Chapter 8 – Program Financing & Utility Revenue Requirements

Introduction

The capital investment program laid out in the last chapter will require a substantial financial commitment by the City. This chapter translates the capital cost estimates from chapter seven into projected actual annual utility revenue needs over the next six years. Once capital needs are established, discussion turns to the financing mechanisms available to the City, including grants, debt, system development charges (SDCs) and rates. After arriving at a favorable mix of these available financing instruments, rate revenue requirements are projected for a six-year period. This revenue requirement projection identifies the across-the-board rate increases that the City will need to adopt in order to complete the recommended capital program and maintain utility operations for the next six years. Finally, this chapter offers a qualitative assessment of the City's current retail water rates.

Estimated System Costs

Program Schedule

The capital cost estimates developed in chapter seven are expressed in constant, year 2000 dollars. That is, the costs as laid out in the last chapter do not reflect anticipated inflationary effects that occur in construction prices over time in a normal economy. In order to translate system costs into revenue requirements for the City's water utility, we scheduled each component of the capital program according to its anticipated year of construction. At the time of this writing, the City was undecided on its water system improvement schedule, so the analyses herein assumed that expenditures would occur in even dollar increments over the next ten years. While this approach is necessarily limited in its validity, it nonetheless offers a reasonable proxy for an actual construction schedule. Thus, the first six years' system investments are anticipated to occur as seen in the schedule in the table below:

Current Costs	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Improvement Projects	$611,400	$611,400	$611,400	$611,400	$611,400	$611,400
Replacement Projects	129,157	129,157	129,157	129,157	129,157	129,157
TOTAL	**$740,557**	**$740,557**	**$740,557**	**$740,557**	**$740,557**	**$740,557**

Once laid out over a twenty-year schedule, these construction costs were escalated at 3.50% annually to derive an estimate of cash construction costs that reasonably reflects expected inflationary effects. The first six years of this anticipated capital program are shown in the table below:

Escalated Costs	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Improvement Projects	$633,472	$656,340	$680,034	$704,583	$730,018	$756,372
Replacement Projects	133,820	138,650	143,656	148,842	154,215	159,782
TOTAL*	**$767,291**	**$794,990**	**$823,689**	**$853,425**	**$884,233**	**$916,154**

**Differences in totals due to rounding.*

As these figures demonstrate, Prineville may reasonably anticipate significant capital expenditures over the next several years, although the City may have some flexibility in the timing of those investments.

Capital Funding Strategy

Financing Instruments

Generally, there are five potential sources of capital funding for any public utility: grants, cash reserves, system development charges (SDCs), rate revenue, and debt. Each of these means is discussed below:

- **Grants.** A variety of grant funding sources for water facilities are available from the state and federal governments. However, Prineville's current moderate-to-low water rates (please see rate comparison table later in this chapter) and the generally limited availability of grant funding make grants a tenuous source of funding from a planning perspective. No grant funding for capital was assumed for the purposes of this analysis.
- **Cash Reserves.** Many utilities lay aside cash reserves generated by rates for construction of future capital facilities. To date, Prineville has not segregated such funds for capital construction. One of the recommendations arising from this study is that the City should establish a capital fund for the purpose of segregating money for future capital construction (discussed further, below). However, the water utility's healthy operating reserves offer a potential source of capital funding.
- **System Development Charges.** Municipal utilities normally rely on SDCs—capital recovery charges imposed as a condition of connecting to the City utility—as important sources of capital funding. Prineville currently has no SDCs for new customers connecting to the water system. In light of the City's substantial capital investment plans in anticipation of growth, it is important that the City adopt water SDCs from both equity and financial perspectives. Revenues generated from SDCs may be both for capital construction and for debt service. However, the City's wastewater utility has much greater near-term capital needs than the water utility. In the interest of dampening the impact of SDCs on development, City staff and council representatives indicated a preference for a phased-in approach to water SDCs, while wastewater SDCs were adopted at their maximum immediately. Our analysis assumes that the City will phase-in the maximum legally defensible SDCs by fiscal year 2004-05. SDCs are discussed further, below.

- **Rates.** Revenue from retail service rates is the utility's greatest and most stable source of capital funding. Given the City water utility's current rate revenue generating capacity (budgeted at $825,000 for fiscal year 2000-2001), cash financing the anticipated $5.04 million in capital projects expected over the next six years is impracticable. Thus, like many utilities, Prineville's water system must rely on debt backed by rate revenues to fund its capital program. Nonetheless, water rates will need to increase in order to meet anticipated debt service obligations.
- **Debt.** As noted above, Prineville will need to use debt to finance the capital expenditures it will take on over the next two years. Based on the capital cost schedule laid out in this chapter and the City's current financial position, our analysis assumed two 20-year revenue bond issues: $1.75 million in fiscal year 2000-01 and $1.1 million in 2003-04 to cover its construction costs, as well as the issuance costs and reserve requirement corollary to the borrowings themselves. An average annual interest rate of 5.5%, issuance costs of 1.0% and a 1.25 coverage ratio were assumed for the borrowings. Judging from recent market conditions, these assumptions are typical for small- to medium-sized municipal utilities. The debt service on these assumed revenue bond issues is the primary driver in the rate revenue requirement analysis related in this chapter. Debt service and an accompanying revenue requirement analysis are addressed later in this chapter.

System Development Charges

As noted above, a SDC is a fee imposed on a new customer as a condition of connection to a utility. In general, there are two reasons for applying connection charges: revenue and equity. SDCs from new customers provide a source of capital that can be used to support utility improvements and expansion. SDCs also enhance equity by providing a mechanism for balancing costs between existing and new customers.

The SDC should not be confused with a "service connection charge," or a charge associated with installation of a service meter. The service connection charge is intended to recover the cost of establishing a service connection to a new customer. By contrast, a SDC is designed to recover an equivalent share of the *general capital costs of the system*. That is, the costs of providing service to the entire utility.

In general, an equitable SDC should recover a pro rata share of the existing utility capital costs (a "reimbursement" charge). This reimbursement charge is essentially a purchase of the surplus capital in the utility, or the capacity not currently used by existing customers. In many instances, it may also be appropriate to include a charge for capital investments made to provide capacity for new customer connections (an "improvement" charge). Oregon law allows either or both types of charges in combination (see ORS 223.297-314). One or both of these charges constitute a system development charge (SDC). Oregon law stipulates that public utilities segregate the revenue collected from the two types of SDCs into separate funds to pay for their respective types of projects.

Put simply, new customers should "buy in" to their share of the existing system and pay for a share of the added system to be built; the new customer should then be financially equivalent to an existing customer. The basic approach to SDC computations is a simple division of costs by customer base. Typically, the computation appears as:

$$\text{SYSTEM DEVELOPMENT CHARGE} = \frac{\text{Allocable Capital Cost}}{\text{Customer Base}}$$

Reimbursement Charge. The simplest approach to determining the reimbursement portion of the SDC is to divide the cost of the existing utility system by the total capacity (defined in terms of service equivalents) within the system. This computation establishes the cost of excess capacity in the existing system. The total capital cost, divided by the customer equivalents that can be served, provides a valid and defensible--if necessarily simplistic—reimbursement SDC. This portion of the SDC effectively "reimburses" existing utility customers for the excess capacity that they have provided to new customers. The calculation of Prineville's allocable existing plant-in-service is shown below:

Allocation of Existing Plant-In-Service		
Existing Plant-in-Service	$	2,849,651
Less: Contributions in Aid of Construction (CIAC)		(620,391)
Net Allocable Existing Plant-in-Service:	$	2,229,260
Existing Supply Capacity (MGD)		3.73
Existing Peak Day Customer Water Demand (MGD)		3.10
Existing System Supply Capacity to Serve Growth:		0.63
Existing Storage Capacity (MG)		2.50
Existing System Storage Required (MG)		5.72
Existing System Storage Capacity to Serve Growth:*		-
Growth Share as Percentage of Existing Plant:		0.00%
Net Existing Plant-in-Service Allocable to Growth	$	-

**No growth capacity remaining in existing system.*

The first step in calculating the reimbursement charge is to determine the value of the utility's existing plant that may be recovered through SDCs. As seen above, Prineville's existing water facilities' original cost is about $2.85 million. Of this total, about $0.62 million was contributed to the City, and thus is not eligible for recovery through SDCs; a net amount of $2.23 million in plant cost is allocable for recovery through SDCs. However, the City may only charge new customers connecting to the system for that share of existing plant not already being used by existing utility customers. According to the analysis discussed in chapter five, Prineville's demands for storage already exceed existing capacity. Thus, no amount of the existing system may be reasonably allocated to growth.[*] Thus, the net existing plant-in-service collectable through an SDC is zero.

Improvement Charge. The improvement portion of the SDC is added cost divided by added capacity, expressed as service equivalents. New capital projects may only be included in the improvement portion of the SDC if they meet the following three conditions: (1) they

[*] Some elements of the City's water system may actually have growth capacity; precise data on the original costs of facilities with and without additional capacity were not readily available as part of this study. The most conservative and prudent approach to SDC calculations in the absence of such data is to assume that no existing plant costs are allocable to growth, as shown here.

must expand system capacity to serve new connections; (2) they are funded by the City (not donated); and (3) they cannot duplicate the capacity being charged for in the reimbursement fee. The last point is especially critical: the City must be careful not to "double charge" for facilities by charging for additive capacity shares which exceed the customer's needs. The calculation of Prineville's allocable capital investment program is shown below:

Allocation of Capital Improvement Program	
Capital Improvement Program	$ 9,047,287
Less: Improvements Allocable to Existing Customers	(1,577,894)
Less: Expected Developer CIAC	-
Net Capital Improvement Costs Allocable to Growth	$ 7,469,393

The total capital construction cost over the 20-year planning period is $9.05 million. However, $1.7 million of those costs are for repair or replacement projects, or other project elements allocable to existing system customers. Thus, the net capital improvements allocable to growth are $7.47 million. At this time, none of the planned assets are expected to from developers, nor are significant grant moneys expected. Dividing this SDC-eligible existing plant cost by the anticipated growth in EDUs over the planning period results in the maximum improvement SDC under Oregon law. For Prineville, an anticipated 3,667 growth meter equivalents result in an improvement SDC of $2,037 per EDU.

2000 Water SDCs in Selected Oregon Cities

City	Water Charge per Meter Equivalent
Albany	$1,187
Beaverton	2,320
Bend	2,018
Canby	1,800
The Dalles	672
Eugene	2,701
Lake Oswego	2,015
Madras	800
Milwaukie	1,095
Oregon City	3,273
Philomath	1,621
Redmond	600
Salem	3,250
Springfield	791
Tigard	1,311
Tualatin	940
West Linn	6,533
Wilsonville	2,794
Sample Average	**$1,985**
Prineville (Maximum)	**$2,037**

Combined Charge. Assuming the maximum SDCs noted here, a new residential customer connecting to Prineville's water utility would pay a total of $2,037. As seen in the table above, this charge is slightly higher than the average SDC in a sample of Oregon city water utilities. It is important to view these comparative figures in context: some of these cities may face high capital costs in the future and may raise SDCs accordingly; others may have very high rates, taxes, or other SDCs to offset low water SDCs. Thus, while the sampled SDCs shown below are interesting, they do not necessarily provide an analytically valid performance benchmark for Prineville.

The SDC adopted by any utility must be legally defensible; that is, it may not exceed the calculated capacity costs noted above. The City may choose to impose SDCs somewhat lower than the calculated maximum in recognition of development or political concerns. Through the study process, City staff and the Master Plan Review Committee expressed a preference for a phased-in approach to water SDCs, partly to mitigate the impact of the larger wastewater SDCs anticipated. Pursuant to that goal, we recommend that the City defer introduction of a water SDC until fiscal year 2001-2002, then phase in the maximum calculated SDC over a period of four years, as seen in the schedule below:

FY Ending	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Water SDC per Meter Equivalent	$ --	$509	$1,019	$1,528	$2,037	$2,037

Under this scheme, the water SDC would be imposed on new meter connections beginning July 1, 2001 at $509 (or 25% of the calculated maximum) per equivalent meter connection. The SDC would increase by another 25% of the maximum every year through 2005, when the maximum calculated water SDC is reached.

Rate Revenue Requirement

Methodology

Consistent with responsible financial management practices for municipal utilities, our analysis calculated Prineville's water utility's annual revenue needs by applying two revenue sufficiency standards:

- Cash needs must be met, including those resulting from City fiscal management policies and capital investment plans (the "cash flow test"); and
- Any applicable debt service coverage requirements must be fulfilled (the "coverage test").

These two requirements combine to constitute the "two test" theory that underlies our revenue requirement analysis and accompanying rate recommendations. This approach is commonly used to manage municipal water, sewer, stormwater and other utilities.

Cash Flow Test. The cash flow test identifies the known cash requirements for the water utility in for the current fiscal year and ten years into the future. Cash requirements include:

- Maintenance and operating expenses

- Debt service
- Capital outlays for capital improvements
- Capital outlays for capital maintenance
- Required additions to reserves

Bearing these requirements in mind, we constructed an analytical model that compared the total cash needs of the water utility to its projected cash revenues. The model identified projected cash shortfalls and calculated the amount of revenue necessary to make up the shortfall.

Coverage Test. The coverage test recognizes the cash needs of the utility and the need to meet any coverage requirements associated with outstanding debt. Coverage acts as a cushion for creditors against a City's poor financial performance and is a common requirement of revenue bonds and certain other long-term debt instruments. Coverage requirements normally are stated as multipliers to be applied to the revenue bond debt service in a given year. A coverage factor of 1.25 means that the City or one of its constituent operations (e.g., the water utility) has pledged to collect combined revenues sufficient to cover operating expenses, debt service, plus an additional 25 percent of bonded debt service.

An example from Prineville's wastewater utility is illustrative (the City's water utility currently has no outstanding coverage-obligated debt service). Prineville's wastewater utility is obligated to pay $265,535 in debt service on two outstanding revenue bond issues in fiscal year 2000-2001. According to its bond covenants on those issues, the City must generate a coverage ratio of 1.25. Thus, Prineville's wastewater utility must produce additional coverage of $66,384 in 2000-2001, or 25% of annual debt service. In other words, the wastewater utility must receive enough revenue in a single year from rates, SDCs, and/or other sources to pay for operating expenses and debt service, plus an additional $66,384. Prineville's water utility currently bears no outstanding debt, but is anticipated to issue debt in the near future to meet capital construction needs.

If calculations indicate that both the cash flow and coverage tests have been satisfied in a given year, our analytical model projects that the utility will experience a surplus and requires no additional revenue. However, if a revenue deficiency exists under one or more tests, the model indicates a shortfall equal to the greater of the two tests' shortfall. The result is the total revenue requirement for any given year.

Policy Assumptions

In addition to the capital costs discussed in this chapter, the revenue requirement analysis assumed a number of financial policies that control the sources and uses of revenue over our six-year projection period. In some cases, these assumptions reflect current City policy. The most relevant of these assumptions are listed here:

- **Operating & Maintenance Costs.** Annual operating and maintenance costs were projected based on Prineville's 2000-2001 annual budget, adjusted for inflation.

- **Non-Departmental Public Works Costs.** Public Works Department personnel and materials and services costs not assigned to specific Department operations (e.g., water, wastewater, streets) were allocated 35% to water, with the remaining 65%

allocated to other department functions. These ratios approximate the aggregate impact of line-item level allocations to various Public Works functions. Non-Departmental Public Works, General Transfers in the budget were split equally to the wastewater, water and streets functions. However, for revenue requirement analysis purposes, we allocated the wastewater share entirely to the water utility to mitigate the rate impact on the wastewater utility. The City may wish to reduce this over-allocation to water in the future.

- **Minimum & Maximum Fund Balances.** Consistent with prudent utility financial management, our analysis assumed that the City maintain a minimum operating fund balance equal to twenty days' operating expense in 2000-2001, ramping up to 45 days' by 2005-2006. Simultaneously, we assumed a maximum operating balance equal to thirty days' operating expense in 2000-2001, increasing to sixty days by 2005. Revenues in excess of this maximum balance at year's end are assumed to be transferred to the water utility capital reserve and set aside for future projects.

  Likewise, our analysis assumed that Prineville would introduce a minimum water capital fund balance in anticipation of unusual capital needs. Beginning in 2000-01, we assumed that the City would maintain a minimum capital fund balance of 1.00% of water utility assets, or $34,032. A minimum reserve of 1.0% to 2.0% of capital assets is typical for a conservatively run public utility.

- **Use of SDC Revenue.** Consistent with Prineville's currently outstanding debt issues, our analysis assumed that SDC revenue could help satisfy debt service coverage requirements. We assumed that SDCs were not used to pay debt service, but were instead made available to fund improvement projects and replacement projects as necessary. SDC revenues held in segregated accounts were presumed to be available for eligible capital project construction funding, consistent with Oregon law.

Rate Revenue Requirement Findings

In light of the capital costs and other assumptions discussed in this chapter, our analysis indicated that Prineville's water utility would require moderate increases over the next six years. Through several work sessions with City staff and the City's consulting engineer, the City's Master Plan Review Committee indicated a preference for a six-year levelized increase strategy, featuring 10.0% increases in water rate revenue every other year beginning in 2000-01. The result is cumulative increase of 33.1% over six years. Prineville's current water rates are moderate relative to other Oregon utilities. Rates following these increases probably will remain typical for Oregon utilities, given other systems' ongoing needs. The table below shows the rate revenue requirements in absolute and percentage terms.

Fiscal Year Ending	2000	2001	2002	2003	2004	2005	2006
Required Rate Revenue (Thousands)	$760	$861	$819	$1,003	$887	$1,170	$1,179
Annual Increase	0.00%	10.00%	0.00%	10.00%	0.00%	10.00%	0.00%
Cumulative Increase	0.00%	10.00%	10.00%	21.00%	21.00%	33.10%	33.10%
SF Residential Monthly Bill*	$18.50	$20.35	$20.35	$22.39	$22.39	$24.62	$24.62

**Assuming current rate structure and 10 ccf usage per month.*

Comparison to Other Oregon Water Utilities

At the City's request, we have compiled a survey of selected medium-sized water utilities in Oregon as a basis of comparison for Prineville's current and projected future rates. As seen in the table below, Prineville's current water rates are about 5% lower than the sample average, and are projected to be about 5% higher than the sample average following the recommended increase for 2000-01. These figures indicate that Prineville's water rates are similar to similarly sized Oregon utilities.

SAMPLE MONTHLY WATER CHARGES

¾ Inch Single-Family Residential at 10 ccf Consumption

Agency	Monthly Fixed Charge	Monthly Volume Charge	Total Monthly Charges
Albany	$10.18	$19.64	$29.82
Beaverton	7.27	17.10	24.37
Bend	10.34	2.60	12.94
Canby	10.30	9.70	20.00
The Dalles[1]	25.00	-	25.00
Eugene[2]	6.00	6.63	12.63
Lake Oswego	12.10	7.90	20.00
Madras	15.00	4.00	19.00
McMinnville[3]	6.00	5.06	11.06
Oregon City	10.30	17.30	27.60
Philomath	11.90	15.50	27.40
Redmond	11.50	2.60	14.10
Salem	9.18	4.80	13.98
Springfield[4]	6.00	4.40	10.40
Tigard	3.56	13.20	16.76
Tualatin	6.90	12.50	19.40
West Linn	10.85	3.72	14.57
Wilsonville	9.90	11.28	21.18
Sample Average	**$10.13**	**$9.29**	**$19.42**
Prineville (Current)	**$6.50**	**$12.00**	**$18.50**
Prineville (2000-01 Recommended)	**$7.15**	**$13.20**	**$20.35**

1. The Dalles' fixed rate includes an allowance for up to approximately 20 ccf of consumption.
2. Water service provided by Eugene Water & Electricity Board.
3. Water service provided by McMinnville Water & Light.
4. Water service provided by Springfield Utility Board.

As with the survey of SDCs, it is important to view these comparative figures in context: some of these cities may face high capital costs in the future and may raise rates accordingly; others may have very high SDCs or taxes offset low water rates. Finally, the rates below do not indicate the quality of water delivered or the overall effectiveness of their utilities. Thus, while the sampled rates shown below are interesting, they do not necessarily provide an analytically valid performance benchmark for Prineville.

Qualitative Rate Structure Review

Prineville currently employs a fixed plus single volume rate for metered water service. In other words, water customers pay a fixed rate per month depending on their meter connection size ($6.50 for a ¾ inch meter) and a volume charge of $1.20 per 750 gallons of water consumed. Both residential and commercial customers pay under the same rate structure. In general, water rate structures are designed with two goals in mind: revenue generation (the amount and stability of sales revenue) and equity (the degree to which customers' bills reflect their relative demand on the system). A third goal, conservation, is emerging as another important factor in water rate design. The revenue generation, equity and conservation aspects of the City's water rate structure are discussed here.

Revenue Generation

The City's water rates provide an efficient and relatively stable revenue base. The fixed portion of the rate provides about 29% of the City's annual water revenue and is an extremely stable revenue source. The single volume charge also is a relatively secure revenue source, since the City does not rely upon high-cost, high-volume sales to meet its revenue needs. By contrast, some utilities employ an inclined block volume rate: customers pay one rate for the first few units of water, then a higher rate for the next several units, then progressively higher rates for higher volumes of consumption. Utilities typically adopt such structures to enhance customer equity and conservation (discussed further, below). While Prineville's sales revenue may fluctuate from year to year due to weather or other external conditions, the City will not experience extraordinary revenue fluctuations because customers fail to purchase large volumes of irrigation water—a phenomenon sometimes experienced by utilities that feature aggressive inclined block volume rates.

Equity

Prineville's current water rate structure raises some questions about customer equity, both between customer classes (residential versus commercial) and between customers within classes.

Equity Between Classes. Different types of customers use water in different ways. For example, industrial customers' water use generally is very even throughout the year, unless the nature of their business requires unusual water demands at particular times (e.g., agricultural processing). Multi-family residential customers also generally display fairly consistent use throughout the year, since most multi-family customers are individuals or small families using water exclusively indoors. By contrast, single-family residential customers—especially those on large lots—tend to use relatively little water during the winter months and large quantities in the summer months due to outdoor irrigation. Commercial customers vary considerably depending upon the nature of their businesses:

some display high peaking patterns while others are very steady throughout the year. High summer peaking patters put the greatest strain upon the City's water system at precisely the time when groundwater resources are at their lowest. Thus, customer types with the highest peaking patterns consume a greater share of system resources than those with relatively stable demands.

Inasmuch as customer classes vary in their usage characteristics, rate structures that charge all customers identically are inequitable to some degree. Corrective actions may include increasing some classes' fixed charges, adopting inclining block rate structures, or other measures. Making these equity corrections properly requires a "cost-of-service" analysis that assigns operating and capital costs to various customer classes according to their usage characteristics. Such a cost-of-service study must precede adoption of class-specific rates.

Equity Within Classes. Prineville's current rate structure also may cause inequities within customer classes. Assuming that charges paid should reflect demand placed on systems as discussed above, customers using relatively little water on a stable basis throughout the year should pay less than customers using large amounts of water during periods of scarcity. Inasmuch as the single volume charge is applied uniformly for all volume, regardless of the total use or consumption pattern, Prineville's most conservative customers may be paying more than their "fair share" of water costs as determined by the relative burden that they place on the system. Just so, the most excessive water customers may be paying far less than their "fair share."

The City may wish to address these equity concerns as it faces rate increases over the next several years, since these increases will only exacerbate existing inequities in the rates structure. Moreover, inasmuch as capital expenditures for the water utility are driven by peak demands, it is appropriate that high peak users should pay more revenue to meet capital needs than their more conservative neighbors. Shifting to a rate structure that rewards conservative use and penalizes excessive water use will help ensure that those who will benefit most from capital expansion will pay the most. The City may also wish to introduce very low "lifeline" rates for extremely low usage customers. Such a structure would help ensure that conservative, lower-income customers will not experience undue rate increases as the utility's revenue requirement grows to meet the needs of high-demand customers.

Conservation

As noted above, providing a conservation signal through water prices has emerged as an increasingly important goal in rate design. Historically, water rates have been set according to average cost, or the cost of providing water uniformly at a given level of demand. Unfortunately, this average cost approach has the effect of under-valuing the capital costs of expanding water supply facilities or developing new sources of water. The result has been ever-increasing demand for water without an appropriate price signal to communicate the higher cost of capacity expansion to the customer. In order to defer or delay major capital expansion costs—and the corollary environmental impacts of such expansions—many utilities set rates to reflect in part the marginal costs of water system expansion. Thus, through a number of mechanisms, utilities employ rate structures that charge customers higher rates for water at higher volumes of use and higher levels of demand. The most common example of conservation rates is the inclining block structure noted above, but many utilities apply seasonal rates (higher volume charges in the summer) or excessive use surcharges (charges for water beyond “normal” use patterns) to provide a conservation signal.

Prineville’s current volume and single volume rate structure provides a mild conservation signal inasmuch as customers’ bills reflect volume consumed. This structure is superior to a simple flat-rate structure, which provides no conservation signal at all. However, volume charges do not escalate with higher volume usage. Thus, the City’s current structure effectively tells customers that the thirtieth or fortieth unit of water consumed is no more expensive than the first or second unit. The current structure also does not differentiate volume charges based on season; the City’s rates effectively tell customers that summer water is no more expensive than winter water.

Recommendations

Given the equity and conservation concerns noted above, we recommend that the City consider revising its retail water rate structure. The City should retain a fixed charge component to ensure a continued stable revenue source. However, re-designed rates should feature simple two- or three-block volume charges, inclining with higher levels of use. The first block should represent an effective “lifeline” rate to protect the City’s conservative, low-income users. The second block should impact average system customers, with higher blocks putting a greater burden on high peak users of the water system. Along with addressing equity concerns, this structure would enhance significantly the conservation signal inherent in the City’s water rates. The City also should explore separate rate structures for commercial, multi-family residential and single-family residential customer classes.

These rate structure changes should rely upon a “cost-of-service” analysis that assigns the utility’s operating and capital costs to various customer classes and usage characteristics.