

# 11 Financial Plan and SDC Analysis

# Financial Plan and SDC Analysis

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## Introduction

This chapter presents a financial analysis of the City of Lebanon's water system. A 10-year financial plan was developed to analyze the impact on water rates of implementing the capital improvement plan (CIP).

The building blocks of the financial plan are the projections of costs or revenue requirements (both operations and maintenance, and capital) that the city will incur during the 10-year planning period (fiscal year 2006/07 through fiscal year 2015/16) and the revenues, under existing rates, which the city expects to generate during the same period. The financial plan is based on a set of overall assumptions related to customer growth, inflation, and other factors, as well as the specific phasing of the CIP. The following general assumptions were used in developing the plan:

- Customer growth will occur at an average rate of 1.7 percent annually.
- Operation and maintenance costs will escalate at annual rates of 3-8.5 percent, based on projected inflation and system growth, and historical trends. Specific escalation factors used are:
  - General inflation: 3 percent
  - Salaries and wages: 4 percent
  - Personnel benefits: 8.5 percent
  - Materials and services: 5 percent
- Annual budgeted operating contingency maintained at a minimum of 5 percent of operation and maintenance costs.
- Utility franchise fee costs equal to 5 percent of annual water sales revenues.
- Capital costs will increase at an annual rate of 3.7 percent to account for inflation.

The financial plan for the water system, in the form of projected sources and uses of funds for each fund within the water utility is presented in **Appendix E: Exhibit E-1 Sources and Uses of Funds**, and **Exhibit E-2 Projected Operating Results**. Each component of the baseline financial projection is discussed in more detail below.

## Revenue Requirements

The costs in the plan that are to be funded from annual revenues are referred to as 'revenue requirements' for rate-making purposes. Total requirements are composed of

- Operations and maintenance (O&M) costs
- Annual capital improvement costs funded by rates and reserves

- Debt service expenditures
- Transfers to the city's general and other funds for indirect and direct services provided to the utility

In addition, annual requirements include minimum operating contingencies of 5 percent of Water Utility fund O&M costs. However, 100 percent of annual contingencies are assumed to be unspent and roll forward to subsequent year beginning balances.

Revenue requirements were projected based on data provided by the city, including actual results from fiscal year (FY) 2003/04, FY 2004/05, and estimated results for FY 2005/06, and the adopted budget for FY 2006/07.

## Operation and Maintenance Costs

Operation and maintenance costs include all costs associated with operating and maintaining the water system, including personnel, materials and services, routine capital outlays, and non-capital transfers. **Exhibit 11-1** shows actual O&M costs for the water system (Fund 430) for FY2003/04 through FY 2005/06, as well as the adopted budget for FY 2006/07.

### EXHIBIT 11-1

#### Operation & Maintenance Costs, FY2003/04 through FY 2006/07

<b>Water Utility Fund (430)</b>	<b>Actual 2003/04</b>	<b>Actual 2004/05</b>	<b>Estimated 2005/06</b>	<b>Adopted 2006/07</b>
<b>Personnel Services</b>				
Salaries	\$466,192	\$430,630	\$528,504	\$555,516
Fringe Benefits	\$240,348	\$215,258	\$283,500	\$299,573
Overtime	\$5,552	\$6,707	\$7,520	\$5,253
Subtotal	\$712,092	\$652,595	\$819,524	\$860,342
<b>Materials &amp; Services</b>				
Advertising	\$3,866	\$3,116	\$2,802	\$5,074
Audit Expense	2,188	2,375	1,250	3,000
City Attorney	5,160	5,736	5,736	5,851
Codification	682	419	990	750
Computer expense	4,811	8,984	10,883	17,562
Communication	6,147	5,783	1,764	3,225
Contract services	81,947	105,204	138,084	144,426
Merchant card fees	2,552	3,493	4,833	4,600
Deposits refunded	38,540	30,415	0	1,000
Operating expense	42,082	43,780	62,818	66,643
Operating Supplies	3,864	4,090	5,273	4,903
Dues & subscriptions	4,464	4,392	5,319	6,457
Duplication	2,103	1,777	2,198	15,103
Education & training	3,812	5,151	5,261	9,305
Insurance	16,670	18,281	19,333	20,503
Unemployment Insurance	856	4,224	7,866	6,807
Uniforms	3,328	2,001	2,675	3,250
Utility franchise fee	108,613	107,147	111,006	116,000
Utility & misc.	0	0	53	225
Maint/bldg	12,213	8,679	10,558	16,880
Maint/equip	1,317	1,802	1,285	3,034
Maint/vehicles	13,276	17,438	15,869	21,646

EXHIBIT 11-1  
Operation & Maintenance Costs, FY2003/04 through FY 2006/07

<b>Water Utility Fund (430)</b>	<b>Actual 2003/04</b>	<b>Actual 2004/05</b>	<b>Estimated 2005/06</b>	<b>Adopted 2006/07</b>
Mtgs & conf	2,256	3,330	3,474	5,198
Office supplies	3,755	5,985	5,966	6,345
Petroleum	4,710	7,035	9,744	10,963
Postage	9,553	8,350	7,667	4,031
Refund	5,388	11,246	9,729	12,000
Rent	4,060	11,129	11,554	11,720
Utilities	6,123	5,942	5,576	7,725
<b>Subtotal</b>	<b>\$394,336</b>	<b>\$437,304</b>	<b>\$469,566</b>	<b>\$534,226</b>
<b>Capital Outlay</b>				
Buildings	\$5,511	\$2,697	\$11,652	\$7,240
Improvements	8,106	22,275	36,980	57,000
Office Equipment	9,841	6,225	1,456	5,352
<b>Subtotal</b>	<b>\$23,458</b>	<b>\$31,197</b>	<b>\$50,088</b>	<b>\$69,592</b>
<b>Noncapital Transfers</b>				
Transfer to City Hall Repair DS	\$2,974	\$2,974	\$3,258	3,088
Transfer to Oper & Environ	505,969	493,434	543,371	534,986
Transf to GIS, Info System & Support Svcs	123,263	106,863	110,485	144,228
<b>Subtotal Transfers</b>	<b>\$632,206</b>	<b>\$603,271</b>	<b>\$657,114</b>	<b>\$682,302</b>
<b>Total O&amp;M Costs</b>	<b>\$1,762,092</b>	<b>\$1,724,367</b>	<b>\$1,996,292</b>	<b>\$2,146,462</b>

Total budgeted personnel costs are approximately \$860,000 in FY 2006/07, including costs for salaries, fringe benefits, and overtime. The average annual increase in personnel costs between FY2003/04 and FY2005/06 was 6.5 percent for salaries and 8.8 percent for benefits.

Materials and services costs are budgeted to be about \$534,000 in FY 2006/07; these costs increased at an average annual rate of about 9 percent between FY2003/04 and FY2005/06, driven primarily by increases in contract services. In addition to contract services (\$144,000 in FY2006/07), significant line items include utility franchise fee (\$116,000) and operating expense (\$67,000). The franchise fee is equal to 5 percent of annual water sales revenue.

Capital outlay is budgeted at almost \$70,000 in FY 2006/07, and includes routine expenditures for buildings, improvements, and equipment. Non-capital transfers include the water utility's share of improvements to city hall and support services (e.g., GIS and information systems). The largest transfer is to the Operations and Environment fund (\$535,000) which includes costs associated with the water treatment plant maintenance contract.

Total O&M costs are budgeted to be over 2.1 million in FY2006/07. As shown in Appendix D, O&M costs (including personnel, materials and services, capital outlay, and non-capital transfers) are projected to increase to nearly \$3.4 million in FY2015/16.

## Capital Costs

Projected capital expenditures are based on improvements identified in this master plan. The CIP identified approximately \$19.6 million (in 2006 dollars) in capital improvements over the next 10 years. A detailed list of the projects contained in the recommended CIP is

provided in Chapter 10. The projects are necessary to maintain the current level of service that is provided by existing facilities, to comply with state and federal regulations, and to provide capacity to meet the needs of projected growth.

Based on the anticipated project schedules and an estimated annual capital cost escalation rate of 3.7 percent, the total, inflation-adjusted 10-year CIP is approximately \$24.8 million. With limited federal and state assistance available, the city must rely predominantly on local revenues, in the form of water rates and system development charges (SDCs), to fund the projected system costs over the planning period. Debt funding is used to spread large capital expenditures over the period that the facilities will provide service. Rates and SDCs are then used to pay annual debt service costs.

**Exhibit 11-2** shows the capital funding sources by year and in aggregate, based on the inflation-adjusted CIP and the small waterline replacement program. The city has existing capital reserves equal to about \$675,000 (see Exhibit E-1, Fund 435), which may be used to fund a portion of the improvements. However, significant additional resources, in the form of long-term debt and rate and SDC revenues will be needed to fund the entire program. For this analysis, debt proceeds totaling \$22.7 million have been assumed, with the remaining \$7.1 million from current revenues (i.e., rates, SDCs and other revenue).

The financing plan presented in this memo is intended to provide the city with a general estimate of the rate impacts associated with implementation of the CIP. Ultimately, there are a number of capital financing alternatives the city may want to explore due to the significant capital investment anticipated. These include use of multiple debt instruments (e.g., general obligation bonds and revenue bonds) and alternative debt structuring (e.g., longer repayment terms). Also, the city may be eligible for a combination of lower-interest loans and grants from state and federal agencies. However, because funds are limited, and to provide the city with an upper end estimate of rate impacts, this analysis has assumed that the city would have to issue debt through the conventional bond market. Based on current market conditions, projected debt service payments assume a 20-year term, 5.5 percent interest, and 2.0 percent issuance costs.

Based on the assumptions above, Exhibit E-2 shows annual debt service payments are projected to increase from \$124,000 currently to about \$2.1 million per year in 2015/16.

## Revenues

As shown in Exhibit E-2, water sales revenues based on existing rates are estimated to be almost \$2.3 million in FY2006/07. This estimate is based on the city's existing rate schedule presented in **Exhibit 11-3** and the current billing units (meters and water consumption) by customer class generated from the city's billing system. The average number of accounts in the system for FY 2005/06 was 4,948. As the system grows, water sales revenues at existing rates may increase to approximately \$2.6 million by FY2015/16.

**EXHIBIT 11-2**

**Capital Improvement Funding**

	FY 2006-7	FY 2007-8	FY 2008-9	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	Total
Capital Improvements(1)	\$39,454	\$2,046,520	\$2,186,763	\$899,932	\$523,279	\$542,641	\$562,718	\$6,171,758	\$5,794,983	\$6,009,397	\$24,777,445
Small Waterline Rplcmnt Program	\$456,000	\$476,054	\$497,002	\$518,883	\$541,740	\$565,616	\$590,559	\$616,615	\$643,836	\$672,274	\$5,578,578
<b>Total Capital</b>	<b>\$495,454</b>	<b>\$2,522,574</b>	<b>\$2,683,765</b>	<b>\$1,418,815</b>	<b>\$1,065,019</b>	<b>\$1,108,257</b>	<b>\$1,153,277</b>	<b>\$6,788,373</b>	<b>\$6,438,819</b>	<b>\$6,681,671</b>	<b>\$30,356,023</b>

**Funding Sources**

Existing Reserves											\$639,196
Bond Proceeds	\$0	\$1,250,000	\$1,800,000	\$1,500,000	\$0	\$1,000,000	\$0	\$6,100,000	\$6,000,000	\$5,000,000	\$22,650,000
SDCs	\$20,000	\$250,000	\$250,000	\$60,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$50,000	830,000
Rate Revenue	456,000	476,054	497,002	518,883	541,740	565,616	590,559	616,615	643,836	1,172,274	6,078,578
Interest Revenue	10,000	29,410	6,140	262	29,976	9,578	32,390	10,325	9,361	20,808	158,248
<b>Total Funding</b>	<b>\$486,000</b>	<b>\$2,005,464</b>	<b>\$2,553,141</b>	<b>\$2,079,145</b>	<b>\$611,716</b>	<b>\$1,615,194</b>	<b>\$662,949</b>	<b>\$6,766,940</b>	<b>\$6,693,196</b>	<b>\$6,243,081</b>	<b>\$30,356,023</b>

(1) Adjusted for inflation

EXHIBIT 11-3  
Existing Rate Schedule

Meter Size	Base Rate	Volume Charge	
		per 100 cubic feet	Special Summer Rate <sup>1</sup>
3/4" Low Income	\$9.49	\$2.20	\$1.10
3/4"	\$10.54	\$2.45	\$1.23
1"	\$14.23	\$2.45	\$1.23
1 1/2"	\$31.79	\$2.45	\$1.23
2"	\$56.73	\$2.45	\$1.23
3"	\$103.97	\$2.45	
4"	\$179.66	\$2.45	
<b>Private Fire Protection Service Charge</b>			
2" or smaller	\$7.36		
4"	\$9.92		
6"	\$16.21		
8"	\$26.15		

Note:

<sup>1</sup> Special summer rate only applies to Residential Customers; Summer rate applies to volumes above average winter water use

The city is in the process of phasing in increases to the water SDCs, based on a program recommended by a citizen advisory committee (CAC). The current SDCs (effective July 1, 2006) are \$948 per equivalent 5/8" X 3/4" meter. In FY 2007/08, the fees will increase to \$1,128 per equivalent meter. Assuming this phase-in schedule followed by annual inflationary adjustments, annual SDC revenues are projected to average about \$140,000 per year throughout the study period (see Exhibit E-1 "SDC Funds"). For this analysis, SDCs were assumed to remain at the CAC-recommended levels; however, a sensitivity analysis was conducted to determine the impact on rate increases of implementing the SDCs that result from the recommended CIP (see section to follow).

Non-rate revenues, including revenue from deposits received, credit checks, interest income and miscellaneous charges are budgeted at approximately \$171,500 for the water system in FY 2006/07 and are estimated to average approximately \$178,000 over the 10-year study period, reflecting fluctuations in interest earnings.

## Rate Impacts

The city has some existing reserves available to fund the projected revenue requirements: approximately \$374,000 in the Water Utility Fund, \$676,000 in the Water CIP Fund, and \$441,000 in the SDC Funds (see Exhibit E-1). The current budget is based on the city drawing down its current reserves in the Water Utility Fund (Fund 430) to meet current programs, including the small water line replacement program, currently budgeted at \$456,000. The budgeted ending fund balance for Fund 430, in excess of the operating contingency, is \$0. With no significant reserves available after FY 2006/07, the city will need to fund programs through annual revenue from rates and charges, which will require significant rate increases. An immediate increase of 25 percent would be needed to cash-fund the small water line replacement program at current levels and to meet other operating requirements and existing debt service; this initial increase would need to be followed by

annual inflationary increases of about 3 percent. These rate increases would be necessary even without the additional planned CIP expenditures.

This analysis assumes that the city will not receive grants to cover the costs associated with the CIP and will be required to issue revenue bonds to help pay for the projects. To repay the debt, and to pay for the additional capital and operating expenses forecast over the study period, the city will be required to increase water rates significantly. To the extent possible, rate increases are “smoothed” over the forecast period to avoid sudden, large increases in a single year. For each year after FY2007/08, required rate increases to meet all of the projected revenue requirements – existing programs and the planned CIP – are projected at 7.50 percent annually.

Exhibit E-2 shows the estimated total annual rate revenue based on the preliminary rate increase forecasts and projected revenue under existing rates. These rate increases have been established to allow the city to maintain adequate fund balances and to meet potential debt service coverage requirements. Debt service coverage is the amount of revenue that a utility must generate annually in excess of its operation, maintenance, and debt service requirements. This additional revenue is required by bond buyers as a condition of issuing revenue bonds, and provides the bond buyers a measure of security regarding debt repayment by the utility. Failure to generate the required revenues puts the utility in default on the bonds, which adversely affects current and future bond ratings and interest costs.

Debt service coverage requirements generally require net revenues (system income and revenue less operation and maintenance expenses) be at least 1.25 times the average annual principal and interest requirements of all outstanding bonds. Exhibit E-2 shows the projected debt service coverage based on the projected operating revenues and O&M expenses over the study period. In each year, debt service coverage meets the assumed minimum coverage target.

The estimated existing residential monthly bill is \$27.70 for customers using approximately 800 cubic feet per month during the summer months. A discount rate is made available to certain low-income customers who meet the city’s eligibility criteria. **Exhibit 11-4** presents the projected average summer and winter residential bills based on the forecast annual rate increases, also shown in the table.

EXHIBIT 11-4  
Projected Residential Bills

Fiscal Year	Typical Summer Residential Bill	Typical Winter Residential Bill	% Increase per year
2006-07	\$27.70	\$25.24	0.0%
2007-08	\$34.63	\$31.55	25.0%
2008-09	\$37.22	\$33.92	7.5%
2009-10	\$40.01	\$36.46	7.5%
2010-11	\$43.01	\$39.19	7.5%
2011-12	\$46.24	\$42.13	7.5%
2012-13	\$49.71	\$45.29	7.5%
2013-14	\$53.44	\$48.69	7.5%
2014-15	\$57.44	\$52.34	7.5%
2015-16	\$61.75	\$56.27	7.5%

\* Typical Residential Summer Usage 8 units; Typical Winter Residential Usage 6 units  
1 unit = 100 cubic feet = 748 gallons

## Rate Comparison

**Exhibit 11-5** shows a comparison of residential bills for Lebanon and several surrounding communities for the current year (FY2006/07) and the first year of the forecast rate increases (FY2007/08). For communities where forecast data was available, the projected bills are shown for FY2007/08; for all other communities, the bills were held at FY2005/06 levels and don't reflect possible rate increases.

Under existing rates, a residential customer in Lebanon would pay \$25.24 per month in the winter (assuming usage of 6 ccf) and \$27.70 in the summer (assuming usage of 8 ccf). In 2007, if the forecast rate increases are adopted, monthly water bills are expected to increase 25 percent to \$31.55 in the winter and \$34.63 in the summer. Even with the projected rate increase, Lebanon's bills would remain comparable to other communities in the region.

EXHIBIT 11-5  
Residential Water Bill Comparison

City	Winter 6 ccf	Summer 8 ccf
Lebanon (2006)	\$25.24	\$27.70
Lebanon (2007)	\$31.55	\$34.63
Corvallis (2006)	\$16.11	\$18.54
Corvallis (2007 est)	\$17.40	\$20.02
Sweet Home (2006)	\$25.36	\$33.72
Albany (2006)	\$35.76	\$40.06
Albany (2007 est.)	\$37.05	\$41.50
Salem (2006)	\$16.94	\$20.78
Salem (2007 est.)	\$18.04	\$22.13

The preliminary financial plans presented in this memorandum are based on the best available data and assumptions developed by the city and CH2M HILL as of November 2006. Actual costs and revenue are generally different than projections, and in some cases these differences may be significant. Therefore, the city should review the selected financial plan annually and adjust the rates as needed to reflect current conditions and assumptions.

## System Development Charges

This section describes the SDC calculation for the water system. It includes a discussion of existing and future system demands, and existing and planned capital facilities required to meet those demands. Based on the system capacity needs and costs, a maximum allowable SDC schedule is presented.

### Capacity Requirements

Projected water system demands through buildout are presented in Chapter 4. Water systems are generally sized to meet customers' peak demands. Therefore, the relevant sizing

criterion for most water system facilities is maximum day demand measured in millions of gallons per day (mgd). **Exhibit 11-6** presents estimated current maximum day and storage requirements (measured in millions of gallons (MG) and current and future capacities by component.

As shown in Exhibit 11-6, the current maximum day demand is 3.4 mgd and the existing system capacity is 4.0 mgd. Existing storage facilities have total capacity of 4.0 MG. Compared to existing demands, the water system has an average available capacity of 15 percent, with the exception of storage. Existing storage facilities are not sufficient to fully meet existing system design criteria, so there is a deficiency in storage capacity. Future capacity requirements include additional demands associated with growth, along with any existing deficiencies. System-wide future maximum day demand is projected to be 6.0 mgd in 2025 and 12.0 mgd at build-out. The total future storage need in 2025 is 7.0 MG.

EXHIBIT 11-6  
Water System Capacity Requirements

Measure	Existing Capacity	Current Demand		Available Capacity		Future Capacity	Growth Requirements	
	(mgd/MG)	(mgd/MG)	%	(mgd/mg)	%	(mgd/mg)	(mgd/mg)	%
Maximum Day	4.0	3.4	85%	0.6	15%			
Source/Treatment (1)						6.0	2.6	43%
Distribution (2)						12.0	8.6	72%
Storage (Total)	4.0	5.3	133%	(1.3)	0%	7.0	1.7	24%
New Reservoir						3.0	1.7	57%

(1) Sized for system needs through 2025

(2) Sized for system needs through build-out

The projected growth requirements through 2025 (used to size treatment facilities) are 2.6 mgd (6.0 mgd future less 3.4 current) and 8.6 mgd (12 mgd future less 3.4 mgd current) through build-out (used to size distribution improvements). Growth storage requirements are 1.7 mg (7.0 mg future less 5.3 mg current need) through 2025.

## Cost Basis

**Exhibit 11-7** summarizes the improvement and reimbursement cost bases for the water system. The improvement fee cost basis reflects allocation of individual projects from the project list shown in the CIP in Chapter 10. The reimbursement fee cost basis reflects system fixed assets that were built or acquired by the city prior to 2006. As for the improvement project list, individual asset records were reviewed and a determination of available capacity was made.

## Improvement Fee

Distribution system improvements assume that the cost of 8-inch diameter water mains installed are allocated to existing customers to reflect minimum sizing criteria, system-wide fire flow and other benefits. Storage costs include one additional reservoir (\$2.2 million), needed in part to remedy the existing storage deficiency, and existing reservoir repainting and security improvements. The overall storage costs are allocated 41 percent to growth.

Source and treatment costs include the construction of a new water treatment plant (\$13 million) and design and construction of new wells, and are allocated proportionately to existing customers and growth based on each group's share of total future maximum day demand (as calculated in Exhibit 11-6).

EXHIBIT 11-7  
SDC Cost Basis

<b>Fee/System Component</b>	<b>Total Cost/Value</b>	<b>% Growth</b>	<b>Growth Allocation</b>
<b>Improvements</b>			
Distribution (1)	\$22,239,000	64%	\$14,320,980
Storage	\$2,984,000	41%	\$1,237,600
Source/Treatment	\$15,957,000	43%	\$6,894,300
<i>Subtotal Improvement</i>	<i>\$41,180,000</i>	<i>55%</i>	<i>\$22,452,880</i>
<b>Reimbursements</b>			
Distribution (2)	\$584,507	46%	\$267,062
Storage (3)	\$684,044	0%	\$0
Source (4)	\$193,533	0%	\$0
Treatment (5)	\$2,831,713	0%	\$0
<i>Subtotal Reimbursement</i>	<i>\$4,293,797</i>	<i>6%</i>	<i>\$267,062</i>
<b>Total System</b>	<b>\$45,473,797</b>	<b>50%</b>	<b>\$22,719,942</b>

(1) First 8-inch allocated to existing customers

(2) Net of grant funds for Airport Area Infrastructure Improvement

(3) Existing system deficiency -- growth needs will be met through improvements

(4) Emergency back-up wells -- growth needs will be met through improvements

(5) Existing system facilities to be replaced; growth needs will be met through improvements

The total improvement costs are estimated to be almost \$41.2 million of which, about \$22.5 million (55 percent) is allocated to growth.

### Reimbursement Fee

The existing water system facilities valued at book value total approximately \$4.3 million. Distribution system costs include only a limited number of improvements constructed recently, as identified in the city's previous water system facilities plan. As was the case for planned future water mains, the equivalent 8-inch cost is allocated to existing customers, and grant-funded costs are excluded from the cost basis. Existing storage facilities are excluded from the SDC cost basis because of the existing system deficiency in storage capacity. Source and treatment costs are also excluded from the cost basis because the existing treatment facilities will be replaced, and the improvement cost allocations are based on growth's full capacity requirements being met by the new facilities. Overall, growth is allocated 50 percent of existing fixed asset value.

The combined improvement and reimbursement cost basis is about \$22.7 million, net of grants and contributions.

## SDC Schedule

### Unit Costs

**Exhibit 11-8** shows the calculation of system-wide unit costs (in mgd and gpd) that are attributable to growth. The table includes a reimbursement fee portion, based on the value of available capacity in the existing system that will meet demands of growth, and an improvement fee portion, based on the value of planned capacity-related improvements.

The improvement unit cost is calculated by dividing the growth-related future improvement costs (from Exhibit 11-7) by the projected growth units these facilities will serve (from Exhibit 11-6). For example, dividing the \$6.9 million capacity-related source and treatment improvements by the associated capacity units (2.60 mgd) results in an improvement unit cost of \$2.65 million per mgd (\$2.65 per gpd). The reimbursement unit cost is calculated in the same manner, the \$0.27 million growth-related distribution costs are divided by the 8.6 mgd growth capacity units, yielding a unit cost of \$0.03 million per mgd (\$0.03 per gpd). The combined costs per unit of growth capacity are: Source and Treatment - \$2.65 million per mgd (\$2.65 per gpd), Storage - \$0.73 million per MG (\$0.73 per gallon); Distribution - \$1.70 million per mgd (\$1.70 per gpd).

EXHIBIT 11-8  
Water System Unit Costs

<b>Component</b>	<b>Source &amp; Treatment</b>	<b>Storage</b>	<b>Distribution</b>	<b>Total</b>
<b>Improvement Fee</b>				
Improvement Costs (1)	\$6,894,300	\$1,237,600	\$14,320,980	\$22,452,880
Growth Units (mgd) (2)	2.60	1.70	8.60	
Cost per Unit (\$/mgd)	\$2,651,654	\$728,000	\$1,665,230	
Cost per Unit (\$/gpd)	\$2.65	\$0.73	\$1.67	
<b>Reimbursement Fee</b>				
Reimbursement Cost (1)	\$0	\$0	\$267,062	
Growth Units (mgd) (2)			8.60	
Cost per Unit (\$/mgd)	\$0	\$0	\$31,054	
Cost per Unit (\$/gpd)			\$0.03	
<b>Total Cost per Unit (\$/mgd)</b>	<b>\$2,651,654</b>	<b>\$728,000</b>	<b>\$1,696,284</b>	
<b>Total Cost per Unit (\$/gpd)</b>	<b>\$2.65</b>	<b>\$0.73</b>	<b>\$1.70</b>	

(1) From Exhibit 11-7

(2) From Exhibit 11-6

### Cost per Service Unit

The water SDC schedule is based on the cost per unit of service attributable to the impact of new development and the service units required by individual developments. The base service unit for the water system is a 5/8 X 3/4-inch meter, the standard size for a single-family dwelling. The SDC for larger meter sizes is scaled up based on the hydraulic capacity ratio to that of a 5/8 X 3/4-inch meter.

The current peak day water use of 3.4 mgd is divided by the average number of equivalent 5/8 X 3/4-inch meters to determine service units required per meter equivalent. As shown

in **Exhibit 11-9**, the city currently serves about 4,900 meters, ranging in size from 5/8 X 3/4-inch to 4 inch. By applying hydraulic equivalencies from the American Water Works Association the number of equivalent 5/8 X 3/4-inch meters is estimated to be 6,179. Therefore, the maximum day use per equivalent meter is 550 gpd (3,400,000 gpd/6179 = 550 gpd per meter).

## EXHIBIT 11-9

## Current Water System Equivalent Meters

Meter Size	Equivalent Meter Factor (1)	Average Number of Meters	Estimated Equivalent Meters
3/4"	1.0	4,585	4,585
1"	2.5	172	430
1 1/2"	5.0	78	390
2"	8.0	56	448
3"	16.0	11	176
4"	25.0	6	150
6"	50.0	0	0
<b>Total</b>		<b>4,908</b>	<b>6,179</b>

(1) American Water Works Association capacity ratios

**Exhibit 11-10** presents the calculation of the costs associated with the capacity requirement per meter equivalent. The estimated maximum day capacity requirement of 550 gpd per equivalent 5/8 X 3/4-inch meter is multiplied by the unit costs from Exhibit 11-6, to arrive at the costs per meter equivalent. As indicated in Exhibit 11-10, the improvement cost per meter equivalent is \$3,000 and the reimbursement cost per meter equivalent is \$17, yielding a combined unit cost of \$3,017.

## EXHIBIT 11-10

## Water System Cost per Meter Equivalent

Component	Distribution, Source & Treatment	Storage	Total
<b>Improvement Fee</b>			
Cost per Unit (\$/gpd)	\$4.32	\$0.73	
Requirements per meter equivalent (gpd)	550	858	
<i>Cost per meter equivalent</i>	\$2,375	\$624	\$3,000
<b>Reimbursement Fee</b>			
Cost per Unit (\$/gpd)	\$0.03	\$0.00	
Requirements per meter equivalent (gpd)	550	858	
<i>Cost per meter equivalent</i>	\$17	\$0	\$17
<b>Total Cost per Meter Equivalent</b>	<b>\$2,392</b>	<b>\$624</b>	<b>\$3,017</b>
<b>Credits</b>			
Existing Debt Service			(\$256)
Future Debt Service			(\$866)
Total Credit			(\$1,122)
<b>Net Cost per Meter Equivalent</b>			<b>\$1,895</b>

A credit against the unit cost is provided to recognize future contributions by newly developed properties toward the retirement of existing debt principal. The value of debt-funded facilities is included in the reimbursement unit cost. However, as of June 30, 2006, almost \$2.9 million of debt principal remained outstanding. In order to recognize the future contributions new users will make to the retirement of the outstanding principal through their water rates, a credit against the unit cost is provided. The debt service credit is based on the net present value of the future stream of annual debt principal, per meter equivalent. As Exhibit 11-10 indicates, the existing debt service credit is \$256 per meter equivalent. A similar credit is provided for future improvements providing service to existing customers. The future debt credit is \$866 per meter equivalent.

The cost per meter equivalent, net of credits is \$1,895.

### Calculated Fee Schedule

As stated above, the base service unit for the water system is a 5/8 X 3/4-inch meter, the standard size for a single-family dwelling. The impact fee for larger meter sizes is adjusted based on the hydraulic capacity ratio to that of a 5/8 X 3/4-inch meter. **Exhibit 11-11** shows the calculated maximum fees for each meter size.

EXHIBIT 11-11  
Water System Calculated SDC Schedule

Meter Size	Meter Factor (1)	Calculated Fee
5/8 x 3/4"	1.0	\$1,895
1"	2.5	\$4,738
1 1/2"	5.0	\$9,477
2"	8.0	\$15,163
3"	16.0	\$30,326
4"	25.0	\$47,384
6"	50.0	\$94,769

(1) American Water Works Association Capacity Ratios