Next 1,500 cf)	0.0278	0.0295	0.0017
Block 3 (Over 2,500 cf)	0.0417	0.0434	0.0017
Irrigation and Yard Water			
Block 1 (First 2,000 cf)	0.0209	0.0226	0.0017
Block 2 (Next 3,000 cf)	0.0417	0.0434	0.0017
Block 3 (Over 5,000 cf)	0.0695	0.0712	0.0017
Non-Residential			
All Consumption	0.0188	0.0205	0.0017
Non-peaking Industrial			
All Consumption	0.0139	0.0156	0.0017

In comparison to Option 1, this option increases the winter rate, the Residential Block 1 rate, and the Non-peaking Industrial rate by an additional \$0.003 per cubic foot. The other summer block rates are higher than the existing rate ordinance, but the increase is not as great as the increase contained in Option 1.

**Option 3: Increase All Blocks Except Summer Blocks 2 and 3 by \$0.0018 per Cubic Foot**

This option would generate the desired ten percent revenue increase in Metered Sales in the winter rate, the Residential Block 1 rate, the Irrigation Block 1 rate, and both summer non-commercial rates. It does not make any adjustment to the Block 2 and Block 3 summer rates.

The rationale for Option 3 is that the cost of constructing additional treatment capacity was the basis for the seasonal rate structure. With the cost of new capacity already

incorporated into the rate structure, what remains is to cover the routine operations and maintenance cost increases and the cost to rehabilitate or replace the existing capacity. These are costs that can be viewed as costs to which all customers should contribute equally.

By placing the increase in the winter rate and first summer blocks, all customers (including those who irrigate) will share in the cost of the Water Treatment Plant's on-going operations and maintenance and in the anticipated cost of replacing our existing treatment capacity.

By dividing the desired revenue increase by the volume of water consumed last calendar year in the winter and in the base summer blocks, a rate adjustment of \$0.0018 per cubic foot is determined.

**Table 5:** Increase Winter Rate and First Summer Block Rates Only, \$ per cubic foot

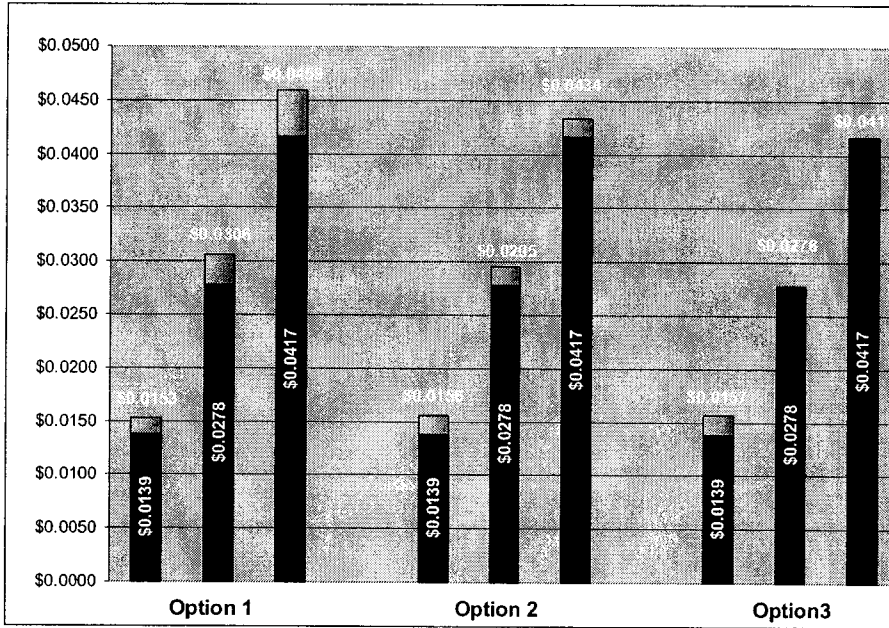
	<u>Existing</u>	<u>Adjusted</u>	<u>Difference</u>
Winter (All customers, all consumption)	\$0.0139	\$0.0157	\$0.0018
Summer			
Residential			
Block 1 (First 1,000 cf)	0.0139	0.0157	0.0018
Block 2 (Next 1,500 cf)	0.0278	0.0278	0
Block 3 (Over 2,500 cf)	0.0417	0.0417	0
Irrigation and Yard Water			
Block 1 (First 2,000 cf)	0.0209	0.0227	0.0018
Block 2 (Next 3,000 cf)	0.0417	0.0417	0
Block 3 (Over 5,000 cf)	0.0695	0.0695	0
Non-Residential			
All Consumption	0.0188	0.0206	0.0018
Non-peaking Industrial			
All Consumption	0.0139	0.0157	0.0018



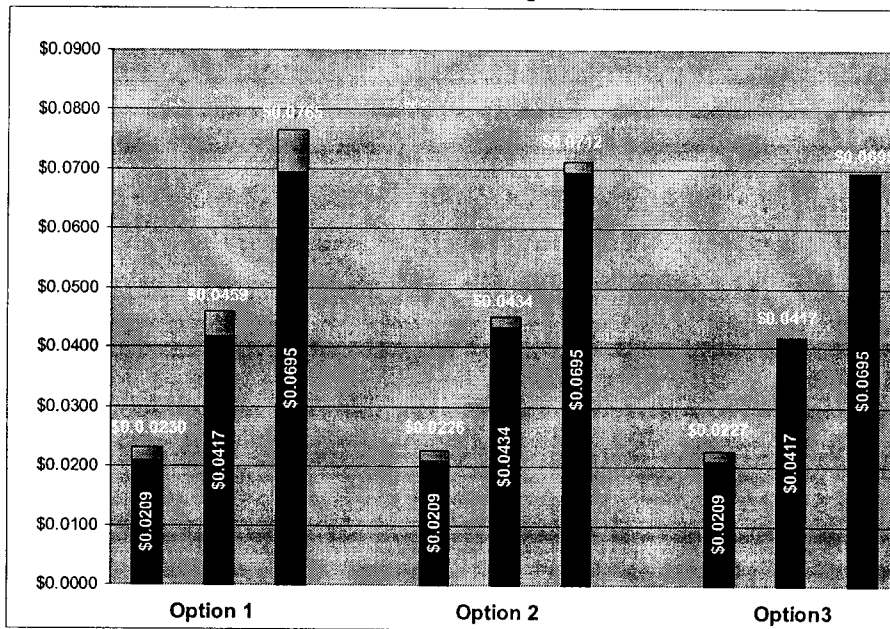
## Comparison of Options

The chart and tables that follow demonstrate the differences between the three options and provide examples of customer bills for each option.

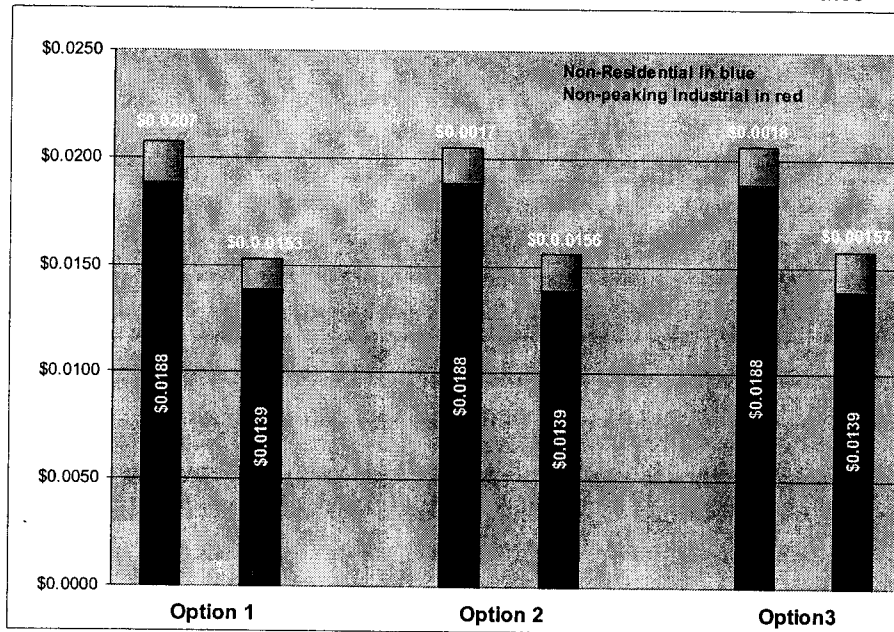
**Chart 3: Comparison of Options –Summer Residential Rates**



**Chart 4: Comparison of Options –Summer Irrigation Rates**



**Chart 5: Comparison of Options –Summer Commercial and Industrial Rates**



**Table 6:** Typical Water Bill for "Median" Residential Customer Using 600 cubic feet per month

	<u>Existing</u>	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
Minimum Bill	\$7.30	\$8.03	\$8.03	\$8.03
Consumption, 600 cf	<u>8.34</u>	<u>9.18</u>	<u>9.36</u>	<u>9.42</u>
Total Water Bill	\$15.64	\$17.21	\$17.39	\$17.45
Increase, \$/month	--	1.57	1.75	1.81
Increase, %	--	10.0	11.2	11.6

**Table 7:** Typical Water Bill for "90<sup>th</sup> Percentile" Irrigation Customer Using 3,000 cubic feet per month

	<u>Existing</u>	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
Minimum Bill	\$7.30	\$8.03	\$8.03	\$8.03
Consumption				
Block 1, 2,000 cf	41.80	46.00	45.20	45.40
Block 2, 1,000 cf	<u>41.70</u>	<u>45.90</u>	<u>43.40</u>	<u>41.70</u>
Total Water Bill	\$90.80	\$99.93	\$96.63	\$95.13
Increase, \$/month	--	9.13	5.83	4.33
Increase, %	--	10.1	6.4	4.8

**Table 8:** Water Bill for a "Non-Residential" Customer Using 20,000 cubic feet per month (Typical of a moderate-size restaurant)

	<u>Existing</u>	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
Minimum Bill	\$58.40	\$64.24	\$64.24	\$64.24
Consumption, summer	<u>376.00</u>	<u>414.00</u>	<u>410.00</u>	<u>412.00</u>
Total Water Bill	\$434.40	\$478.24	\$474.24	\$476.24
Increase, \$/month	--	43.84	39.84	41.84
Increase, %	--	10.1	9.2	9.6

## Comparison of Ames' Rates to Peer Communities

Every two years, the Ames Water and Pollution Control Department conducts a rate survey of other Iowa communities. The data presented below are from the 2007 survey and includes rates from 21 communities with a population greater than 10,000 that use a similar treatment process as the one used in Ames.

The table below reflects the percentile ranking of Ames. A percentile ranking of 0 percent means Ames is the lowest, 50 percent means Ames is in the middle, and 100 percent means Ames is the highest. Because the variations between Options 1, 2, and 3 are relatively small, all three would result in the same percentile rankings for Ames.

Many utilities indicated in 2007 that they would be implementing rate increases in 2007 and 2008. The rankings shown for Ames do not include any rate increases implemented in other communities in the past two years. Thus, the rankings may show Ames rates being higher than may be the case.

**Table 9:** Comparison of Ames Water Rates to Other Iowa Communities

<u>Consumption (cf/month)</u>	<u>Existing Rates</u>	<u>Options 1, 2, or 3</u>
Residential		
200	70	85
600	60	65
1,000	35	50
10,000	100	100
Non-residential		
10,000	55	55
50,000	50	65
100,000	65	65

## Staff Recommendation

The multi-year fund balance projections for the Water Fund suggests that multiple years of rate increases may be necessary to maintain a positive fund balance. Even though the fund balance is not projected to go negative in FY 2009/10, staff is recommending that a ten percent revenue increase be implemented effective this July in order to keep future rate increases within the range preferred by past Council guidance.

Also based on previous preferences expressed by Council, staff is recommending that the portion of revenues attributable to metered sales and the portion attributable to the minimum bill be increased by the same percentage.

Minimum Bill: Staff is aware of no rationale to suggest that expenses due to the different individual components of the minimum bill are increasing at different rates. Thus, staff recommends that each of the individual minimum bill components be increased by ten percent.

Metered Sales: After developing the three options presented in this report, staff is recommending the adoption of Option 3, placing the entire revenue increase in the winter rates, the first summer blocks for residential and irrigation accounts, and the non-residential and non-peaking industrial rates.

This structure is most in keeping with the seasonal inclining block structure adopted last summer. Placing an increase in the Block 2 and Block 3 summer rates would increase the revenue generated by those blocks beyond what was intended when the seasonal rate structure was adopted in 2008. Option 3 places the revenue increase in the blocks that are used by all customers. This allows the cost of rehabilitating or replacing the existing treatment capacity, as well as the on-going operations and maintenance cost increases, to be shared by all customers equitably.

Going beyond the rationale offered above, staff also noted that the Block 3 rate for residential accounts is already among the highest in Iowa. Options 1 and 2 would both place an additional increase in this block. This would provide an additional argument that favors Option 3 over Options 1 and 2.