1. Fire charges. Fire charges can be allocated to customers in whole or part based on meter sizes. These charges may be recovered in relation to the size of the water meter. In such circumstances, the relative size of the charge to meters of different sizes may be different from those typically used for the meter charge.

2. Demand charges. Demand charges normally recover a portion of the revenue requirement of the utility to mitigate the impact that fluctuating revenues may have on the financial health of the utility. In some cases, utilities may assess these as availability of service charges.

A key element in developing a meter charge is assigning costs that vary with the size of the meter.

Minimum charges include some allotment of use and are used in combination with service and meter charges. As a result, when minimum charges are involved, they generally result in higher fixed fees. Like a demand charge, a minimum charge increases revenue stability by increasing the utility's revenues that are fixed and do not vary regardless of sales. Conversely, a minimum charge may result in an inequity to a customer whose use falls below the minimum. In fact, for these customers a minimum charge may be a disincentive to conserve. By analyzing customer usage, the trade-offs associated with the minimum charge can be analyzed and weighed against the evaluation criteria.

Variable Charges

Water Rate Structures

Variable charges are generally based on a customer's use. For water, a customer's use is normally measured by a water meter installed at, or near, the customer's premises. For wastewater, however, a customer's use is often estimated from the customers metered water use. Generally, the utility uses a method of estimating the amount of water that returns to the wastewater system. These estimates are often actual or estimated measures of indoor water use.

There are four commonly used rate structures that are defined in the AWWA M1 Manual[1]. These rate structures include:

1. *Uniform* – A single charge per unit of volume for all water used. In some cases, a uniform rate structure is called a *Uniform by Class* rate structure. Under this structure, the volume rates differ by class to recognize the difference in the cost of serving the customer class.

[1] American Water Works Association, *Manual of Water Supply Practices-M1, Principles of Water Rates, Fees, and Charges*, Fifth Edition, (Denver, Colorado: American Water Works Association, 2000).

2. *Declining block* – A schedule of rates applicable to blocks of increasing usage in which the usage in each succeeding block is charged at a lower unit rate than in the previous blocks. This rate structure is less common today because of the adverse impact it has on water conservation.

3. Increasing or *Inclining block* – A schedule of rates applicable to blocks of increasing usage in which the usage in each succeeding block is charged at a higher unit rate than in the previous blocks.

4. *Seasonal* – Seasonal rates are based on the cost of service variations with respect to system seasonal requirements

These structures can be used in combination, either as different rate structures by class and/or in combination with each other, (e.g., uniform-seasonal, seasonal-inclining block, etc.)

In addition to these basic structures, there are individualized rate designs that use elements of these structures to address an individual customer's consumption patterns.

Wastewater Rate Structures

Wastewater utilities generally focus their rate structures on properly accounting for the differences in the pollutant loadings of the contributed wastewater. The pollutant loadings are a major cost driver for wastewater systems.

Alternative Rate Structures

Each of the basic rate structures listed above are described in more detail below.

Water Rate Structures

Uniform Rates

The uniform rate structure is a simple rate design that is relatively common in the industry. Figure 1 depicts a uniform rate design. Under the uniform rate design, all water is priced at the same level regardless of the quantity purchased.

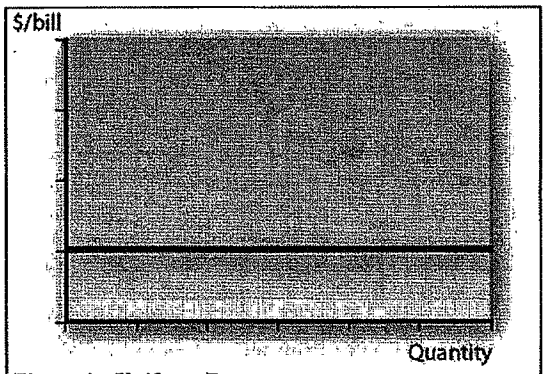

Figure 1: Uniform Rates

This rate design is not only simple to administer, it is relatively simple for customers to understand and, therefore, somewhat effective as a price signal. Additionally, the rate setting process is fairly simple under a uniform rate

structure, because only the total annual demands by class are required to determine the rate. The analyst does not require the detailed billing data that is necessary to estimate revenues under a block or seasonal rate design.

This reliance on annual water demands also makes the uniform rate relatively more effective in protecting the utility's financial performance in years with poorer water sales than an inclining block structure or a seasonal structure.

One common concern of a uniform rate structure is its inability to send a seasonal price signal. This lack of a seasonal price signal may not provide adequate incentive for customers to manage their peak-summer use. In this way, a uniform rate structure generally is considered to have less of a conservation incentive than a seasonal or inclining block structure.

AWU uses a uniform rate structure by class for its wholesale customers.

Declining Block Rates

Figure 2 depicts a declining block rate structure. Under this structure, the cost per unit of water declines as the amount of water purchased increases.

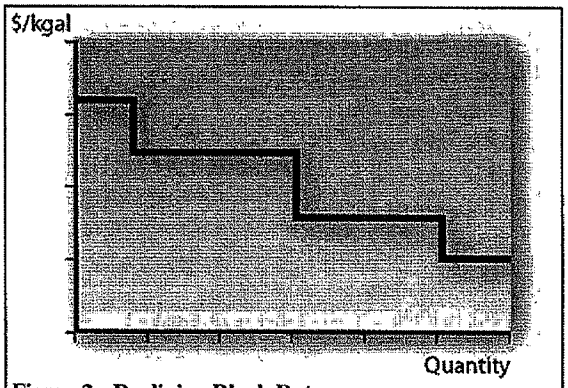

Figure 2: Declining Block Rates

The use of declining block rates is not as prevalent as it once was. This lack of popularity can be traced to the increasing attention that conservation receives in the rate design process. Historically, rate analysts used declining block rates to reflect the cost structure of utilities where the largest customers have the lowest demand factors, and therefore, paid the lowest rate. Although some utilities continued to use declining block rates for this purpose, uniform rates by class and other forms of inclining block rates have gradually replaced these structures.

Inclining Block Rates

Figure 3 presents an inclining block rate structure. Under this structure, the rate charged increases for higher levels of water usage.

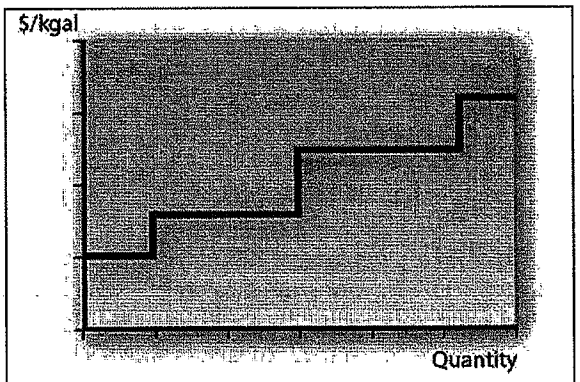

Figure 3: Inclining Block Rates

Inclining block rates are assumed to promote water conservation better than the uniform or declining block structures because the marginal cost of water that the customer faces increases for greater water purchases.[2] Because of its conservation effectiveness, this structure is often used in areas where there is a need to conserve water and/or reduce peak use.

Inclining block rates are relatively more complex to develop and administer than the previous two rate structures, and, if not designed carefully, may lead to revenue instability or violate cost-of-service principles.

Where there is a diverse customer base, the thresholds[3] for the inclining block rates may need to be set by customer class and/or meter size. Block thresholds set for a homogenous class are more likely to send a conservation signal than block thresholds set for the entire system.

Seasonal Rates

Figure 4 presents a seasonal rate design. Under a seasonal rate design, the utility establishes rates that reflect the difference in the cost of service for the off-peak and peak-seasons. AWU uses a seasonal rate design for its multifamily, commercial, and industrial customers.

Seasonal water rates are designed with the notion that rates should be higher during peak use periods and that the customers who place those demands (e.g., peak hour or peak day) on the system should pay more. Typically, this peaking occurs in the summer. For cities that have large seasonal fluctuations, due to weather or tourists, etc., and/or need to manage peak demands, this may be an ideal structure. While seasonal rates are effective in encouraging conservation, they may increase the volatility of the utility's revenues. A

[2] Some analyst question whether customers respond to their marginal cost of water or to the average cost of water (i.e., their total bill.) In general, economists agree that customers react to their perceived price of water, which is influenced by factors such as public education, community values, etc.

[3] Block thresholds are the consumption values at which the rates change. For example, AWU currently assesses higher rates for residential customers once the customer's use exceeds 2 thousand gallons per month. The first block threshold, in this example, is 2 thousand gallons.

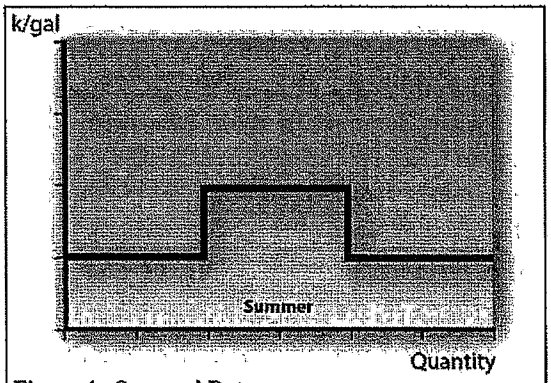

Figure 4: Seasonal Rates

cool or wet summer may reduce the utility's revenues, thereby increasing its volatility and reducing its financial health.

Seasonal rates can be used in combination with other rate structures.

Excess–Use Rates

An excess-use rate design is similar to an inclining block rate structure except the block thresholds are set individually for each customer based on the customer's average winter consumption (AWC).[4] This approach of setting individual block thresholds provides a way to implement increasing block rates for utilities with diverse customer bases. Each customer has its own block thresholds based on their individual AWC.

As an example, an excess-use rate structure could charge a lower block rate for consumption up to 100 percent of the customer's AWC. A higher rate would apply for consumption between, as an example, 100 percent of AWC and 200 percent of AWC. A third block would apply for yet higher consumption levels.

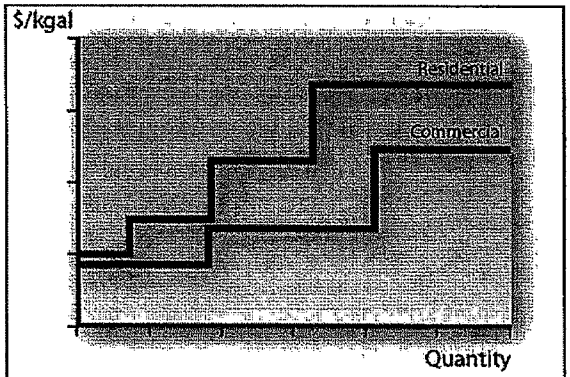

Figure 5: Individualized/Budget Rates

Excess-use rates are similar to inclining block rates in that there is a higher charge for peak use. Excess use rates differ from seasonal pricing in that the pricing is higher for a use in excess of some base amount. Defining and determining the base amount of use requires effort as the base use must be determined either for the class or for each individual customer. The base use can be tied to indoor water use and/or it could also be determined with additional considerations such as those used in the budget-billing example described next. If excess use is done by class of customer, care must be taken to define fairly homogenous users in order to address equity and customer impact concerns.

[4] Average winter consumption is the most common basis for excess-use rates. However, other bases can be used. An example of an alternative basis is average annual consumption.

Water Budget Rates

Figure 5 depicts a hypothetical water-budget rate design. A water budget based-rate structure establishes a monthly water budget by individual customer (or customer class). The budget typically provides a certain amount of water that the utility deems is an efficient level of use for indoor and outdoor use. The outdoor-use component of the budget can be based on the amount of landscaped area and evapotranspiration[5] rates (ET) experienced during the billing period in the utility's service area. This measure allows the utility to determine a specific irrigation requirement per square foot of landscaped area.

The indoor component of the water budget for an individual account might consist of a budget for the winter months with no irrigation allowance. This can be estimated by using the customer's AWC for the previous year. Additionally, in some cases, the indoor budget is set based on the household size or other demographic measures.

Some suggest that this type of structure is one of the most effective at sending conservation signals to each customer. The downside is that it is also one of the more complex structures to implement and explain to customers. Because of the effectiveness at sending a conservation signal, this structure does not do the best job of promoting revenue stability.

Some analysts consider an excess-use rate structure to be a simplified water budget rate structure where the individual budgets are a percentage of the customer's AWC.

Wastewater Rate Structures

There are two approaches generally used for wastewater rate design. These general approaches are:

1. Quantity/quality rates; and
2. Extra-strength surcharges.

Some utilities mix the two general approaches to enhance the equitability of their system of rates while maintaining control of the costs of sampling and administration.

Quantity /Quality Rates

Under the quantity/quality rate structure, specific rates are developed for individual customer classes based on the estimated strength of the wastewater contributed by that class. Utilities may use multiple sources of data to obtain strength-based information in order to classify their commercial and industrial customers. In Issue Paper #4, we discussed the manner in which the strengths for customer classes are developed.

[5] Evapotranspiration rates are meteorological measures of the amount of moisture plants need based on actual weather conditions (e.g., temperature, relative humidity, etc.)

A study conducted by the California State Water Resources Board and the Environmental Protection Agency (EPA) in 1982, with a revision in 1998, developed a listing of common commercial customer classes with estimated strengths. This document has been used in numerous studies over the years and has been accepted as a proxy for estimating commercial customer class strengths. Regardless of the manner of estimating wastewater strengths for each customer class, the quantity/quality approach categorizes customers according to estimated strengths and sets rates that recover the cost of serving those customers.

Extra-Strength Surcharges

Under the extra-strength surcharge approach, costs associated with high-strength wastewater are separated from the total costs, and what remains is recovered in a common domestic-strength wastewater rate. Under this approach, all customers subject to the extra-strength surcharges are charged the common domestic-strength wastewater rate and a surcharge to recover the additional cost incurred to treat their high-strength waste. The levels of pollutants measured in the wastewater determine the level of the surcharge. These measures of the level of pollutants for the extra-strength surcharge are generally based on sampling programs implemented by the utility.

The definition of domestic-strength wastewater is an important part of assessing extra-strength surcharges. Generally, utilities conduct a mass balance exercise to estimate the average strength of domestic waste. This process was discussed in Issue Paper #4. Once the concentration of domestic-strength wastewater is estimated, a reasonable bound around the average is determined. Wastewater exceeding those reasonable bounds is subject to the extra-strength surcharge.

Under AWU's current approach, domestic-strength wastewater is assumed to have an average concentration of 131 mg/L for BOD, and 187 mg/L for TSS. AWU's current thresholds for extra-strength surcharges is 200 mg/L for both BOD and TSS.[6]

Methodological Options Under Review

The following rate design policies are discussed in this issue paper:

1. What is the best method for providing a subsidy to low-income customers?
2. How should AWU recover a subsidy to low-income customers?
3. Should AWU introduce a fifth block for single-family residential customers?

[6] In some cases the constituents to wastewater may inhibit the BOD measurements. The utility conducts an alternative test as well called a COD test. In circumstances where the COD test is more accurate, the utility uses it to determine the extra-strength surcharges.

4. What conservation incentives should exist for wholesale customers?

5. How should customers with separate irrigation meters be treated?

The first four issues are discussed in this Issue Paper. The fifth issue, "How should customers with separate irrigation meters be treated?", will be the subject of a subsequent issue paper.

The discussion of each issue includes:

- Overview of the issue,
- Description of the alternatives,
- Evaluation of the alternatives using the executive team's evaluation criteria, and
- Consultant's preliminary findings and recommendations.

After presentation to the executive team and public involvement committee, the consulting team will finalize its recommendations.

Issue 1: What is the best method for providing a subsidy to low-income customers?

Overview of the Issue

Enhancing the affordability of water and wastewater services for customers of limited financial means has been an ongoing objective of AWU and its citizens. Ultimately, the approach that AWU uses to assist low-income customers must meet the social and political needs of the City rather than technical cost-of-service concerns. The reader should consider the nature of this policy question when reviewing our evaluations of the alternatives and our recommendations.

Description of Alternatives

The two available alternative methodologies are:

1. Provide a discounted rate for consumption in blocks 1 and 2 (current approach).
2. Waive the fixed charge for customers that qualify as low-income households.

The primary difference between the options is the degree of administrative burden and the effectiveness of the policy. The current approach is quite easy to implement and works easily within AWU's current rate structure. However, the benefits are distributed indiscriminately and provide the same discount for users with low incomes and those without. This broad distribution limits AWU's ability to lower the cost of water for customers of limited means in a way that a more focused program would not.

Unfortunately, a more focused program may require substantial effort to pre-qualify customers as "low-income". AWU is collaborating with Austin Energy to identify qualifying customers.

Evaluation of Alternatives

Attachment A presents the weighted evaluations of the alternatives.

Implementation Criteria

Pre-qualifying customers who are low income could have significant administrative burden and risk of implementation. Alternatively, providing a lower, lifeline-type rate for residential customers imposes little administrative burden and has very low risk of implementation. However, the current approach may not be sustainable over time since it provides a discount to all single-family residential customers—even those customers with relatively high incomes and ability to pay. For this reason, we believe the current policy may not be durable over time. Also, we suspect that the public can easily understand a low-income policy that provides a discount only to customers with low incomes. For that reason, we scored the current approach lower for public understanding.

Equity

The alternatives have similar impacts on equity. Neither option is particularly capable of delivering intraclass equity. The concept of a low-income discount violates cost-of-service equity by design. A low-income subsidy is intended to create a situation where customers with limited financial capabilities are subsidized by other utility customers. Since the current low-income program is recovered from single-family residential customers only, we have rated both options neutral for interclass equity.

The most common approach to assist low-income customers is a lifeline rate similar to AWU's current approach. For that reason, we have rated the current approach higher for adherence to industry standards.

Customer

Waiving the fixed charges is likely more affordable for residential customers. We suggest this since low-income water customers may have large families and require water beyond the discounted 9 kgal per month allowed under the current methodology. Water consumed in excess of 9 kgal per month is priced slightly higher to recover the discounts given in blocks 1 and 2. By focusing its efforts on low-income customers only, the total cost of the subsidy might be reduced, thereby reducing the total water bill for low-income customers.

The current approach of having higher block rates to subsidize the first two blocks likely introduces rate shock and volatility for customers. The rate shock and volatility can occur when their consumption reaches the higher blocks and are priced significantly higher than the lower blocks.

The alternatives did not vary with respect to the other customer criteria.

Conservation

The current approach may not encourage water conservation during the off-peak period. Since water is subsidized for the first two blocks for all customers, customers may not have as strong an incentive to conserve when their consumption is within the first two blocks. This situation likely occurs during the off-peak periods and will therefore have a greater impact on average-day savings (as opposed to peak-season or peak-day savings.)

Both alternatives may enhance conservation during the peak-season and peak-day. The current approach results in a more steeply formed rate structure—meaning that water consumed in the higher blocks is priced significantly higher. The proposal may also enhance conservation during the peak periods by pricing the volume portion of the water for low-income customers higher than the current approach. It is difficult to say which approach would generate the greatest savings.

Financial

Revenue sufficiency is a significant concern for the existing rate structure. By keeping the lower block rates affordable for all, pressure may be placed on AWU's overall rate structure so the higher block rates do not become too punitive.

The current rate structure also increases the volatility of the revenues for the utility by establishing very high rates for the most sensitive usage. Because of the relatively low cost of the proposed alternative, if desired, AWU could increase the stability of its rates by increasing the price of the first two blocks.

The volatility in revenues increases the risk of the current rate design. The other financial criteria do not vary between the alternatives.

Preliminary Findings and Recommendations

The question of low-income subsidies is inherently a public policy issue. Although our evaluation framework explicitly incorporates the criteria developed by the executive team, we feel less prepared to offer opinions in this area. Considering these caveats, the consulting team recommends AWU consider waiving the fixed charges for low-income customers through a cooperative program with Austin Energy.

Issue 2: How should AWU recover a subsidy to low-income customers?

Overview of the Issue

If AWU has a program that reduces the costs for low-income customers, that revenue requirement will need to be recovered from other customers. Like the issue of a low-income subsidy, the allocation of burden of the subsidy is a public policy issue.

Essentially, a low-income subsidy does not change the overall cost of operating the utility. Rather it redistributes the burden of the utility to other customers. The question presented here is how that burden should be redistributed.

Description of Alternatives

The two available alternative methods are:

1. Recover the subsidy within the residential class (current approach), or
2. Recover the subsidy from all classes.

The difference between the alternatives is fairly clear. Under the first alternative, the entire cost of a low-income subsidy program is recovered from other single-family residential customers. This is the current policy of AWU. The subsidy incurred to keep blocks 1 and 2 below the cost of service are recovered within blocks three and four.

As an alternative, the burden of the subsidy could be allocated to all customer classes.

Evaluation of Alternatives

Implementation

Three implementation criteria differ between the alternatives. Public understanding may be better if the burden of the subsidy for single-family residential was contained within the single-family residential class. However, it may be more acceptable to the public and political leaders to spread the burden among all of AWU's customers and treat the burden that results from the low-income subsidy as a societal cost. Also, a policy that spreads the burden more widely may be slightly more sustainable depending on the size of the low-income burden.

Equity

If the subsidy is contained within the single-family residential class, it will be more equitable from an interclass perspective. Alternatively, intraclass equity will be diminished less if the burden of the subsidy is shared with other classes. Industry standards are not clear on this issue. But it is common for water utilities to use rate design within a class to provide assistance to low-income customers in a manner very similar to AWU's current approach.

The other equity criteria do not vary based on the alternatives.

Customer

Recovering the burden of the subsidy within the residential class only negatively affects the affordability of water for single-family residential customers but preserves the economic development aspects. Also, AWU's rate structure is more volatile if it recovers

the burden solely within the upper blocks for residential customers. We do not expect the ability to understand the bill to be affected by the alternatives.

Conservation

The current approach likely encourages more peak-day and peak-season conservation since it focuses the recovery of the subsidy burden on the upper block rates. This focus likely encourages residential customers to conserve water more aggressively than if the burden was diffused over all other customer classes. For these same reasons, we expect that sustainability may be greater under the status quo.

Financial

Revenue sufficiency may be improved by recovering the subsidy burden from all customer classes. A broader base for the recovery of the subsidy may reduce the pressure on AWU's revenues.

Also, a broader distribution of the subsidy burden may reduce the percentage of the burden recovered during AWU's peak periods. This more diffused recovery approach would likely reduce the volatility of revenues, thereby enhancing revenue stability.

The other financial criteria do not vary by alternative.

Preliminary Findings and Recommendations

Like the question of low-income rates, how a utility recovers a subsidy burden is inherently a public policy issue. Although our evaluation framework explicitly incorporates the criteria developed by the executive team, we feel less prepared to offer opinions in this area. Considering these caveats, the consulting team recommends AWU recover the burden of its low-income program from all customer classes except where prohibited by contract or other legal requirement.

Issue 3: Should AWU introduce a fifth block for single-family residential customers?

Overview of the Issue

The City formed a Water Conservation Task Force as part of its efforts to enhance the conservation of water. This task force produced a set of far reaching proposals for AWU. One of the Task Force's proposals was the implementation of a fifth residential rate block for consumption above 25 kgal per month. The Task Force's goal is to implement the new rate block to provide an even greater incentive to conserve water.

Description of Alternatives

The three alternative methods are:

1. 4-block structure (current);

2. New 5th Block for consumption exceeding 25 kgal per month; and
3. Revised 4-block structure.

The exact details of the rate structure alternatives will be developed with staff and presented to the PIC using a conservation-impact model being developed by Red Oak. The alternatives described here are hypothetical alternatives, designed to present the general concepts.

The revised 4-block option will be designed to achieve the conservation benefits of a fifth block without the diminishment in customer understanding that a 5-block structure can create. A conservation rate structure is most effective when it serves as an efficient consumer price signal about the true cost of water. Complicated rate structures can reduce the conservation effectiveness if customers do not or cannot understand the relationship between usage and cost. In some regards, a simpler rate structure can provide greater consumer confidence in that they are interpreting the price signals appropriately and let the price signals influence their consumption decisions.

Evaluation of Alternatives

Implementation

The administrative burden of adding a fifth block is expected to exceed that of either maintaining the current block rate structure or implementing a revised four-block rate structure. We expect that adding a fifth block to your current rate structure may diminish customer understanding. We have found that block rate designs with more than three blocks tend to confuse consumers and may reduce the effectiveness of a sharper price signal.

It appears that the Water Conservation Task Force conducted extensive public outreach and that its findings were well founded in the political and public acceptance. For that reason, we have rated the fifth-block structure as having more public and political acceptance.

Because of the complexity of setting rates and forecasting revenue with new and/or additional blocks, we have rated the fifth-block structure as having more risk of implementation. Considering the work of the Water Conservation Task Force, we expect the fifth-block structure to be more durable.

Equity

The equity criteria do not vary by alternative.

Customer

We expect that the fifth block may have more rate shock than either of the four-block options. Also, we expect the bills under the fifth-block structure to be less understandable. The other customer criteria do not vary by alternative.

Conservation

Comparing the conservation effectiveness among the alternatives is difficult. Additional blocks do not necessarily increase the conservation effectiveness of a rate design. The establishment of meaningful thresholds that inform consumer behavior can be just as important. We expect that a fifth-block structure and a revised four-block structure could be designed to elicit a similar conservation response. We expect the conservation response of these alternatives to be greater than the response under the existing four-block structure. For that reason, we have evaluated the five-block structure and the revised four-block structure as being more effective for peak-day, and peak-season conservation; and sustainability.

Financial

We expect revenues to be more stable under the existing rate structure than either of the alternative rate structures. Generally, a rate design that puts more revenues at risk to fluctuations in peak summer use (which is more vulnerable to weather impacts) is less stable and imposes greater financial risk. The other financial criteria do not vary based on the alternatives.

Preliminary Findings and Recommendations

The consulting team tentatively recommends AWU modify its current four-block structure to achieve greater conservation. Furthermore, the consulting team recommends that the conservation impact model be developed to support a five-block rate analysis.

Issue 4: What conservation incentives should exist for wholesale customers?

Overview of the Issue

In addition to providing guidance on residential water rate design, the Water Conservation Task Force also recommended that AWU conduct a cost-of-service study that considers conservation rate structures for wholesale customers.

Description of Alternatives

The three available alternative methods are:

1. Uniform rates by wholesale class (current approach),
2. Seasonal rates, and
3. Excess-use rates.

Each of these rate designs is discussed in the earlier sections of this Issue Paper. Because each wholesale customer is its own customer class, each rate structure alternative will be designed to generate the same revenue requirement consistent with the cost of service. The primary differences will be in the interim incentive to reduce consumption, avoid

potentially higher costs, and to decrease both the volatility of costs for the wholesale customers and revenues for AWU.

Evaluation of Alternatives

Implementation

Uniform rates by class have very little administrative burden. Because of limitations in the billing system, we expect the excess-use rate structure to have the most administrative burden. However, the administrative burden may not be significant since AWU currently prepares manual bills for most, if not all, wholesale customers.

Because of the support of the Water Conservation Task Force, we expect that a seasonal or excess-use rate design would be more politically acceptable than the existing rate structure. Similarly, we expect the same findings for policy durability.

Conversely, we expect the risk of implementation to be highest for the excess-use rate design and lowest for the existing rate design.

The other implementation criteria do not vary based on the alternatives.

Equity

Uniform rates by class are the most common wholesale water rate in the industry. Excess-use rates tend to be more prevalent for commercial customers. The other equity criteria do not vary by alternative.

Customer

The conservation-based rates are more likely to have occasional rate shock if water sales to the wholesale customers are different than expected. The other equity criteria do not vary by alternative.

Conservation

Conservation savings from the new rate design are likely quite small since each wholesale customer is currently its own class. The rates will be designed to generate the same annual revenue requirements. There may be some conservation benefit from seasonal and excess-use structures, but it will generally be quite small.

Financial

Both the seasonal and excess-use rate designs may increase the volatility of wholesale revenues to AWU. Depending on the specifics of the rate design, summers that are cooler or wetter than normal may reduce total revenue for AWU. This reduces revenue stability and increases the financial risk.

Preliminary Findings and Recommendations

The consulting team recommends that AWU continue to use its uniform rate by customer class and work with its wholesale customers to achieve greater water conservation through other mechanisms. If AWU does pursue a conservation rate for wholesale customers, the consulting team recommends it adopt a seasonal rate until its new billing system is in place.

A2908-083

City of Austin
Issue Paper # 5: Rate Design

Attachment

A

Evaluations of Alternatives

2908-080 / POR

Evaluations Based on Average Ratings
Providing a Low-Income Subsidy

	Implementation					
Alternatives	Administrative Burden	Public Understanding	Public and Political Acceptance	Risk of Implementation	Legal Defensibility	Policy Durability
Lower Rate for Blocks 1 and 2 (Current)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Waive fixed charge for Low-Income Customers	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Ratings	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

	Equity					
Alternatives	Interclass	Intraclass	Inter-generational	Inside/ Outside City	Industry Standards	
Lower Rate for Blocks 1 and 2 (Current)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
Waive fixed charge for Low-Income Customers	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
Ratings	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

	Customer					
Alternatives	Affordability	Economic Development	Rate Shock/ Volatility	Understand Bill		
Lower Rate for Blocks 1 and 2 (Current)	[redacted]	[redacted]	[redacted]	[redacted]		
Waive fixed charge for Low-Income Customers	[redacted]	[redacted]	[redacted]	[redacted]		
Ratings	[redacted]	[redacted]	[redacted]	[redacted]		

	Conservation					
Alternatives	Average-Day Savings	Peak-Season Savings	Peak-Day Savings	Sustainability		
Lower Rate for Blocks 1 and 2 (Current)	[redacted]	[redacted]	[redacted]	[redacted]		
Waive fixed charge for Low-Income Customers	[redacted]	[redacted]	[redacted]	[redacted]		
Ratings	[redacted]	[redacted]	[redacted]	[redacted]		

	Financial					
Alternatives	Revenue Sufficiency	Revenue Stability	Rate Stability	Rate Predictability	Financial Risk	
Lower Rate for Blocks 1 and 2 (Current)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
Waive fixed charge for Low-Income Customers	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
Ratings	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Alternatives	Weighted Average Score
Lower Rate for Blocks 1 and 2 (Current)	[redacted]
Waive fixed charge for Low-Income Customers	[redacted]

Average Ratings
Providing a Low-Income Subsidy

	Implementation					
Alternatives	**Administrative Burden**	**Public Understanding**	**Public and Political Acceptance**	**Risk of Implementation**	**Legal Defensibility**	**Policy Durability**
Lower Rate for Blocks 1 and 2 (Current)	6.9	3.9	4.9	6.9	4.9	3.0
Waive fixed charge for Low-Income Customers	3.0	5.9	4.9	3.0	4.9	6.9
Weights Rated from 0 to 10 (10 most important)	4.0	5.2	5.2	4.0	4.8	4.8

	Equity					
Alternatives	**Interclass**	**Intraclass**	**Inter-generational**	**Inside/ Outside City**	**Industry Standards**	
Lower Rate for Blocks 1 and 2 (Current)	4.9	3.0	4.9	4.9	5.9	
Waive fixed charge for Low-Income Customers	4.9	3.0	4.9	4.9	3.9	
Weights Rated from 0 to 10 (10 most important)	5.3	4.9	4.1	3.6	4.0	

	Customer					
Alternatives	**Affordability**	**Economic Development**	**Rate Shock/ Volatility**	**Understand Bill**		
Lower Rate for Blocks 1 and 2 (Current)	3.9	4.9	3.9	4.9		
Waive fixed charge for Low-Income Customers	6.9	4.9	6.9	4.9		
Weights Rated from 0 to 10 (10 most important)	5.8	4.1	4.6	3.9		

	Conservation					
Alternatives	**Average-Day Savings**	**Peak-Season Savings**	**Peak-Day Savings**	**Sustainability**		
Lower Rate for Blocks 1 and 2 (Current)	3.0	5.9	5.9	5.9		
Waive fixed charge for Low-Income Customers	6.9	5.9	5.9	5.9		
Weights Rated from 0 to 10 (10 most important)	4.8	4.5	5.9	5.6		

	Financial					
Alternatives	**Revenue Sufficiency**	**Revenue Stability**	**Rate Stability**	**Rate Predictability**	**Financial Risk**	
Lower Rate for Blocks 1 and 2 (Current)	3.0	3.9	4.9	4.9	3.9	
Waive fixed charge for Low-Income Customers	6.9	5.9	4.9	4.9	5.9	
Weights Rated from 0 to 10 (10 most important)	6.7	6.3	5.9	5.9	6.1	

Alternatives	**Weighted Average Score**
Lower Rate for Blocks 1 and 2 (Current)	556
Waive fixed charge for Low-Income Customers	647

Evaluations Based on Average Ratings
Method of Recovering Low-Income Subsidy

	Implementation					
Alternatives	Administrative Burden	Public Understanding	Public and Political Acceptance	Risk of Implementation	Legal Defeasibility	Policy Durability
Within the class (Current)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
From All Classes	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Ratings	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

	Equity					
Alternatives	Interclass	Intraclass	Inter-generational	Inside/ Outside City	Industry Standards	
Within the class (Current)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
From All Classes	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
Ratings	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

	Customer					
Alternatives	Affordability	Economic Development	Rate Shock/ Volatility	Understand Bill		
Within the class (Current)	[redacted]	[redacted]	[redacted]	[redacted]		
From All Classes	[redacted]	[redacted]	[redacted]	[redacted]		
Ratings	[redacted]	[redacted]	[redacted]	[redacted]		

	Conservation					
Alternatives	Average-Day Savings	Peak-Season Savings	Peak-Day Savings	Sustainability		
Within the class (Current)	[redacted]	[redacted]	[redacted]	[redacted]		
From All Classes	[redacted]	[redacted]	[redacted]	[redacted]		
Ratings	[redacted]	[redacted]	[redacted]	[redacted]		

	Financial					
Alternatives	Revenue Sufficiency	Revenue Stability	Rate Stability	Rate Predictability	Financial Risk	
Within the class (Current)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
From All Classes	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
Ratings	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Alternatives	Weighted Average Score
Within the class (Current)	[redacted]
From All Classes	[redacted]

Average Ratings
Method of Recovering Low-Income Subsidy

	Implementation					
Alternatives	**Administrative Burden**	**Public Understanding**	**Public and Political Acceptance**	**Risk of Implementation**	**Legal Defensibility**	**Policy Durability**
Within the class (Current)	4.9	5.9	3.9	4.9	4.9	4.9
From All Classes	4.9	3.9	5.9	4.9	4.9	5.9
Weights Rated from 0 to 10 (10 most important)	4.0	5.2	5.2	4.0	4.8	4.8

	Equity					
Alternatives	**Interclass**	**Intraclass**	**Inter-generational**	**Inside/ Outside City**	**Industry Standards**	
Within the class (Current)	6.9	2.9	4.9	4.9	5.9	
From All Classes	2.9	5.9	4.9	4.9	3.9	
Weights Rated from 0 to 10 (10 most important)	5.3	4.9	4.1	3.6	4.0	

	Customer					
Alternatives	**Affordability**	**Economic Development**	**Rate Shock/ Volatility**	**Understand Bill**		
Within the class (Current)	2.9	6.9	2.9	4.9		
From All Classes	6.9	2.9	5.9	4.9		
Weights Rated from 0 to 10 (10 most important)	5.8	4.1	4.6	3.9		

	Conservation					
Alternatives	**Average-Day Savings**	**Peak-Season Savings**	**Peak-Day Savings**	**Sustainability**		
Within the class (Current)	4.9	6.9	6.9	6.9		
From All Classes	4.9	4.9	4.9	4.9		
Weights Rated from 0 to 10 (10 most important)	4.8	4.5	5.9	5.6		

	Financial					
Alternatives	**Revenue Sufficiency**	**Revenue Stability**	**Rate Stability**	**Rate Predictability**	**Financial Risk**	
Within the class (Current)	3.9	3.9	4.9	4.9	4.9	
From All Classes	5.9	5.9	4.9	4.9	4.9	
Weights Rated from 0 to 10 (10 most important)	6.7	6.3	5.9	5.9	6.1	

Alternatives	**Weighted Average Score**
Within the class (Current)	599
From All Classes	604

Evaluations Based on Average Ratings
5th Block for Residential Customers

	Implementation					
Alternatives	Administrative Burden	Public Understanding	Public and Political Acceptance	Risk of Implementation	Legal Defensibility	Policy Durability
4-Block Structure (Current)						
5th Block >25 Kgal						
Revise 4-Block Structure						
Ratings						

	Equity					
Alternatives	Interclass	Intraclass	Inter-generational	Inside/ Outside City	Industry Standards	
4-Block Structure (Current)						
5th Block >25 Kgal						
Revise 4-Block Structure						
Ratings						

	Customer					
Alternatives	Affordability	Economic Development	Rate Shock/ Volatility	Understand Bill		
4-Block Structure (Current)						
5th Block >25 Kgal						
Revise 4-Block Structure						
Ratings						

	Conservation					
Alternatives	Average-Day Savings	Peak-Season Savings	Peak-Day Savings	Sustainability		
4-Block Structure (Current)						
5th Block >25 Kgal						
Revise 4-Block Structure						
Ratings						

	Financial					
Alternatives	Revenue Sufficiency	Revenue Stability	Rate Stability	Rate Predictability	Financial Risk	
4-Block Structure (Current)						
5th Block >25 Kgal						
Revise 4-Block Structure						
Ratings						

Alternatives	Weighted Average Score
4-Block Structure (Current)	
5th Block >25 Kgal	
Revise 4-Block Structure	

Average Ratings
5th Block for Residential Customers

	Implementation					
Alternatives	Administrative Burden	Public Understanding	Public and Political Acceptance	Risk of Implementation	Legal Defensibility	Policy Durability
4-Block Structure (Current)	5.9	5.9	4.0	5.9	4.9	4.0
5th Block >25 Kgal	4.0	3.0	6.9	4 0	4.9	6.9
Revise 4-Block Structure	4 9	5.9	5.9	4.9	4.9	5.9
Weights Rated from 0 to 10 (10 most important)	4 0	5.2	5 2	4.0	4.8	4.8

	Equity					
Alternatives	Interclass	Intraclass	Inter-generational	Inside/ Outside City	Industry Standards	
4-Block Structure (Current)	4.9	4.9	4.9	4.9	4.9	
5th Block >25 Kgal	4.9	4 9	4.9	4.9	4.9	
Revise 4-Block Structure	4.9	4.9	4.9	4.9	4.9	
Weights Rated from 0 to 10 (10 most important)	5 3	4 9	4.1	3.6	4 0	

	Customer					
Alternatives	Affordability	Economic Development	Rate Shock/ Volatility	Understand Bill		
4-Block Structure (Current)	4.9	4.9	5.9	5.9		
5th Block >25 Kgal	4.9	4 9	4.0	4.0		
Revise 4-Block Structure	4.9	4 9	4.9	5.9		
Weights Rated from 0 to 10 (10 most important)	5.8	4.1	4.6	3.9		

	Conservation					
Alternatives	Average-Day Savings	Peak-Season Savings	Peak-Day Savings	Sustainability		
4-Block Structure (Current)	4.9	4.0	4.0	4.0		
5th Block >25 Kgal	4.9	4.9	4.9	4.9		
Revise 4-Block Structure	4.9	4.9	4.9	4.9		
Weights Rated from 0 to 10 (10 most important)	4.8	4 5	5.9	5.6		

	Financial					
Alternatives	Revenue Sufficiency	Revenue Stability	Rate Stability	Rate Predictability	Financial Risk	
4-Block Structure (Current)	4.9	5.9	4.9	4.9	5.9	
5th Block >25 Kgal	4.9	4 9	4 9	4.9	4.9	
Revise 4-Block Structure	4.9	4.9	4.9	4 9	4 9	
Weights Rated from 0 to 10 (10 most important)	6 7	6 3	5.9	5.9	6.1	

Alternatives	Weighted Average Score
4-Block Structure (Current)	601
5th Block >25 Kgal	587
Revise 4-Block Structure	612

Evaluations Based on Average Ratings
Conservation Incentives for Wholesale Customers

	Implementation					
Alternatives	Administrative Burden	Public Understanding	Public and Political Acceptance	Risk of Implementation	Legal Defensibility	Policy Durability
Uniform by Class (Current)						
Seasonal Rate						
Excess-Use Rate						
Ratings						

	Equity					
Alternatives	Interclass	Intraclass	Inter-generational	Inside/ Outside City	Industry Standards	
Uniform by Class (Current)						
Seasonal Rate						
Excess-Use Rate						
Ratings						

	Customer					
Alternatives	Affordability	Economic Development	Rate Shock/ Volatility	Understand Bill		
Uniform by Class (Current)						
Seasonal Rate						
Excess-Use Rate						
Ratings						

	Conservation					
Alternatives	Average-Day Savings	Peak-Season Savings	Peak-Day Savings	Sustainability		
Uniform by Class (Current)						
Seasonal Rate						
Excess-Use Rate						
Ratings						

	Financial					
Alternatives	Revenue Sufficiency	Revenue Stability	Rate Stability	Rate Predictability	Financial Risk	
Uniform by Class (Current)						
Seasonal Rate						
Excess-Use Rate						
Ratings						

Alternatives	Weighted Average Score
Uniform by Class (Current)	
Seasonal Rate	
Excess-Use Rate	

Average Ratings
Conservation Incentives for Wholesale Customers

	Implementation					
Alternatives	Administrative Burden	Public Understanding	Public and Political Acceptance	Risk of Implementation	Legal Defensibility	Policy Durability
Uniform by Class (Current)	6.9	4.9	3.9	5.9	4.9	3.9
Seasonal Rate	4.9	4.9	5.9	4.9	4.9	5.9
Excess-Use Rate	3.0	4.9	5.9	3.9	4.9	5.9
Weights Rated from 0 to 10 (10 most important)	4.0	5.2	5.2	4.0	4.8	4.8

	Equity					
Alternatives	Interclass	Intraclass	Inter-generational	Inside/ Outside City	Industry Standards	
Uniform by Class (Current)	4.9	4.9	4.9	4.9	6.9	
Seasonal Rate	4.9	4.9	4.9	4.9	4.9	
Excess-Use Rate	4.9	4.9	4.9	4.9	3.9	
Weights Rated from 0 to 10 (10 most important)	5.3	4.9	4.1	3.6	4.0	

	Customer					
Alternatives	Affordability	Economic Development	Rate Shock/ Volatility	Understand Bill		
Uniform by Class (Current)	4.9	4.9	5.9	4.9		
Seasonal Rate	4.9	4.9	3.9	4.9		
Excess-Use Rate	4.9	4.9	3.9	4.9		
Weights Rated from 0 to 10 (10 most important)	5.8	4.1	4.6	3.9		

	Conservation					
Alternatives	Average-Day Savings	Peak-Season Savings	Peak-Day Savings	Sustainability		
Uniform by Class (Current)	4.9	4.9	4.9	4.9		
Seasonal Rate	4.9	5.9	5.9	5.9		
Excess-Use Rate	4.9	5.9	5.9	5.9		
Weights Rated from 0 to 10 (10 most important)	4.8	4.5	5.9	5.6		

	Financial					
Alternatives	Revenue Sufficiency	Revenue Stability	Rate Stability	Rate Predictability	Financial Risk	
Uniform by Class (Current)	4.9	5.9	4.9	4.9	5.9	
Seasonal Rate	4.9	3.9	4.9	4.9	3.9	
Excess-Use Rate	4.9	3.9	4.9	4.9	3.9	
Weights Rated from 0 to 10 (10 most important)	6.7	6.3	5.9	5.9	6.1	

Alternatives	Weighted Average Score
Uniform by Class (Current)	617
Seasonal Rate	599
Excess-Use Rate	583

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REDOAK CONSULTING
A DIVISION OF MALCOLM PIRNIE

Issue Paper #6
Rates for Irrigation Customers

Subject: Rates for Irrigation Customers

Date: March 10, 2008

Introduction

In August of 2006, the City of Austin created a Water Conservation Task Force to develop policies to achieve water conservation goals within the Austin Water Utility's (AWU) service area. In its report, the Water Conservation Task Force found:

> The Utility's current water rate structure does not provide adequate conservation price signals for high use residential customers, irrigation accounts, or commercial and multi-family customers.[1]

Based on its findings, the Water Conservation Task Force adopted several specific water conservation policies. Of particular interest for this Issue Paper is Policy CI-3 which is provided in Attachment A.[2] Among other things, this policy requires the utility to:

> Conduct a cost of service study to evaluate . . . establishing commercial irrigation rates comparable to highest residential tiers. . .

This Issue Paper addresses this policy.

Discussion of Irrigation Rate Issues

Description of Existing Irrigation Accounts

As of September 1, 2007, AWU provides separate metered irrigation services to approximately 3,000 customers that are members of each of its customer classes. (Attachment B presents an analysis of AWU's irrigation customers.) Since 1998, AWU has required all commercial and multi-family customers connecting to its system to install a separate irrigation meter for water used for outdoor irrigation. Other customers have opted to install separate irrigation meters for various reasons. Some reasons for installing separate irrigation meters include:

1. Eliminate wastewater charges for water that is not returned to the wastewater system.

[1] *Water Conservation Strategies Policy Document, Water Conservation Task Force,* Prepared by Water Conservation Division of the Austin Water Utility. Available at http://www.ci.austin.tx.us/watercon/downloads/WCTFPolicyDoc.pdf

[2] Alternatively, see page 25 of the *Water Conservation Strategies Policy Document, Water Conservation Task Force.*

2. Provide additional points of connection to AWU's system. This may be true for some residential customers that have large irrigation demands that cannot be met by a single ¾-inch meter.

3. Other reasons identified by the customer.

Because of the mandatory irrigation meter policy for non-residential customers, AWU currently has a mix of customers within each of its customer classes that have, and do not have, separate irrigation meters. The incomplete implementation of the separate irrigation meter policy means that, out of necessity, some customers will use their single connection to AWU's system for both indoor and outdoor uses. Other customers will use two meters. This presents a significant challenge to AWU in implementing an irrigation rate that applies to some members of a class—but not all.

Sample Bills

Attachment C presents examples of bill calculations with an irrigation rate. These examples illustrate the difficulty in implementing an irrigation rate with a partial implementation of irrigation meters. The examples present two bills for hypothetical customers that consume the same quantity of water for the same purposes (i.e., the same indoor and outdoor usages). Under this example, the only difference is that one of the hypothetical customers has a separate irrigation meter. As presented in the Attachment, the implementation of an irrigation rate that equals the highest residential block might result in an inequity unless other adjustments are made.

Enhancing Equity

The executive team has adopted five measures of equity in its evaluation criteria. These measures of equity are:

1. Interclass equity;
2. Intraclass equity;
3. Intergenerational;
4. Inside/outside city; and
5. Industry standards.

Attachment D is a memorandum that defines the evaluation criteria adopted by the executive team.

There are two primary alternatives to enhancing the measures of equity when implementing irrigation rates. These alternatives are:

1. Customer classification, or
2. Rate design

Customer Classification

AWU can separate its irrigation customers into a unique customer class and establish equitable rates within this customer class. Under this approach, the rates for the irrigation class would include separate rates for both outdoor and indoor water use. The rates for outdoor water use would be set to encourage water conservation. The rates for indoor water use would be set to ensure the customer class recovers its cost of service.

Separate irrigation customer classes could be formed for all of AWU's current retail customer classes. Alternatively, one customer class could be formed for all AWU's irrigation customers.

Rate Design

Rate design alternatives could be created that would enhance the equity of irrigation rates. An example of such a rate design is the excess-use rate design discussed in Issue Paper #5. Under this approach, customers with a meter that provides both indoor and outdoor use would have a higher average-to-peak ratio and would have relatively more water at the higher consumption blocks.[3] This would treat all customers within a customer class fairly and enhance many of the equity evaluations.

Consideration for Residential Customers

As of September 2007, AWU has approximately 141 single-family residential customers with separate irrigation meters (137 inside the city, and 4 outside.) Consumption through these irrigation meters currently receives the discounted rates in blocks 1 and 2.

Oftentimes single-family residential customers are assumed to consume water in a more similar manner to each other than other customer classes. That is, typically, single-family users do not vary as much in size as do multi-family, commercial, and industrial customers. Although household sizes do vary, these impacts are not as great on average water usage as the differences that are common between, for example, a small apartment complex of 4 units and a very large apartment complex of more than 500 units. The degree of variability for single-family residential customers tends to be smaller.

Many utilities have rate designs for single-family residential customers that account for this similarity. AWU, for example, uses the same block thresholds for all single-family residential customers. This policy would be problematic for other customers with great variability.

[3] Issue Paper 5 provides more information on an excess-use rate design. Under an excess-use rate design, the amount of consumption priced at each block rate is determined as a percentage of each customer's average winter consumption (e.g., water purchased above 150 percent of average winter consumption is in block two, etc.). The percentages used to determine the block thresholds are constant for all customers within the class, but the average winter consumption varies for each customer based on their actual metered water use during the winter months. In this way, each customer has its own set of block thresholds under which its rates, and hence its bill, are determined.

Currently, a single-family residential customer with a separate irrigation meter receives water on both meters at the inclining block rate. Therefore, these customers receive water used specifically for irrigation at the discounted block 1 and block 2 rates. Unlike AWU's other customer classes that do not have block thresholds, this additional discounted water diminishes intraclass rate equity.

Methodological Options Under Review

This Issue Paper considers the policies on irrigation customers and irrigation rates. The specific policies include:

1. If AWU implements higher rates for irrigation users, how should the excess revenues generated by the higher rates be used?

2. What is an appropriate level for the irrigation rates?

3. Should single-family residential customers with irrigation meters receive irrigation water at the block 1 and 2 rates?

4. Should AWU create a separate irrigation customer class?

Red Oak discussed the fourth policy in *Issue Paper #4, Customer Classification.* Policies 1 through 3 are discussed in below. The discussion of each policy includes:

- Overview of the issue,
- Description of the alternatives,
- Evaluation of the alternatives using the executive team's evaluation criteria, and
- Consultant's preliminary findings and recommendations.

After presentation to the executive team and public involvement committee, the consulting team will finalize its recommendations.

Issue 1: If AWU implements higher rates for irrigation users, how should the excess revenues generated by the higher rates be used?

Overview of the Issue

The Water Conservation Task Force recommends that AWU establish "commercial irrigation rates comparable to highest residential tiers".[4] The highest residential tiers, however, are established to generate sufficient revenues to subsidize the rates of blocks 1 and 2. It is not known at this time, but Red Oak suspects that the highest residential

[4] See Policy CI-3, page 25 of the *Water Conservation Strategies Policy Document, Water Conservation Task Force.*

block exceeds the cost of providing irrigation water in the peak season. If that is the case, pricing irrigation water at the highest residential block will generate excess revenues.

Description of Alternatives

The five available alternative methodologies are:

- Alternative 1: Use the excess revenues to reduce the rate for indoor water use for irrigation customers;
- Alternative 2: Use the excess revenues to reduce the rates for all customers;
- Alternative 3: Set the irrigation rate at the cost of service to eliminate excess revenues;
- Alternative 4: Set the excess revenues aside for other designated purposes; and
- Alternative 5: Do not establish an irrigation rate (current approach).

Alternatives 1 and 3 require AWU to establish a new customer class or classes for its irrigation customers. Although the Water Conservation Task Force discussed irrigation rates for commercial customers only, AWU has irrigation meters for single-family residential, multi-family residential, and industrial customers too. From a practical standpoint, AWU would likely be required to treat all non single-family residential classes the same.

The first alternative would determine the amount of revenue that irrigation rate generates for each of the irrigation classes (e.g., single-family, multi-family, commercial, etc.). The excess revenue generated from the irrigation rate would then be used to reduce the non-irrigation water used by those irrigation customers as a class.

As an alternative, AWU could use the excess revenues generated from irrigation rates to reduce the rates for all customers within the customer classes to which the irrigation customers belong. Under this approach, AWU would not establish separate irrigation customer classes. Rather, AWU would use the excess revenue generated from, for example, the commercial irrigation rates, to subsidize the other commercial rates.

AWU could establish a cost-of-service rate for irrigation customers that did not generate excess revenues. Under this approach, irrigation meters would be charged their cost of service and other customers would not be affected. This approach requires that AWU create one or more irrigation classes.

AWU could designate specific purposes that the excess revenue would fund. For example, AWU could designate revenue from irrigation customers that exceed the cost of service be dedicated to funding its reuse program.

Finally, AWU could maintain the status quo and not create an irrigation rate.

Evaluation of Alternatives

Attachment E presents the weighted evaluations of the alternatives.

Implementation Criteria

Reducing the rate for indoor use of irrigation customers (i.e., Alternative 1) and setting the irrigation rate at cost of service (i.e., Alternative 3) requires the establishment of one or more irrigation classes. The difficulty with establishing these classes might include:

1. Possibility that the billing system has some irrigation meters improperly identified.

2. Difficulty in identifying all accounts associated with a particular irrigation meter. It is possible that some irrigation accounts provide outdoor water use for more than one indoor-only account. A detailed review of all accounts would be required to align the indoor-only accounts with the corresponding irrigation accounts properly.

3. Some accounts may be classified as irrigation because they are not subject to wastewater charges. However, some of these accounts may not be used to supply irrigation water for outdoor use. AWU is examining the degree to which this may be an issue.

For these reasons, the alternatives that require the formation of new customer classes (i.e., Alternatives 1 and 3) likely have higher administrative burdens and risks of implementation. Alternative 5 has the least administrative burden.

Public understanding may be more difficult for Alternatives 1 and 3 since they require the implementation of new customer classes. For that reason, we rated these alternatives lower on public understanding. In addition, the requirement that new classes be implemented increased the risk of implementation.

Because of the findings of the Water Conservation Task Force, we judge Alternative 5 as being less acceptable to the public and political leadership. The inequities brought about by using the excess revenue from irrigation customers to subsidize other customers makes Alternative 2 less acceptable as well. Also, setting excess revenues aside for designated purposes may not be acceptable. This rating deserves more attention since the ultimate acceptability of setting excess revenues aside may depend on the acceptability of the purpose to which those funds are designated. This consideration makes our ratings for public and political acceptance less certain for Alternative 4.

The current approach, Alternative 5, is most legally defensible. The least defensible is Alternative 2, which results in the potential for similarly situated customers to have significantly different water bills (see the example in Attachment C).

The recommendations of the Water Conservation Task Force anticipate that AWU will reconsider its rate design after AWU implements a new billing system. Considering that AWU expects the new billing system to be implemented within the next three to five years, the policy durability of each of the alternatives is limited. Regardless, it is likely that Alternatives 1 and 3 are the most durable policies since these policies minimize the inequities that other alternatives may have. In addition, considering the findings of the Water Conservation Task Force, it is unlikely that the current policy of no irrigation rate could be maintained for long.

Equity

The interclass equity is likely the highest for Alternative 3 where the irrigation rates are based on the cost of service. This alternative requires the establishment of one or more customer classes and sets the rates to recover the cost of service. For similar reasons, Alternative 1 minimizes the subsidization among customer classes. Alternative 5, the current approach, also minimizes interclass inequities. Alternative 2 likely introduces the greatest interclass inequity. Under this alternative, the excess revenues from the irrigation rates in one class are used to reduce the rates for all customers, including those in other customer classes. Similarly, setting the excess revenues aside for a designated purpose may result in the over-recovery of revenue from one class to the benefit of others. For that reason, it was considered relatively inequitable from an interclass perspective.

Like interclass equity, intraclass equity is poorly served by Alternative 2. This occurs since customers that have an irrigation meter will pay substantially more than similar customers within the class that use water for both indoor and outdoor use but do not currently have an irrigation meter. Alternative 1 also has relatively lower intraclass equity since the reduction in indoor rates may not benefit customers in proportion to their use of outdoor water. For example, customers within a commercial irrigation class with high indoor use and low outdoor use will pay relatively less than their cost of service. Customers within the commercial irrigation class that have higher outdoor use than indoor use will pay more than their cost of service.

Alternative 4 (set the excess revenues aside for other designated purposes) reduces intergenerational equity since future customers will likely benefit from the contributions of current customers. Otherwise, the Alternatives do not vary for this criterion.

Inside/Outside City equity does not vary among the alternatives.

Irrigation rates are fairly common within the industry. Where these rates are used, it is common for the customers to share the benefits of reduced cost of service for their

remaining consumption. This benefit is often realized through alternative rate designs like the excess-use rate design. In other situations, these customers may be treated as a separate customer class or other adjustments are made to the rates charged to customers without irrigation meters but that use water for irrigation purposes.

Customer

Alternative 2 (which reduces rates for all customers) will likely have the greatest impact on the affordability of water for single-family residential customers. Customers with irrigation meters tend to be non-residential accounts, and therefore, residential customers may benefit from the subsidies from other classes. Setting the revenues aside may have a positive benefit for affordability. This occurs if the designated purposes benefit the residential class and eliminates what would otherwise be a funding requirement for the residential class.

Economic development may be negatively impacted by Alternative 2 since most irrigation customers are non-residential. This alternative would likely place a net burden on these customers.

The implementation of an irrigation rate at the highest residential block rate will have significant rate shock for AWU's customers. The cost of irrigation water may more than double for many of these customers. For that reason, the alternative of no irrigation rate minimizes rate shock. Setting the irrigation rate at the cost of service has a smaller impact on rate shock since the irrigation rate will likely be lower than the current highest residential block. In addition, these customers will benefit from the reduced cost of service for their indoor use water that would have a lower rate reflecting the lower peaking costs for this service.

Depending on the design of the bill, the ability to understand the bill may not vary among the alternatives.

Conservation

Based on the findings of the Water Conservation Task Force, Alternatives 1 and 4 are likely to have the greatest peak-season and peak-day conservation savings. Alternative 4 may generate the most conservation savings since it does not reduce the rates for other customers or blocks. Alternative 1 may provide slightly less conservation savings since customers may see a reduction in the cost of their water used for indoor purposes. Alternative 5 provides no additional conservation savings, so it received the lowest evaluation. Sustainability is evaluated in a similar manner to peak-season and peak-day criteria.

Financial

Alternative 4 may increase the revenue to AWU and provide additional funding for the purpose that the excess revenue is dedicated. The other alternatives would likely produce the same revenues and might not differ for the revenue sufficiency criterion.

Revenue stability would be greatest under Alternative 4 since the loss of revenue in the irrigation rate would merely delay the funding of the items for which the excess revenue is dedicated. Alternatives 1 and 2 would likely have the largest negative impact on revenue stability since it would put the most irrigation revenue at risk by pricing it at the highest block rate. Alternative 3 would likely have less negative impact than Alternatives 1 and 2 because the cost-of-service rate for irrigation is likely less than the current highest block rate for residential customers. The financial risk of each alternative would receive the same evaluations as for revenue stability.

Rate stability will be unaffected by all alternatives except Alternative 4. Under Alternative 4, the rates may be slightly more stable if the excess revenues can absorb funding fluctuations from year-to-year. Otherwise, the alternatives do not vary.

Preliminary Findings and Recommendations

The consulting team recommends that AWU continue its current practice and not adopt an irrigation rate. Once AWU has implemented a new billing system, the consulting team recommends AWU consider adopting an excess-use rate structure for its commercial customers that recover the cost of service.

If AWU does adopt an irrigation rate before implementing its new billing system, the consulting team recommends that AWU either set the irrigation rate at the cost of service, or dedicate the excess revenue for a specific purpose.

Issue 2: What is an appropriate level for the irrigation rates?

Overview of the Issue

The Water Conservation Task Force directed AWU to evaluate various strategies to reduce water demand within AWU's service area. One of the strategies the Task Force identified was "establishing commercial irrigation rates comparable to highest residential tiers." In addition, the Water Conservation Task Force directed AWU to "Establish a residential fifth tier for use above 25,000 gallons per month." Determining the irrigation rate, therefore, may require the determination of the residential fifth-block rate. The residential fifth-block rate was discussed in Issue Paper #5.

Complicating the setting of irrigation rates is the linkage to the highest "residential tiers." The rate for the highest residential tiers currently does not reflect the cost of providing irrigation water. Rather, the rate for the highest residential tiers is determined to recover the total revenue requirement for the residential class. This rate likely exceeds the cost of service to maintain the affordability of water consumed in blocks 1 and 2. As described earlier in this Issue Paper, setting the rate equal to the highest residential rate will likely generate revenues exceeding the cost of service.

Description of Alternatives

The three available alternative methods are:

- Alternative 1: Set the irrigation rate equal to the highest residential block rate;
- Alternative 2: Set the rate equal to the cost-of-service rate for irrigation; or
- Alternative 3: Do not have an irrigation rate (current approach).

These alternatives are closely related to the alternatives presented for Issue 1. However, the perspective is different. For this issue, we are examining the impact of the rate alone, not the additional revenue it may generate.

The first alternative implements the Water Conservation Task Forces strategy directly. It presents significant equity concerns that may provide difficulty in implementing the approach. The second alternative will provide less conservation incentive than the first, but it ensures that customers pay their fair share of AWU's costs. Finally, the last alternative maintains the status quo.

Evaluation of Alternatives

Implementation

The administrative burden of establishing the cost-of-service rate exceeds the burden of the alternatives. The differences in burden of merely establishing the rate is quite small. Public understanding is unlikely to vary much among the alternatives. Alternative 2 may require the explanation of the cost of service methodology and may be somewhat less understandable.

Considering the findings of the Water Conservation Task Force, Alterative 1 likely has the greatest public and political acceptance. Alternative 3 is likely to be the least acceptable in this regard.

The risk of implementation is generally low. However, Alternative 2 requires the most effort, and therefore, presents the most risk.

All three options are likely to be legally defensible. AWU has not been challenged under its current approach, so Alternative 3 is likely to be defensible. Generally, setting rates at the cost of service provides a more defensible outcome, so Alternative 2 is expected to be most defensible.

When evaluating the policy durability of the alternatives, the findings of the Water Conservation Task Force suggest that Alternative 3 will not provide a long-term solution

to AWU. However, the unintended consequences of Alternative 1 (e.g., revenues exceeding the cost of service, etc.) may result in it being revised if adopted.

Equity

Setting the irrigation rate at the highest residential block rate will generate subsidies from the irrigation customers to other customers both within the irrigation customers' classes and to other classes. This outcome can be expected when a rate is set far beyond the cost of service. Since Alternative 2 is based on the cost of service, it will likely minimize the subsidies both within and among AWU's customer classes. Since cost-of-service is a common industry standard, the alternatives received the same evaluations for adherence to industry standards as the interclass and intraclass equities.

The other equity criteria do not vary by alternative.

Customer

Increasing the irrigation rate will likely make water more affordable for residential customers. Largely, however, this depends on how the excess revenues from the rates are used (see Issue 1). Considering the rate alone, however, it is likely that residential rates would be lower if AWU received more revenue from its irrigation customers. Therefore, Alternative 1 was judged the most affordable, and Alternative 3 the least. For economic development, the finding is just the opposite. The higher cost of irrigation is likely to impose a greater burden on businesses, which are the largest users of irrigation water.

Increasing the irrigation rate substantially (more than doubling the rate in most circumstances) will significantly increase the bills for many irrigation customers. For that reason, Alternative 1 is likely to have very significant rate shock. Moving to a cost-of-service rate for irrigation meters might also increase their bills and provide rate shock. If AWU implements either Alternative 1 or 2, it may consider phasing the rates in so customers can adjust their consumption over time (i.e., install different landscape, water saving devices, etc.).

The understandability of the bill does not vary by alternative.

Conservation

The conservation savings are likely to be higher for those alternatives with the highest rates. This depends, in part, on the use of the revenue that exceeds the cost of service. If the revenue is used to reduce the rates for other customers, those customers with the reduced rates may have a diminished incentive to conserve. Considering the use of the revenues separately, Alternative 1 is likely to generate the most peak-day and peak-season savings. Alternative 2 is expected to generate less conservation than Alternative 1, but more than Alternative 3. The sustainability criterion is consistent with the peak-day and peak-season conservation saving criteria. None of the alternatives is expected to affect average-day savings.

Financial

The higher rates under Alternatives 1 and 2 are likely to increase the volatility of AWU's revenue. For that reason, these alternatives received a lower evaluation for revenue stability, rate stability, and financial risk.

The other financial criteria do not vary by alternative.

Preliminary Findings and Recommendations

The consulting team recommends that AWU adopt a cost-of-service rate for its irrigation customers. This recommendation must be considered simultaneously with the executive team's decision on Issue 1.

Issue 3: Should single-family residential customers with irrigation meters receive irrigation water at the block 1 and 2 rates?

Overview of the Issue

Currently single-family residential customers with separate irrigation meters receive the advantages of block rates for both their domestic meter (i.e., the meter used to supply their indoor water use) and irrigation meter. In other words, the residential customer with two meters pays the lower block 1 rate for consumption up to 2,000 gallons per month on both meters. This means the customer has the potential to receive a total of 4,000 gallons of water per month priced at the block 1 rate.

AWU currently prices its first two blocks (i.e., consumption from 0 to 2,000 gallons and from 2,000 to 9,000 gallons) at less than the cost of service to make water more affordable for its customers. Also, the higher block rates are designed to encourage the wise use of water during AWU's peak season. The current rate structure for single-family irrigation accounts sends an improper price signal to those limited number of single-family residential customers with a separate irrigation meter.

Attachment B presents an analysis of irrigation customers. Of the approximately 180,000 residential customers, approximately than 140, or 0.08 percent, have a separate irrigation meters. Of those single-family residential customers inside the city limits with separate irrigation meters, the average consumption from June 2007 through September 2007 was approximately 19,000 gallons per month. Approximately 47 percent of this water is priced at the discounted block 1 and 2 rates.

Description of Alternatives

The two available alternative methods are:

- Alternative 1: Provide block 1 and 2 discounted water (current approach); or

- Alternative 2: Price all water at the rates for block 3 and above.

The first alternative maintains AWU's current policy. The second method sets the rate for all water at a minimum of AWU's block 3 rate, thereby eliminating the discounted water.

Evaluation of Alternatives

Implementation

Because few single-family residential customers have a separate irrigation meter, the process of implementation should be fairly simple. The administrative burden of changing the rates for single-family irrigation customers will be slight to none. AWU's billing system currently identifies these customers and applies its 4-block structure to them. Implementing a new rate structure would require updating the rates in the billing system so the block three rates apply to the current block 1 and 2 consumption. The status quo has no administrative burden.

Public understanding is difficult to evaluate. Normally the status quo is considered more understandable to the public because it requires little or no explanation. However, in this case it is not clear the public at large is aware of the current policy. For this reason, Alternative 1 receives a slightly higher evaluation.

Considering the objectives of the Water Conservation Task Force, Alternative 1 may be less acceptable to the public and political leadership than Alternative 2. The policy durability of each option was evaluated on the same basis.

The other implementation criteria do not vary by alternative.

Equity

Interclass and intraclass equity are likely improved by pricing all outdoor water use similarly. Therefore, Alternative 2 performs better than the status quo. Because Alternative 2 is likely closer to true cost of service, it is more compliant with industry standards.

The other equity criteria do not vary by alternative.

Customer

Alternative 1 is relatively more affordable for the small group of customers that have two irrigation meters. Although the economic status of these customers is not known with certainty, we assume that single-family residential customers with a separate irrigation meter likely have elaborate landscaping and a corresponding ability to pay. Given this assumption, affordability may not be important for this policy decision. Rate shock and volatility are likely to vary among the alternatives in the same manner as affordability.

The other customer criteria do not vary by alternative.

Conservation

Alternative 2 may promote conservation in an extremely small amount considering the limited number of single-family residential customers that have a dedicated irrigation meter. These savings are most likely to accrue during the peak season and peak day. Because of the stronger conservation incentive, this alternative is judged to be more consistent with sustainability.

Financial

Alternative 1 may have an extremely small benefit for revenue stability. Again, the small number of customers affected by the policy limits the detrimental effect on revenue stability. The financial risks are evaluated similarly to the revenue stability.

The other financial criteria do not vary by alternative.

Preliminary Findings and Recommendations

The consulting team recommends that AWU charge the block three rate for all consumption below 9,000 gallons per month for water through a dedicated irrigation meter for single-family residential customers. Furthermore, the consulting team recommends that AWU adjust this policy and the rate thresholds to prevent subsidized water being served through irrigation meters.

A2908-083

City of Austin
Issue Paper #6: Rates for Irrigation Customers

SECTION

A

Water Conservation Task Force: Water Conservation Policy CI-3

REDOAK CONSULTING
A DIVISION OF MALCOLM PIRNIE

2908-083 / POR

CI-3	**Adjust Utility water rates and modify Utility bills to encourage conservation.**
Applies to:	All customers
Implementation Method:	Cost of service study and changes to the rate structure

The Utility's current water rate structure does not provide adequate conservation price signals for high use residential customers, irrigation accounts, or commercial and multi-family customers. Additionally, many customers do not know what level of water use is appropriate for their needs.

The Utility will:

1. Establish a residential fifth tier for use above 25,000 gallons per month.

2. Conduct a cost of service study to evaluate strategies to reduce water demand by at lest 5 MGD, including:
    a. the level at which to set the fifth tier for residential customers;
    b. establishing commercial irrigation rates comparable to highest residential tiers;
    c. water budgeting rates for commercial customers; and
    d. conservation rate structures for wholesale customers.

It is anticipated that a fifth tier and changes to irrigation rates would be added immediately under the existing billing system. More complex rate changes would not take effect until a new billing system is in place that can accommodate the changes.

The Utility will:

1. Add graphs of historical and current water use to customer bills.

2. Require the new billing system to have:
    a. water budget capabilities;
    b. the ability to include additional conservation information; and
    c. the ability to notify customers when consumption increases dramatically.

Additional FTEs:	0
Additional Cost:	$0
Contract/Commodity Cost:	$0
Peak-Day Savings:	5.0 MGD over 10 years
Cost per gallon saved:	$0

City of Austin
Issue Paper #6: Rates for Irrigation Customers

SECTION

B

Analysis of Irrigation Customers

2908-083 / POR

Monthly Irrigation Totals

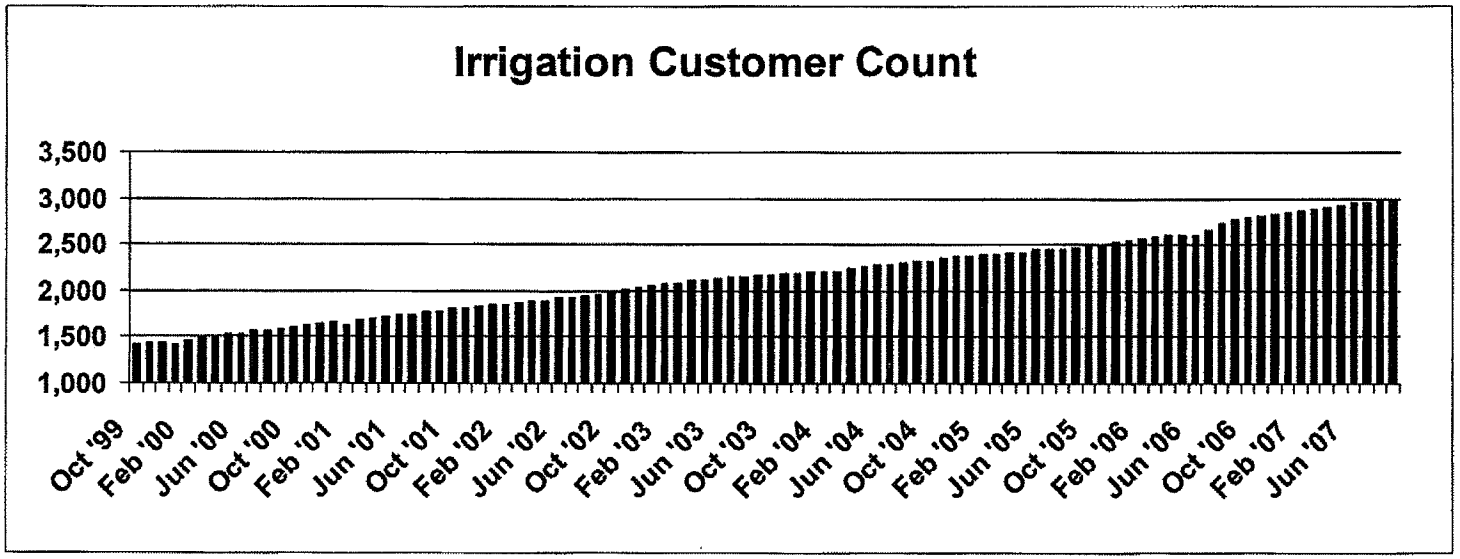
Fiscal Year	*Date*	*Count*	*Consumption*	*Revenue*
2006-07				
	9/1/2007	2,990	390,198,000	$1,478,002.93
	8/1/2007	2,978	289,075,500	$1,100,311.25
	7/1/2007	2,949	269,339,300	$1,029,445.10
	6/1/2007	2,946	284,865,600	$994,465.97
	5/1/2007	2,917	241,218,100	$842,499.23
	4/1/2007	2,897	219,694,660	$773,935.92
	3/1/2007	2,874	190,884,420	$676,520.76
	2/1/2007	2,865	135,855,030	$487,853.85
	1/1/2007	2,849	217,741,100	$767,822.79
	12/1/2006	2,828	310,589,470	$1,087,952.12
	11/1/2006	2,802	360,796,100	$1,252,566.88
	10/1/2006	2,791	487,394,400	$1,736,844.65
Total		**34,686**	**3,397,651,680**	**$12,228,221.45**
2005-06				
	9/1/2006	2,776	672,684,300	$2,375,651.48
	8/1/2006	2,722	577,496,370	$2,046,716.88
	7/1/2006	2,646	520,060,700	$1,832,713.48
	6/1/2006	2,607	406,637,700	$1,345,303.96
	5/1/2006	2,601	291,493,700	$970,271.66
	4/1/2006	2,589	246,874,800	$829,288.12
	3/1/2006	2,572	212,784,200	$718,719.09
	2/1/2006	2,559	218,453,800	$740,383.21
	1/1/2006	2,548	239,952,500	$814,757.50
	12/1/2005	2,531	318,340,600	$1,069,736.62
	11/1/2005	2,500	397,077,100	$1,323,170.64
	10/1/2005	2,495	508,885,580	$1,712,362.61
Total		**31,146**	**4,610,741,350**	**$15,779,075.25**
2004-05				
	9/1/2005	2,468	539,817,520	$1,808,502.03
	8/1/2005	2,451	513,284,800	$1,716,088.82
	7/1/2005	2,456	511,233,700	$1,713,058.27

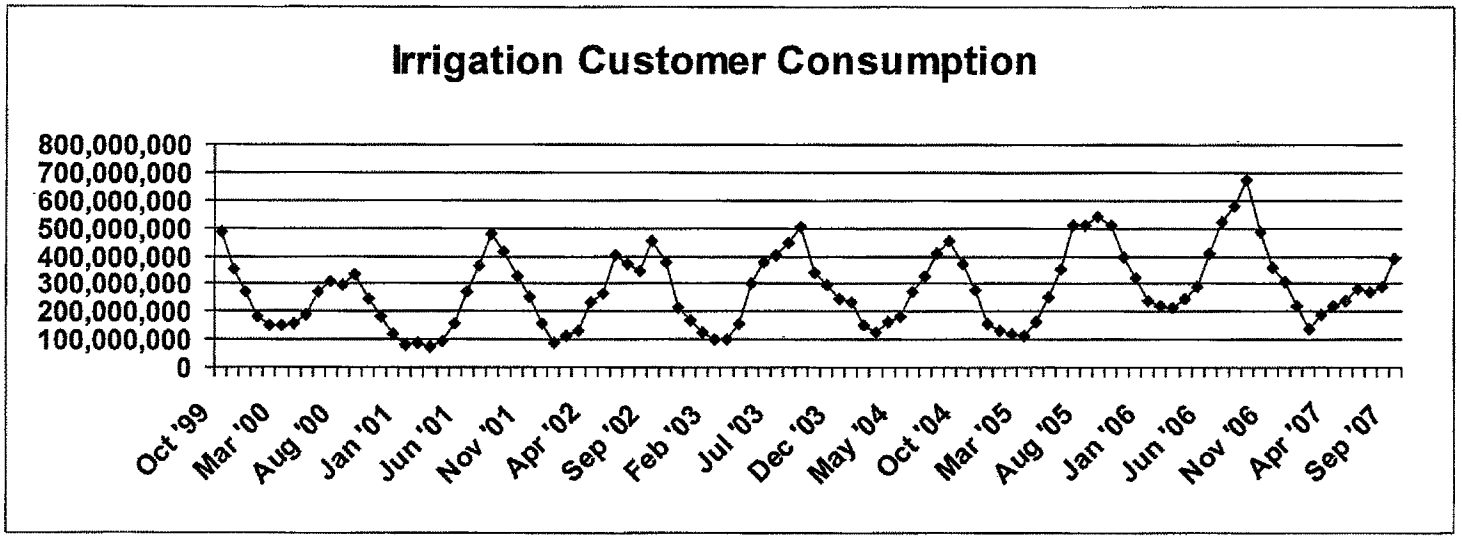
Fiscal Year	*Date*	*Count*	*Consumption*	*Revenue*
	6/1/2005	2,448	353,908,100	$1,112,754.40
	5/1/2005	2,419	252,883,400	$802,012.78
	4/1/2005	2,413	161,247,500	$520,110.63
	3/1/2005	2,397	116,257,900	$382,071.52
	2/1/2005	2,391	117,622,500	$386,171.58
	1/1/2005	2,370	132,946,600	$436,360.53
	12/1/2004	2,363	154,987,600	$503,138.35
	11/1/2004	2,346	277,613,400	$895,739.83
	10/1/2004	2,307	370,300,100	$1,157,782.87
Total		**28,829**	**3,502,103,120**	**$11,433,791.61**
2003-04				
	9/1/2004	2,307	454,244,900	$1,417,843.67
	8/1/2004	2,297	409,945,900	$1,280,466.30
	7/1/2004	2,284	324,824,600	$1,016,192.91
	6/1/2004	2,272	273,926,600	$800,161.58
	5/1/2004	2,255	184,934,000	$546,057.39
	4/1/2004	2,245	164,757,300	$487,694.98
	3/1/2004	2,209	124,820,300	$373,484.44
	2/1/2004	2,205	151,207,200	$449,626.85
	1/1/2004	2,203	230,506,200	$678,769.16
	12/1/2003	2,189	243,437,600	$714,520.76
	11/1/2003	2,182	296,124,800	$866,566.30
	10/1/2003	2,162	337,669,960	$1,006,980.40
Total		**26,810**	**3,196,399,360**	**$9,638,364.74**
2002-03				
	9/1/2003	2,160	501,417,300	$1,486,435.26
	8/1/2003	2,148	450,095,300	$1,336,178.27
	7/1/2003	2,145	405,089,700	$1,205,749.08
	6/1/2003	2,133	376,077,000	$1,041,359.73
	5/1/2003	2,116	304,320,700	$842,779.72
	4/1/2003	2,100	156,489,000	$440,905.80
	3/1/2003	2,075	97,782,200	$280,792.26
	2/1/2003	2,067	102,223,000	$293,185.98
	1/1/2003	2,051	128,542,600	$365,886.02
	12/1/2002	2,030	169,413,300	$478,340.32

Fiscal Year	*Date*	*Count*	*Consumption*	*Revenue*
	11/1/2002	2,006	216,949,300	$608,033.47
	10/1/2002	2,004	375,974,200	$1,124,226.93
Total		**25,035**	**3,284,373,600**	**$9,503,872.84**
2001-02				
	9/1/2002	1,965	454,582,000	$1,356,900.33
	8/1/2002	1,942	347,511,300	$1,038,339.69
	7/1/2002	1,927	372,547,100	$1,112,322.79
	6/1/2002	1,915	402,461,450	$1,117,506.95
	5/1/2002	1,890	266,975,500	$741,205.71
	4/1/2002	1,883	230,923,340	$647,012.57
	3/1/2002	1,868	133,046,600	$375,529.60
	2/1/2002	1,854	112,237,760	$320,939.30
	1/1/2002	1,839	89,420,800	$260,127.89
	12/1/2001	1,832	156,941,800	$447,161.32
	11/1/2001	1,808	254,036,230	$715,086.12
	10/1/2001	1,807	326,675,540	$909,486.60
Total		**22,530**	**3,147,359,420**	**$9,041,618.87**
2000-01				
	9/1/2001	1,773	417,329,970	$1,161,592.36
	8/1/2001	1,765	478,279,400	$1,324,593.48
	7/1/2001	1,740	362,481,400	$1,005,502.30
	6/1/2001	1,732	271,246,900	$706,341.60
	5/1/2001	1,719	157,529,300	$412,935.43
	4/1/2001	1,694	93,764,080	$249,229.98
	3/1/2001	1,671	74,015,800	$197,772.37
	2/1/2001	1,623	89,099,300	$236,694.46
	1/1/2001	1,657	80,130,400	$215,391.92
	12/1/2000	1,636	118,027,700	$310,628.94
	11/1/2000	1,619	184,948,300	$484,368.24
	10/1/2000	1,604	246,240,800	$591,132.48
Total		**20,233**	**2,573,093,350**	**$6,896,183.56**
1999-00				
	9/1/2000	1,585	332,223,920	$795,173.42
	8/1/2000	1,566	298,341,300	$714,694.52
	7/1/2000	1,561	311,386,400	$745,255.22

Fiscal Year	*Date*	*Count*	*Consumption*	*Revenue*
	6/1/2000	1,532	273,480,000	$655,913.62
	5/1/2000	1,530	186,645,400	$450,471.60
	4/1/2000	1,508	158,049,900	$382,688.97
	3/1/2000	1,489	149,529,700	$363,143.21
	2/1/2000	1,454	152,516,400	$370,010.41
	1/1/2000	1,415	181,455,600	$437,956.41
	12/1/1999	1,436	268,987,260	$644,852.63
	11/1/1999	1,430	355,471,500	$850,636.81
	10/1/1999	1,413	483,276,300	$1,153,507.54
Total		17,919	3,151,363,680	$7,564,304.36

Fiscal Year	*Date*	*Count*	*Consumption*	*Revenue*





Actual Irrigation Consumption By Class

FY	*Customer Class*	*Date*	*Count*	*Consumption*	*Revenue*
2006-07					
	Inside City Commercial				
		10/1/2006	2,308	358,566,100	1,317,992.48
		11/1/2006	2,312	261,156,000	935,344.55
		12/1/2006	2,335	229,341,670	824,636.80
		1/1/2007	2,357	153,880,700	561,461.30
		2/1/2007	2,368	89,643,730	337,376.68
		3/1/2007	2,373	131,155,220	482,283.93
		4/1/2007	2,390	156,612,160	571,441.18
		5/1/2007	2,405	167,856,400	610,708.94
		6/1/2007	2,428	203,771,300	736,262.45
		7/1/2007	2,427	187,766,300	746,095.41
		8/1/2007	2,448	202,347,400	802,666.56
		9/1/2007	2,458	268,445,100	1,056,209.20
	Customer Class Total		*28,609*	*2,410,542,080*	*$8,982,479.48*
	Customer Class Average		*2,384*	*200,878,507*	*$748,539.96*
	Inside City Golf				
		10/1/2006	9	4,275,200	15,597.89
		11/1/2006	9	8,915,000	31,260.18
		12/1/2006	10	1,492,500	5,363.02
		1/1/2007	9	863,800	3,139.09
		2/1/2007	10	620,400	2,349.13
		3/1/2007	10	1,040,600	3,785.88
		4/1/2007	10	970,400	3,540.88
		5/1/2007	10	1,000,200	3,644.88
		6/1/2007	10	1,059,100	3,850.44
		7/1/2007	10	2,397,800	9,361.72
		8/1/2007	10	-478,800	-1,684.40
		9/1/2007	10	1,069,600	4,261.45
	Customer Class Total		*117*	*23,225,800*	*$84,470.16*
	Customer Class Average		*10*	*1,935,483*	*$7,039.18*
	Inside City Industrial				
		10/1/2006	2	14,043,300	46,289.75
		11/1/2006	6	9,155,900	29,599.39

FY	Customer Class	Date	Count	Consumption	Revenue
		12/1/2006	6	11,984,600	38,679.53
		1/1/2007	6	9,659,700	31,216.59
		2/1/2007	6	13,869,700	44,730.69
		3/1/2007	6	19,177,100	61,767.44
		4/1/2007	6	14,555,000	46,930.51
		5/1/2007	6	12,691,600	40,948.99
		6/1/2007	6	19,247,000	61,991.82
		7/1/2007	6	20,964,700	74,214.34
		8/1/2007	6	18,984,900	67,225.64
		9/1/2007	6	25,324,600	89,604.80
	Customer Class Total		*68*	*189,658,100*	*$633,199.49*
	Customer Class Average		*6*	*15,804,842*	*$52,766.62*
	Inside City MultiFamily				
		10/1/2006	260	90,219,700	273,937.20
		11/1/2006	259	67,461,300	199,589.18
		12/1/2006	259	52,954,200	157,565.14
		1/1/2007	260	37,623,900	113,052.15
		2/1/2007	261	25,497,800	77,890.31
		3/1/2007	264	30,863,800	93,529.24
		4/1/2007	265	38,310,300	115,080.16
		5/1/2007	269	51,045,500	152,066.14
		6/1/2007	271	50,098,400	149,338.45
		7/1/2007	271	47,861,100	156,728.70
		8/1/2007	276	56,675,300	184,946.30
		9/1/2007	274	76,323,100	247,555.34
	Customer Class Total		*3,189*	*624,934,400*	*$1,921,278.31*
	Customer Class Average		*266*	*52,077,867*	*$160,106.53*
	Inside City Residential				
		10/1/2006	117	4,188,400	22,035.30
		11/1/2006	119	2,819,800	15,132.99
		12/1/2006	119	3,385,000	18,713.74
		1/1/2007	119	2,095,500	11,233.31
		2/1/2007	122	1,292,300	7,077.79
		3/1/2007	123	1,981,300	10,144.18
		4/1/2007	125	1,718,200	8,668.53
		5/1/2007	125	1,844,500	9,497.15
		6/1/2007	128	2,143,700	10,865.46