

# CITY OF CLOVERDALE

## Water and Sewer Rate Study

*Final Report*

March 2, 2016



THE REED GROUP, INC.

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**SECTION I. EXECUTIVE SUMMARY**

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**INTRODUCTION AND BACKGROUND**

The City of Cloverdale retained The Reed Group, Inc. to develop five-year financial plans and to update user rates for the City's water and sewer utilities. The purpose of the study was to ensure that each utility is meeting financial obligations for ongoing operation and maintenance, debt service, and capital improvements while maintaining prudent financial reserves. The last comprehensive rate study was completed in FY 12-13, and the most recent adjustments to the level of water and sewer rates occurred in July 2015.

The scope of services for the water and sewer rate study included the following:

- Review financial goals and policy objectives
- Review current budgets, existing debt obligations, and capital improvement plans
- Prepare a five-year financial plans and determine annual revenue requirements for each utility
- Review current water and sewer rate structures and recommend changes consistent with legal requirements and rate setting objectives
- Evaluate the financial implications of water shortage and develop recommendations addressing the financial deficit created by shortage conditions
- Present draft recommendations to the City's Finance and Administration Committee to review the assumptions and conclusions from the financial plan and rate analyses
- Prepare a water and sewer rate study report (this report) to document the analyses performed during the study
- Present study recommendations to the City Council during a regular meeting, and assist the City in preparing a notice of public hearing regarding the proposed water and sewer rates
- Present final water and sewer rate recommendations during a public hearing to adopt new rates.

The purpose of this report is to describe the analyses performed, present a financial plan for each utility, and summarize findings and recommendations regarding the water and sewer rates, including water shortage rate surcharges.

**FINANCIAL PLANS AND REVENUE NEEDS**

Financial plan findings and recommendations are summarized below for both the water and sewer utilities.

### *Water Utility*

The water utility's financial situation has been affected by recent drought conditions and the resulting reduced water sales. While utility revenues are sufficient to cover current operating and maintenance costs and existing debt service payments, revenues are not sufficient to meet the utility's capital program needs for rehabilitating the water system, and it may not meet debt service coverage requirements in the current fiscal year. While the water utility's financial condition should improve as hydrologic conditions improve and water sales rebound, the current situation is not sustainable. An adjustment to the level of water rates is needed immediately to ensure the water utility can continue ongoing operations, meet all debt service obligations, fund needed capital improvements, and maintain prudent financial reserves.

In 2014 the City secured at \$4 million low interest loan from the US Department of Agriculture (USDA) for water system improvements. Those improvements are currently under construction and approaching completion. Within the five-year planning period of this study the City has identified an additional \$3.6 million in improvements (in current dollars). Current water rate and other revenues are insufficient to support this level of capital improvement program activity.

It is recommended that the City take immediate steps to increase water rates, as well as to approve future annual water rate increases in order to establish and maintain financial stability. The recommended overall water rate increases are:

June 2016	7%
July 2017	3%
July 2018	3%
July 2019	3%

The City previously approved a water rate increase of 5 percent for July 2016. The 7 percent water rate adjustment listed above for June 2016 would replace the previously approved rate increase of 5 percent. Proposed water rate schedules (presented later in this Executive Summary) also reflect an updated cost of service analysis and rate restructuring.

### *Sewer Utility*

The sewer utility is in a more stable financial state. Current sewer rates and other operating revenues are sufficient to cover operating and maintenance costs and current debt obligations, and provide limited funding for needed capital improvements. While the sewer utility currently has a healthy fund balance, its financial reserves are being depleted in support of capital improvement program needs. While an overall sewer rate increase is not immediately necessary, in order to better stabilize the financial condition of the sewer utility, modest increases will be needed in future years. Without the modest adjustments the sewer utility will be unable to adequately fund needed sewer system improvements.

The capital improvement plan for the sewer utility includes about \$3.6 million in new projects over the next five years (in current dollars). While available financial reserves will pay for a portion of the capital improvement program, a majority of sewer improvements

will need to be funded through sewer rates. The sewer utility is fortunate to have a limited amount of long-term debt, and all existing debt obligations will be satisfied within the five-year planning period. This limited debt exposure helps the City to maintain lower sewer rates for the benefit of all customers.

While an immediate rate increase is not needed, it is recommended that the City take steps to gradually increase sewer rates in order to establish and maintain sufficient funding for capital improvement needs. The recommended overall sewer rate increases are:

June 2016	0%
July 2017	3%
July 2018	3%
July 2019	3%

The City previously approved a sewer rate increase of 5 percent for July 2016 can be rescinded. The sewer rate changes for June 2016 are not intended to increase revenues and would replace the previously approved rate increase of 5 percent, effectively reducing the level of the sewer rates. Proposed sewer rate schedule for June 2016 (presented later in this Executive Summary) reflects an updated cost of service analysis.

The financial plan models reflect assumptions and estimates that are believed reasonable at the present time. However, conditions change. It is recommended that the City review the financial condition of the water and sewer utilities annually as part of the budget process, and perform a more comprehensive financial plan and rate update study every 3 to 5 years, unless otherwise needed sooner.

#### **PROPOSED WATER AND SEWER RATE SCHEDULES**

**Exhibits I-1 and I-2** present proposed water and sewer rate schedules, respectively, to be implemented beginning in June 2016. The water and sewer rates presented in this report reflect updated cost of service analyses as well as the elimination of tiered water usage rates for single family customers. The elimination of the tiered water rate structure is recommended due to a recent court decision involving Proposition 218. Further explanation of this change is provided in Section II of this report.

Sewer rates for multi-family accounts are proposed to decrease due to the updated cost of service analysis. Residential sewer rate analysis is based on an examination of winter water usage of single family and multi-family dwellings (separately analyzed). Multi-family dwellings contribute less wastewater to the sewer system than single family homes. The sewer rate for schools (based on average daily attendance) is proposed to increase due to changes in water usage characteristics since the previous rate study.

The proposed water rate schedules reflect the policy objectives of the City, but more importantly they reflect an allocation of water system costs to users based on an equitable proportioning of the costs of service. The proposed sewer rates reflect an updated allocation of sewer system costs to users based on an equitable proportioning of the costs of service. Details of water rate analyses and rate recommendations are presented in Section II of this report. Details of sewer rate analyses and rate recommendations are presented in Section III of this report.

**Exhibit I-1**  
**City of Cloverdale**  
**Proposed Monthly Water Rate Schedules (1)**

	June 2016	July 2017	July 2018	July 2019
<b>Monthly Base Charges</b>				
Up to 1" Meter	\$ 22.25	\$ 22.92	\$ 23.61	\$ 24.32
1 1/2" Meter	\$ 42.07	\$ 43.33	\$ 44.63	\$ 45.97
2" Meter	\$ 65.85	\$ 67.83	\$ 69.86	\$ 71.96
3" Meter	\$ 121.35	\$ 124.99	\$ 128.74	\$ 132.60
4" Meter	\$ 200.63	\$ 206.65	\$ 212.85	\$ 219.24
<b>Water Usage Rates (\$/CCF)</b>				
All Water Usage	\$ 4.35	\$ 4.48	\$ 4.61	\$ 4.75

**Notes:**

(1) Water rates outside the City should continue to be 5 percent higher than inside the City.

**Exhibit I-2**  
**City of Cloverdale**  
**Proposed Monthly Sewer Rate Schedules**

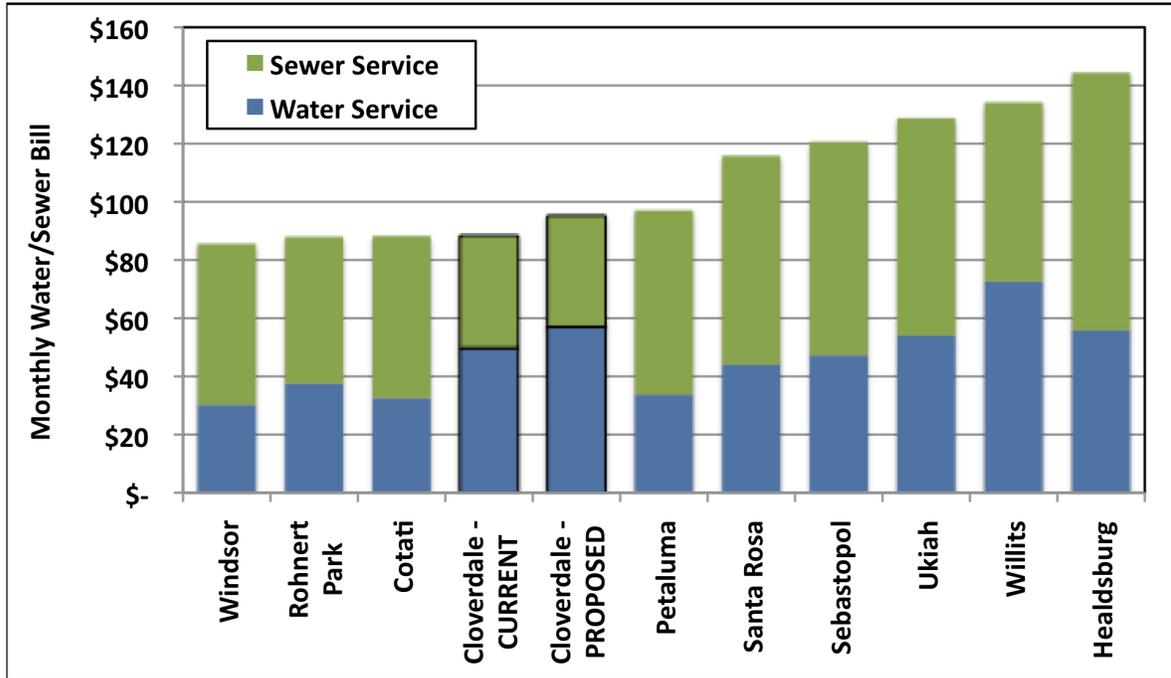
	June 2016	July 2017	July 2018	July 2019
<b>Residential Flat Rates</b>				
Single Family Residential (per DU)	\$ 38.20	\$ 39.35	\$ 40.53	\$ 41.75
Multi-Family Residential (per DU)	\$ 24.72	\$ 25.46	\$ 26.22	\$ 27.01
<b>Non-Residential Base Charges</b>				
Up to 1" Meter	\$ 10.92	\$ 11.25	\$ 11.59	\$ 11.94
1 1/2" Meter	\$ 19.73	\$ 20.32	\$ 20.93	\$ 21.56
2" Meter	\$ 30.30	\$ 31.21	\$ 32.15	\$ 33.11
3" Meter	\$ 54.97	\$ 56.62	\$ 58.32	\$ 60.07
4" Meter	\$ 90.22	\$ 92.93	\$ 95.72	\$ 98.59
<b>Non-Residential Usage Charges (\$/CCF)</b>				
Low Strength	\$ 4.49	\$ 4.62	\$ 4.76	\$ 4.90
Medium Strength	\$ 5.59	\$ 5.76	\$ 5.93	\$ 6.11
High Strength	\$ 8.09	\$ 8.33	\$ 8.58	\$ 8.84
<b>Public Schools</b>				
Per 100 ADA	\$ 148.15	\$ 152.59	\$ 157.17	\$ 161.89

**IMPACT OF PROPOSED WATER AND SEWER RATES**

The City of Cloverdale's water and sewer rates are currently in the middle range relative to neighboring communities. Even with the proposed rate adjustments for both water and sewer rates, the combined water and sewer bills for a typical single family residential customer will remain in the mid-range relative to neighboring communities. The typical combined water and sewer bills for a single family customer in Cloverdale is compared with neighboring communities in **Exhibit I-3**. A typical combined water and sewer bill for a single family customer in Cloverdale will increase from \$95.74 per month to \$103.95 per month. Under current rates in neighboring communities, the same typical customer would have a combined water and sewer bill ranging from \$85.61 per month to \$144.40 per month.

**Exhibit I-3  
City of Cloverdale  
Comparison of Typical Monthly Single Family Water and Sewer Bill  
with Neighboring Communities (1)**

	<b>Water Service</b>	<b>Sewer Service</b>	<b>Total Bill</b>
Windsor	\$ 30.32	\$ 55.29	\$ 85.61
Rohnert Park	\$ 37.59	\$ 50.43	\$ 88.02
Cotati	\$ 32.61	\$ 55.66	\$ 88.27
<b>Cloverdale - CURRENT</b>	\$ 49.78	\$ 38.64	<b>\$ 88.42</b>
<b>Cloverdale - PROPOSED</b>	\$ 57.05	\$ 38.20	<b>\$ 95.25</b>
Petaluma	\$ 33.84	\$ 63.24	\$ 97.08
Santa Rosa	\$ 44.06	\$ 71.79	\$ 115.85
Sebastopol	\$ 47.28	\$ 73.30	\$ 120.58
Ukiah	\$ 54.09	\$ 74.69	\$ 128.78
Willits	\$ 72.60	\$ 61.58	\$ 134.18
Healdsburg	\$ 55.88	\$ 88.52	\$ 144.40



**Notes:**

- (1) Based on current rates in neighboring communities with the base meter size and 8 CCF of water usage and 5 CCF of winter water use (for sewer billing).

Exhibit I-4 shows how water and sewer bills may be affected by the proposed rates for June 2016 for a variety of customers within the City of Cloverdale. For single family customers, the low use example might be considered a winter bill amount, and the high use example a peak summer bill amount. All customers have different water usage characteristics, and the change to any individual customer’s water and sewer bill will be a function of customer class, meter size, and water usage. In all cases, the proposed rates and bill amounts reflect a proportionate allocation of the costs of service to each customer.

**Exhibit I-4  
City of Cloverdale  
Sample Water and Sewer Bills for Typical Customers**

	Current Rates			Proposed Rates			Change	
	Water	Sewer	Total	Water	Sewer	Total	\$s	%
<b>Single Family Residential</b>								
Low Use (5 CCF)	\$ 38.80	\$ 38.64	\$ 77.44	\$ 44.00	\$ 38.20	\$ 82.20	\$ 4.76	6%
Average Use (10 CCF)	\$ 57.10	\$ 38.64	\$ 95.74	\$ 65.75	\$ 38.20	\$ 103.95	\$ 8.21	9%
High Use (16 CCF)	\$ 84.58	\$ 38.64	\$ 123.22	\$ 91.85	\$ 38.20	\$ 130.05	\$ 6.83	6%
<b>Multi-Family Residential</b>								
Duplex (5/8" mtr., 15 CCF)	\$ 80.80	\$ 58.10	\$ 138.90	\$ 87.50	\$ 49.44	\$ 136.94	\$ (1.96)	-1%
Apartment w/ 6 DUs (1" mtr, 30 CCF)	\$ 141.10	\$ 174.30	\$ 315.40	\$ 152.75	\$ 148.33	\$ 301.08	\$ (14.32)	-5%
Apartment w/ 28 DUs (2" mtr., 140 CCF)	\$ 621.11	\$ 813.40	\$ 1,434.51	\$ 674.85	\$ 692.23	\$ 1,367.08	\$ (67.43)	-5%
<b>Non-Residential</b>								
Medical Office (1" mtr., 28 CCF)	\$ 133.06	\$ 130.15	\$ 263.21	\$ 144.05	\$ 136.64	\$ 280.69	\$ 17.48	7%
Retail (1" mtr. 12 CCF)	\$ 68.74	\$ 60.71	\$ 129.45	\$ 74.45	\$ 64.80	\$ 139.25	\$ 9.80	8%
Laundromat (2" mtr., 180 CCF)	\$ 781.91	\$ 805.04	\$ 1,586.95	\$ 848.85	\$ 838.50	\$ 1,687.35	\$ 100.40	6%
Hotel (2" mtr, 60 CCF)	\$ 299.51	\$ 347.24	\$ 646.75	\$ 326.85	\$ 365.70	\$ 692.55	\$ 45.80	7%
Restaurant (2" mtr., 90 CCF)	\$ 420.11	\$ 724.94	\$ 1,145.05	\$ 457.35	\$ 758.40	\$ 1,215.75	\$ 70.70	6%
City Park (3" mtr., 500 CCF)	\$ 2,116.44	n/a	\$ 2,116.44	\$ 2,296.35	n/a	\$ 2,296.35	\$ 179.91	9%

## WATER SHORTAGE FINANCIAL ANALYSIS AND WATER SHORTAGE SURCHARGES

Because of the current and continuing drought conditions, this water rate update includes a separate analysis of the financial implications of the sustained reduced water sales that coincides with water shortage conditions. The financial analysis includes the development of water shortage rates surcharges that could be implemented during periods of mandatory water use reductions and prohibitions as declared by the City.

Water shortage conditions result in (1) reduced water sales, (2) reduced water production costs, and (3) increased water conservation education and assistance costs. The net effect of these impacts is to create a financial deficit during periods of water shortage (i.e., revenue will decline more than the decline in expenses).

To counter the financial impact of water shortage, a three-prong strategy is proposed that includes (1) utilizing a portion of available Contingency Reserves to offset a portion of the financial deficit created by reduced water sales, (2) adopting and implementing water shortage rate surcharges to generate additional revenue, and (3) in the most severe shortages reducing the annual contribution to the capital project fund for capital projects. This strategy, including the water shortage rate surcharges, should be incorporated into the City's water shortage contingency plan and *2015 Urban Water Management Plan*.

Several stages of water shortage beyond normal water supply conditions have been defined for water shortage contingency planning purposes. These include:

- Normal Condition – No water use reduction required
- Stage 1 – Minor Shortage – 10 to 20 percent water use reduction goal
- Stage 2 – Moderate Shortage – 20 to 30 percent water use reduction goal
- Stage 3 – Urgent Shortage – 30 to 40 percent water use reduction goal
- Stage 4 – Critical Shortage – Over 40 percent water use reduction goal

Proposed water shortage rate surcharges would be implemented whenever the City Council declares a water shortage. Water shortage rate surcharges would be applied to the uniform water rates (but not to monthly base charges). The water shortage rate surcharge would mean that all customers would bear a proportionate share of the financial burden created by water shortage. The water shortage rate surcharges have been designed such that customers meeting water use reduction goals will have lower water bills than their normal water bills. Customers that do not meet water use reduction goals may have higher water bills.

**Exhibit I-5** presents the proposed water shortage rate surcharges, which are expressed as a percentage increase to the normal water usage rate. The amount of increase depends on the stage of shortage. It is expressed as a percentage so that it can be applied to any future rate schedule. The specific rates shown in Exhibit I-5 are an application of the water shortage surcharges to the proposed water rates for June 2016. As an example, in Stage 1 – Minor Shortage a 6 percent water shortage rate surcharge would effectively temporarily increase the water usage rate from \$4.35 per CCF to \$4.61 per CCF. Monthly base charges would be unaffected.

**Exhibit I-5  
City of Cloverdale**

**Proposed Temporary Water Shortage Rate Surcharges Applied to Water Rates for June 2016 (1)**

	<b>Normal Supply Conditions (1)</b>	<b>Stage 1 Minor Shortage (Voluntary)</b>	<b>Stage 2 Moderate Shortage (Mandatory)</b>	<b>Stage 3 Urgent Shortage (Mandatory)</b>	<b>Stage 4 Critical Shortage (Mandatory)</b>
Use Reduction Goal -->	None	10% to 20%	20% to 30%	30% to 40%	> 40%
<b>Wtr. Short. Surch. (2) --&gt;</b>	<b>None</b>	<b>6%</b>	<b>15%</b>	<b>24%</b>	<b>32%</b>
<b>Monthly Base Charges</b>					
Up to 1" Meter	\$ 22.25				
1 1/2" Meter	\$ 42.07				
2" Meter	\$ 65.85		No Changes to Base Charges		
3" Meter	\$ 121.35				
4" Meter	\$ 200.63				
<b>Water Usage Rates (\$/CCF)</b>					
All Water Usage (3)	\$ 4.35	\$ 4.61	\$ 5.00	\$ 5.39	\$ 5.74

**Notes:**

- (1) The water shortage rate surcharge percentages are shown applied to the proposed water usage rate for June 2016 for illustrative purposes. The percentages would be applied to any then-current water usage rates when implemented by declaration of a water shortage by the City Council.
- (2) The water shortage rate surcharge would be an incremental (percentage) increase in the water usage rate, but would not be applied to monthly base charges.
- (3) The water usage rates shown for Stages 1 through 4 incorporate the water shortage rate surcharge.

Water shortage rate surcharges will need to be adopted through a Proposition 218 notice and public hearing process. It is recommended that the water shortage rate surcharges be adopted with the other water and sewer rates proposed by the study. The water shortage rate surcharges could then be implemented during the current or any future declared water shortage. Details of the water shortage financial analysis and proposed water shortage surcharges are presented in Section II of this report.

**ADOPTING PROPOSED WATER AND SEWER RATES**

In order to adopt the proposed water and sewer rates for the next four years and the proposed water shortage rate surcharges the City will need to follow the requirements contained in Article XIII D of the California Constitution (Proposition 218). This includes a Notice of Public Hearing to be mailed to all affected property owners and customers at least 45 days prior to a public hearing.

It is recommended that the City combine the adoption of the proposed four-year water and sewer rate schedules, as well as the adoption of water shortage rate surcharges, into a single public notice and rate hearing. This will save the City both time and expenses.

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## SECTION II. WATER RATES

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This section of the report describes the financial plan and water rate recommendations for the City's water utility. The five-year financial plan is used to determine annual water rate revenue requirements. The annual rate revenue requirement is the amount of revenue needed from water rates to cover planned operating, maintenance, debt service, and capital program costs with consideration of other revenues and financial reserves.

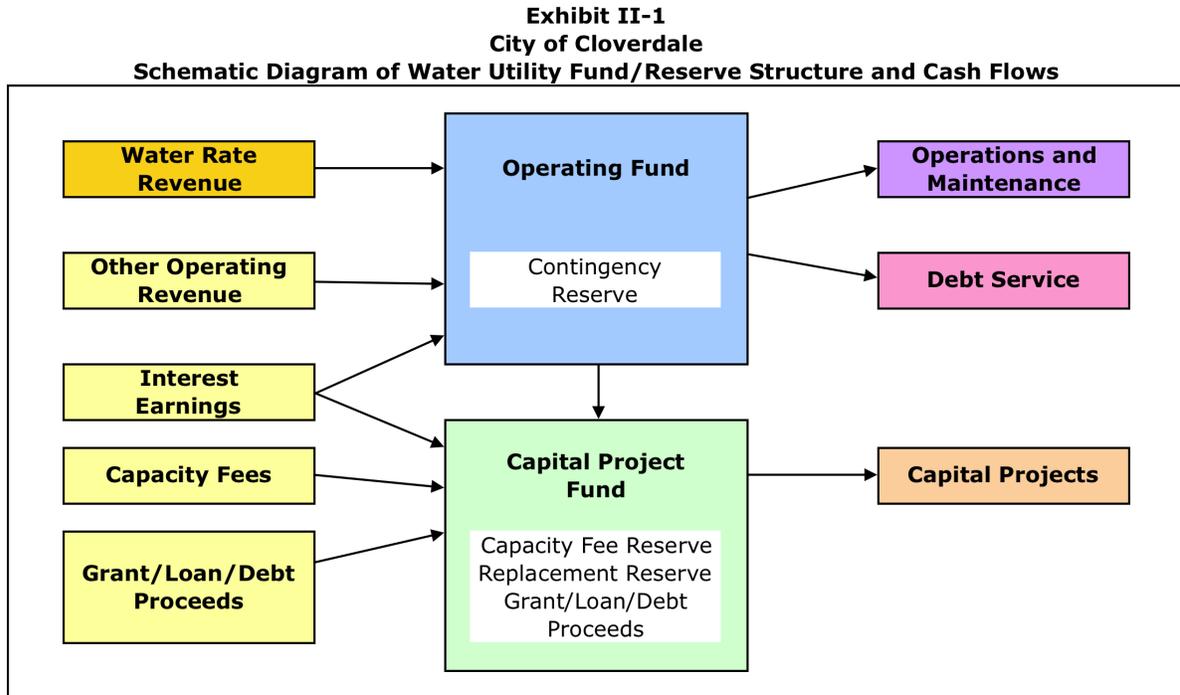
### FUND STRUCTURE AND CASH FLOWS

The financial plan is an annual cash flow model. As a cash flow model, it differs from standard accounting income statements, and balance sheets. The financial plan models sources and uses of funds into, out of, and between the various funds and reserves of the water utility.

The financial plan model is based on a fund structure not currently used by the City. This structure was discussed with staff, with concurrence that it would provide a helpful framework for evaluating the financial needs of the utility and for clearly demonstrating how operating and maintenance costs, debt service obligations, and capital program needs are being addressed. The proposed structure includes a Capital Project Fund, separate from the Operating Fund, for the purpose of meeting capital program needs. In other respects, such as reserve and account structures, the financial plan model is consistent with current practices of the City. **Exhibit II-1** is a schematic diagram of the funds/reserves and major cash flows associated with the financial plan model.

An understanding of the fund/reserve structure is helpful in understanding the financial plan worksheets that model annual cash flows through the water utility from one year to the next. The fund/reserve structure is comprised of:

- **Operating Fund** - The Operating Fund is the primary fund within the water utility. Most of the water system's revenues, including water rate revenues, flow into the Operating Fund and all operating and maintenance costs, including debt service payments, are paid out of this fund. Funds are also transferred from the Operating Fund to the Capital Projects Fund to help pay for capital projects intended to rehabilitate and upgrade facilities.
  - **Contingency Reserve** - The City currently has a policy goal to maintain Contingency Reserves within the Operating Fund equal to 25 percent of annual operating and maintenance costs for the water system. The purpose of the Contingency Reserve is to provide working capital and funds for unplanned operating and maintenance expenditures. The balance in the Water Operating Fund at the beginning of FY 15-16 was above the target Contingency Reserve, however, by the end of the current fiscal year it may be near this target minimum. This is one indicator of the need to increase water rates, as revenues are not keeping pace with costs.



- *Available Fund Balance* - The balance in the Operating Fund in excess of the target amount for the Contingency Reserves is shown in the financial plan as Available Balance. After all other obligations are met the Available Balance is available to offset rate increases, and the financial plan model generally seeks to reduce any Available Balance over time. A negative value for the Available Balance indicates the shortfall in maintaining the minimum Contingency Reserve.
- *Capital Projects Fund* - The Capital Projects Fund is used to account for revenues and debt proceeds available for capital project expenditures. Capital projects funded from this fund are intended to rehabilitate, upgrade, and expand the water system to meet current and future needs of the water utility. The financial plan model generally seeks to maintain a positive balance in the Capital Projects Fund while also covering the costs of planned capital improvement projects. The Capital Projects Fund is comprised of three separate reserves.
  - *Capacity Fee Reserve* - The reserve is used to account for capacity fee revenues and expenditures, in compliance with the Government Code.
  - *Replacement Reserves* - Replacement reserves are those monies transferred from the Operating Fund to the Capital Projects Fund, but not yet expended on capital projects.
  - *Grant/Loan/Debt Proceeds* - Proceeds from grants and loans, and the issuance of long-term debt, are reflected in the Capital Projects Fund as remaining unexpended proceeds. Debt proceeds are to be expended within a timely manner following debt issuance.

## FINANCIAL PLAN ASSUMPTIONS

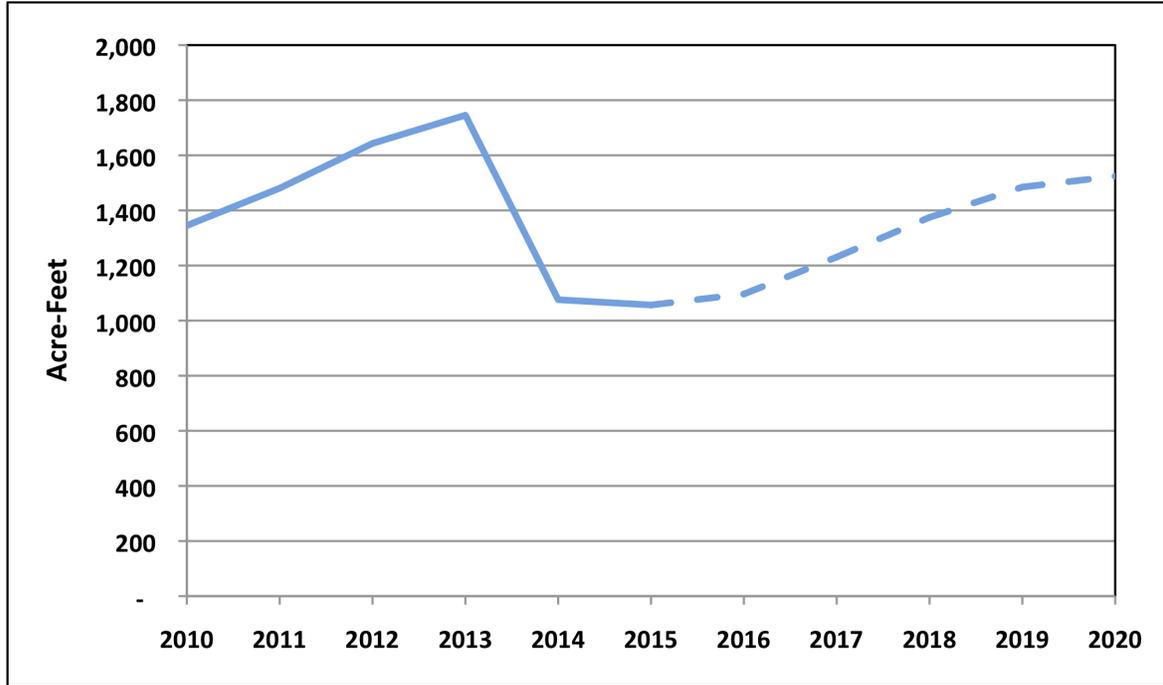
The financial plan was created to reflect the FY 15-16 budget and financial conditions as of the beginning of the fiscal year. The financial plan also reflects the City's debt service obligations and capital improvement program, as identified by City staff, during the five-year planning period.

The process used to develop the financial plan involved estimating future revenues and expenditures based on information provided by the City. Future operating and maintenance costs were developed for the planning period through FY 19-20. City staff also identified capital improvement needs at a planning level through this planning period. The financial plan is based on the best available information and assumptions are believed to be reasonable; however, no assurance can be provided as to the accuracy and completeness of the estimates.

Primary assumptions reflected in financial plan analyses include:

- *Interest Rates* – Interest earned on fund/reserve balances is estimated to be 0.25 percent per year through FY 17-18, and then 0.5 percent per year for the remainder of the planning period. Interest calculations are based on beginning-of-year balances. Interest accrues to each of the funds. The City also pays interest on outstanding long-term debt obligations. The interest payments on outstanding debt are those contained in existing contracts and repayment schedules.
- *Inflation Rates* – For financial planning purposes annual inflation for operating and maintenance costs, as well as capital improvement project costs, is assumed to be 3.0 percent annually.
- *Growth Projections* – The financial plan incorporates customer data as of June 2015. The plan assumes that the customer base be stable through FY 16-17 and will grow by 0.5 percent per year from FY 17-18 through FY 19-20.
- *Customer Demand* – Water demands have been reduced in recent years due to drought conditions and state-mandated water use reduction goals. The financial plan assumes that water supply conditions will improve slightly in 2016 (it is anticipated that the State will continue mandatory use reductions through 2016), and that customer water demands will then gradually rebound over the planning period. While this assumption is reasonable, it is not possible to forecast future water demands with precision. Rate recommendations in this report were developed after considering the sensitivity of the financial model to the water demand assumptions. **Exhibit II-2** graphically illustrates historical water production and the estimated future rebound.
- *Operation and Maintenance Costs* – The financial plan model is based on current operating and maintenance costs as reflected in the FY 15-16 operating budget, with future estimates developed based on the assumed rate of inflation.

**Exhibit II-2  
City of Cloverdale  
Historical and Estimated Future Water Production**



- Capital Improvement Program* - The water utility’s capital improvement plan includes multiple projects totaling about \$5.9 million over a five-year period, as summarized in **Exhibit II-3**. A significant portion of the water system CIP will be funded from the USDA grant and low-interest loan obtained in 2014. However, about \$3.1 million in capital improvements will need to be funded from annual water rate revenue transferred to the Water Capital Project Fund. Providing adequate funding for the water utility’s capital improvement program is one of the factors driving the need to increase water rates.

**Exhibit II-3  
City of Cloverdale  
Water System Capital Improvement Program**

Project Name	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20
Filter Units	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000
Northwest Distrib. Sys. Upsizing Proj.				\$ 80,000	\$ 720,000
USDA Water System Improv.	\$ 2,339,543				
Annual WTP Renewal and Replac.	\$ 120,000	\$ 160,000	\$ 160,000	\$ 160,000	\$ 160,000
Tank Recoating			\$ 250,000		\$ 250,000
Backwash Recycling Pipeline Proj.	\$ 220,000				
AMI Conversion		\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
Corp. Yard Materials Storage		\$ 100,000			
<b>Total</b>	<b>\$ 2,799,543</b>	<b>\$ 530,000</b>	<b>\$ 680,000</b>	<b>\$ 510,000</b>	<b>\$ 1,400,000</b>
Inflation Adjusted Total (1)	\$ 2,800,000	\$ 546,000	\$ 721,000	\$ 557,000	\$ 1,576,000

**Notes:**

(1) Inflated at 3.0 percent per year. Inflated values carried to financial plan exhibits.

The water system financial plan includes annual transfers from the Operating Fund to the Capital Projects Fund to pay for planned capital improvement projects. Annual transfers begin with \$500,000 in FY 16-17 and increase to \$1,000,000 by FY 19-20.

- *Debt Obligations* - Existing water system long-term debt obligations are summarized in **Exhibit II-4**. The water utility currently pays about \$500,000 annually on debt service related to a 1993 Safe Drinking Water loan, a 2014 City National Bank loan, and the 2014 USDA water system improvement loan. The loan from City National Bank was used to refund a 2000 CSCDA water bond. The water system financial plan does not include any new debt issues during the five-year planning period.
- *Debt Service Coverage Requirements* - One of the requirements associated with bond financing is to maintain rates and other water system revenues at levels sufficient to meet debt service coverage requirements. At present, the City is required to maintain water system revenues at a level that covers all ongoing operating and maintenance costs, as well as 1.10 times annual debt service. With reduced water demands resulting from drought conditions, current water rates and revenue appear limit the margin for meeting this requirement with existing debt. Ensuring the City can continue to meet this important debt covenant is one of the factors dictating the need to increase water rates.

**Exhibit II-5** (displayed on 2 pages) provides the details of the financial plan model of the water utility. **Exhibit II-6** graphically summarizes the revenues, expenses, year-end balance, and estimated annual rate increases for the water system Operating Fund.

**Exhibit II-4**  
**City of Cloverdale**  
**Summary of Water System Debt Service Obligations**

	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20
<b>WATER SYSTEM</b>						
<b>1993 DWR CSDW Loan</b>						
Principal Payment	89,329	91,919	94,790	97,546	100,450	103,395
Interest Payment	45,477	34,169	31,299	28,543	25,589	22,694
Total Payment	134,805	126,088	126,088	126,088	126,039	126,088
Remaining Balance	1,176,740	1,084,821	990,032	892,486	792,036	688,642
<b>2000C CSCDA Pooled Financing - Refinanced to City National Bank</b>						
Principal Payment	140,000					
Interest Payment	49,995					
Total Payment	189,995					
Remaining Balance	1,010,000					
<b>2014 City National Bank Loan</b>						
Principal Payment		167,000	170,000	174,000	178,000	183,000
Interest Payment	16,373	22,436	18,561	14,605	10,557	6,406
Total Payment	16,373	189,436	188,561	188,605	188,557	189,406
Remaining Balance	1,059,000	892,000	722,000	548,000	370,000	187,000
<b>2014 USDA Wtr. Sys. Improv. Loan</b>						
Principal Payment	-	58,000	60,000	62,000	64,000	65,000
Interest Payment	27,354	100,028	108,406	106,756	105,050	103,290
DS Reserve Contrib.		15,900	16,900	16,900	17,000	16,900
Total Payment	27,354	173,928	185,306	185,656	186,050	185,190
Remaining Balance	4,000,000	3,942,000	3,882,000	3,820,000	3,756,000	3,691,000

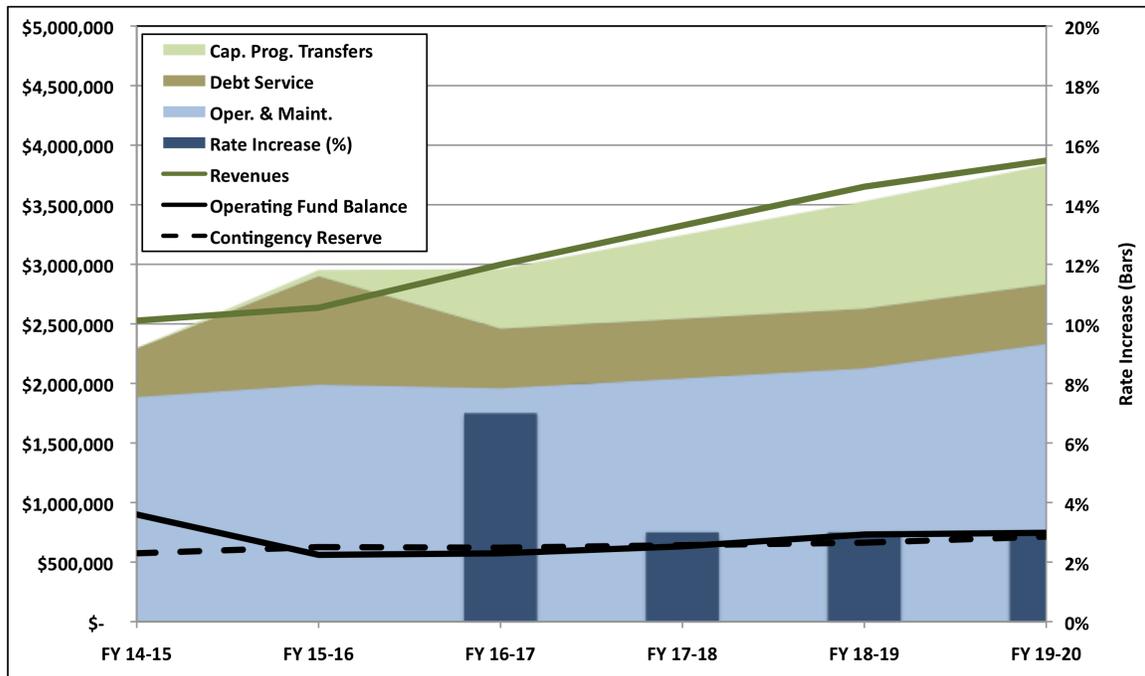
**Exhibit II-5**  
**City of Cloverdale**  
**Water System Financial Plan**

	<b>Estimated FY 14-15</b>	<b>Budgeted FY 15-16</b>	<b>FY 16-17</b>	<b>FY 17-18</b>	<b>FY 18-19</b>	<b>FY 19-20</b>
	Overall Rate Increase -->		<b>7%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>
<b>WATER OPERATING FUND (600)</b>						
<b>Beginning Balance</b>	668,337	899,705	560,616	573,811	632,412	731,716
<b>Revenues and Transfers In</b>						
Water Rates and Charges	2,316,533	2,420,000	2,775,000	3,097,000	3,414,000	3,626,000
Penalties	39,250	17,775	18,300	18,800	19,400	20,000
Meter Installation	194	200	200	200	200	200
Water Turn On/Off	43,992	47,250	48,700	50,200	51,700	53,300
Interest	2,572	1,200	1,400	1,400	3,200	3,700
Water Meter Sales	-	1,240	1,300	1,300	1,300	1,300
Refunds & Reimbursements	5,632	5,000	5,200	5,400	5,600	5,800
Interfund Transfers In-PERS	119,055	142,813	147,100	151,500	156,000	160,700
<b>Total Revenues &amp; Transfers In</b>	<b>2,527,228</b>	<b>2,635,478</b>	<b>2,997,200</b>	<b>3,325,800</b>	<b>3,651,400</b>	<b>3,871,000</b>
<b>Expenditures and Transfers Out</b>						
<i>Treatment, Maint., &amp; Operations</i>						
Salaries and Benefits	782,032	823,315	848,000	873,400	899,600	926,600
Legal Services	115	-	-	-	-	-
Other Professional Services	7,151	1,500	1,500	1,500	1,500	1,500
Misc. Contractual Services	74,081	114,920	68,400	70,500	72,600	124,800
Retiree/COBRA Insurance	-	8,500	8,800	9,100	9,400	9,700
Other Gov't Services	27,661	18,200	18,700	19,300	19,900	20,500
Computer Maintenance	4,893	-	-	-	-	-
Vehicle Maintenance	10,842	5,000	5,200	5,400	5,600	5,800
General Repair/Maintenance	57,959	46,100	47,500	48,900	50,400	51,900
Advertising	258	-	-	-	-	-
Printing & Binding	3,697	1,500	1,500	1,500	1,500	1,500
Membership Dues	413	425	400	400	400	400
Training, Conference, Tuition	334	500	500	500	500	500
Travel Expenses, Meals	900	525	500	500	500	500
Promotions	5,601	20,500	21,100	21,700	22,400	23,100
Rentals	1,362	1,500	1,500	1,500	1,500	1,500
Operating Supplies	76,946	73,000	75,200	77,500	79,800	82,200
Small Tools & Equipment	11,031	17,470	18,000	18,500	19,100	19,700
Utilities - Gas & Electric	167,643	170,000	196,100	226,200	256,300	274,500
Utilities - Telephone, pagers, cell	175	200	200	200	200	200
Utilities - Water	8,843	8,000	8,200	8,400	8,700	9,000
Planning	8,210	80,000	20,600	21,200	21,800	102,500
Construction (Filter Units)	30,661	-	-	-	-	-
Sub-Total TMO	1,280,808	1,391,155	1,341,900	1,406,200	1,471,700	1,656,400
<i>Metering &amp; Revenue</i>						
Salaries and Benefits	210,903	259,398	267,200	275,200	283,500	292,000
Banking Fees	-	7,000	7,200	7,400	7,600	7,800
Other Professional Services	45,518	2,000	2,100	2,200	2,300	2,400
Misc. Contractual Services	700	1,300	1,300	1,300	1,300	1,300
Computer Maintenance	-	21,419	22,100	22,800	23,500	24,200
Vehicle Repairs	945	700	700	700	700	700
Postage & Shipping	11,569	10,000	10,300	10,600	10,900	11,200
Membership Dues	75	75	100	100	100	100
Training, Conference, Tuition	145	150	200	200	200	200
Travel Expenses, Meals	353	350	400	400	400	400
Operating Supplies	4,842	15,000	15,500	16,000	16,500	17,000
Small Tools & Equipment	-	1,000	1,000	1,000	1,000	1,000
Sub-Total Metering & Rev.	275,050	318,392	328,100	337,900	348,000	358,300
<i>Debt Service</i>						
1993 DWR CSDW Loan	134,805	126,088	126,088	126,088	126,039	126,088
2000C CSCDA Rev. Bond	189,995	-	-	-	-	-
2014 National City Bank Loan	16,373	189,436	188,561	188,605	188,557	189,406
Bond Issuance Costs	40,524	-	-	-	-	-
2014 USDA Wtr. Sys. Improv. Loan	27,354	173,928	185,306	185,656	186,050	185,190
Sub-Total Debt Service	409,052	489,452	499,955	500,349	500,646	500,684
<i>Transfers Out</i>						
General Fund (Admin. Overhead)	330,950	281,917	290,400	299,100	308,100	317,300
Interfund Loan Repayment	-	420,000	-	-	-	-
Depreciation Reserve	-	23,650	23,650	23,650	23,650	23,650
Water Capital Project Fund	-	50,000	500,000	700,000	900,000	1,000,000
Sub-Total Transfers Out	330,950	775,567	814,050	1,022,750	1,231,750	1,340,950
<b>Total Expend. &amp; Transfers Out</b>	<b>2,295,860</b>	<b>2,974,566</b>	<b>2,984,005</b>	<b>3,267,199</b>	<b>3,552,096</b>	<b>3,856,334</b>
<b>Ending Balance</b>	<b>899,705</b>	<b>560,616</b>	<b>573,811</b>	<b>632,412</b>	<b>731,716</b>	<b>746,382</b>
Conting. Reserve (25% of expend.)	574,000	626,000	621,000	642,000	663,000	714,000
Available Balance	325,705	(65,384)	(47,189)	(9,588)	68,716	32,382
Debt Serv. Coverage (1.10 min.)	1.57	1.32	2.07	2.56	3.04	3.08

**Exhibit II-5 -- Continued  
City of Cloverdale  
Water System Financial Plan -- Continued**

	Estimated FY 14-15	Budgeted FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20
<b>WATER CAPITAL PROJECT FUND</b>						
<b>Beginning Balance</b>	291,169	1,227,677	74,158	28,358	124,858	589,358
<b>Revenue and Transfers In</b>						
Transfer from Operations	-	50,000	500,000	700,000	900,000	1,000,000
Water Capacity Fees			-	117,400	120,900	124,500
USDA Grant/Loan Proceeds	2,406,619	1,593,381				
Interest Earnings		3,100	200	100	600	2,900
<b>Total Revenues &amp; Transfers In</b>	2,406,619	1,646,481	500,200	817,500	1,021,500	1,127,400
<b>Expenditures</b>						
USDA Wtr. Sys. Improv. Project	1,470,111	2,339,543	-	-	-	-
Other Capital Projects		460,457	546,000	721,000	557,000	1,576,000
<b>Total Capital Expenditures</b>	1,470,111	2,800,000	546,000	721,000	557,000	1,576,000
<b>Ending Balance</b>	<b>1,227,677</b>	<b>74,158</b>	<b>28,358</b>	<b>124,858</b>	<b>589,358</b>	<b>140,758</b>
Capacity Fee Reserve	481,515	361,515	241,515	238,915	239,815	244,315
Replacement Reserve	-	(287,357)	(213,157)	(114,057)	349,543	(103,557)
Unexpended Loan/Debt Proceeds	746,162	-	-	-	-	-

**Exhibit II-6  
City of Cloverdale  
Summary of Water System Operating Fund**



**FINANCIAL PLAN FINDINGS AND CONCLUSIONS**

The preceding portion of this section described the basic framework and assumptions underlying the financial analyses. Specific findings and conclusions pertaining to the water utility are presented below, beginning with a description of the current situation.

At present, the City’s water utility has:

- Insufficient cash in the operating fund to maintain a contingency reserve required by City policy
- Current annual operating and maintenance costs, including debt service obligations, totaling about \$2.5 million
- Current annual water utility revenues of about \$2.4 million (without any rate adjustment)
- Sufficient cash in the water capital project fund, including USDA loan proceeds, to pay for planned water system capital improvements in FY 15-16 totaling about \$2.8 million, but insufficient funds for future planned capital projects
- Estimated debt service coverage in FY 15-16 of 1.29 (without any rate adjustment); the required minimum debt service coverage is 1.10<sup>1</sup>
- Without a water rate adjustments, the water utility will be unable to meet its service and financial obligations, including operating and maintenance of the water system, debt service obligations, capital program funding, and maintenance of prudent financial reserves.

An increase in water rates is needed in order to meet service requirements, continue to meet debt service obligations (particularly debt service coverage), provide for the funding of planned water system improvements, and maintain prudent financial reserves. It is recommended that the City increase water rates as indicated below:

June 2016	7%
July 2017	3%
July 2018	3%
July 2019	3%

With the proposed annual water rate increases, the water utility will be able to re-establish the Contingency Reserve above the minimum level reflected in current policy. The financial plan model reflects assumptions and estimates that are believed reasonable at the present time. However, conditions change. It is recommended that the City review the financial condition of the water utility annually as part of the budget process, and perform a more comprehensive financial plan and water rate update study every 3 to 5 years, unless otherwise needed sooner.

#### CURRENT WATER RATES

The City's current water rates were last adjusted in July 2015 and are summarized in **Exhibit II-7**. Current water rates include a monthly base charge for all service connections, a 3-tier water usage rate structure for single family customers, and a uniform water usage rate for multi-family, non-residential, and irrigation service connections. Water rates for customers outside the City's limits are 5 percent higher than those inside the City.

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<sup>1</sup> Debt service coverage is calculated as net revenues (defined as gross revenues minus annual operating and maintenance expenses) divided by annual debt service. Existing debt covenants require that debt service coverage exceed 1.10.

**Exhibit II-7**  
**City of Cloverdale**  
**Current Monthly Water Rates (1)**

<b>Current Water Rates</b>	
<b>Monthly Base Charges</b>	
Up to 1" Meter	\$ 20.50
1 1/2" Meter	\$ 37.68
2" Meter	\$ 58.31
3" Meter	\$ 106.44
4" Meter	\$ 175.18
6" Meter	\$ 347.08
<b>Water Usage Rates (\$/CCF)</b>	
Single Family Residential	
Tier 1 (0-10 CCF)	\$ 3.66
Tier 2 (11-30 CCF)	\$ 4.58
Tier 3 (>30 CCF)	\$ 5.49
Multi-Family	\$ 4.02
Non-Residential	\$ 4.02
Irrigation	\$ 4.02

**Notes:**

- (1) Effective in July 2015. Water rates for customers outside the City limits pay water rate that are 5 percent higher than those shown.

The City of Cloverdale provides water service to about 3,600 customer connections, including nearly 3,200 single family residences. The current 3-tier water usage rate structure for single family homes is intended to discourage excessive water use and encourage customers to conserve water. About 61 percent of the City's current water rate revenues are derived from water usage charges. This amount of revenue from water usage charges is somewhat below the standard for water conservation rates established by the California Water Conservation Council (CUWCC). In June 2006, the CUWCC revised the water conservation best management practice for water conservation regarding water rates (now known as BMP 1.4) to a minimum of 70 percent of water rate revenue from water usage charges<sup>2</sup>.

**CUSTOMER ACCOUNT DATA AND WATER USE ESTIMATES**

Water rate calculations are based on a number of factors related to the City's customer base. Factors include the number of customers, customer classes, meter size, and monthly water usage. The City provides water service through more than 3,600 customer accounts. Single family customers comprise about 88 percent of the customers and about 62 percent of the water usage. Multi-family customers make up 3 percent of the customers and 9

<sup>2</sup> The CUWCC provides an alternative means for complying with BMP 1.4, and it is recommended that the City utilize this alternative method. The Reed Group, Inc. is available to assist with the required analysis to use this alternative method of compliance.

percent of the water usage. Non-residential accounts, including dedicated irrigation meters, comprise 9 percent of the accounts and about 29 percent of the water usage.

While there are extremes on both the low and high ends, average single family water usage is currently influenced by drought conditions at about 7 CCF per month. Single family customers also exhibit a wide variation in demand throughout the year. Winter water usage for single family homes averages about 5.5 CCF per month, while summer usage varies dramatically depending on landscape irrigation and other factors. Water usage for multi-family dwellings is lower than for single family residences for a variety of reasons including fewer people per household and limited landscape irrigation (or irrigation that is separately metered). Non-residential water usage can vary dramatically, and non-residential customers are served by meters of varying sizes to accommodate the differences in water demands.

Customers of different meter sizes can place different demands on the water system. Much more water can be delivered through a 4" water meter than through a 1" meter. To relate the potential demands on the water system from customers with different sized water meters, hydraulic capacity factors are used to determine the number of equivalent meters represented by the total customer base with variable meter sizes. For purposes of rate analysis, meters up to 1" are assigned a meter equivalency factor of 1.0. The ratios of instantaneous flow capacities of the various meter sizes to the capacity of a 1" meter are used to determine the meter equivalencies for larger meter sizes. This capacity relationship across meter sizes is generally used to allocate capacity-related costs to various customers.

The foregoing customer account and water use data have been used in water rate analysis that is presented in the remainder of this section.

## WATER RATE CALCULATIONS

There are three steps to determining water rates. These are:

- Determine annual water rate revenue requirements
- Analyze the cost of providing service to each customer class
- Design water rates to recover costs from each customer class.

### *Water Rate Revenue Requirements*

The 5-year financial plan was used to identify the water rate revenue required to meet financial obligations for each fiscal year of the five-year planning period. Water rate calculation presented herein is based on the revenue to be generated by the water rates recommended for June 2016, and reflects the proposed 7 percent overall rate increase that is needed. The revenue requirement for water rate calculation is \$2,775,000. This amount differs from the water rate revenue shown in Exhibit II-5, because that financial plan exhibit reflects the rate revenue in FY 15-16, which would be from a combination of the current water rates and the proposed water rates.

### *Cost of Service Analysis*

Once the annual water rate revenue requirement was determined using the financial plan model, the next step in the rate setting process was to evaluate the cost of providing service. Water rate calculations contained herein are intended to generate the level of revenue commensurate with the revenue requirement from the City's water service customers. The manner in which each customer is responsible for the water utility's costs is the determining factor in the cost of service analysis.

The water utility incurs certain types of costs associated with making water service available to customers. Other costs are incurred as a direct result of customer water usage. A cost of service analysis is intended to allocate the costs of providing water service to customers in proportion to the extent to which each customer causes the costs to be incurred. There are many approaches to cost of service analysis; some are more complex than others. The approach used herein is commensurate with the available data, the distinctions currently made between various types of customers, and the requirement to fairly and reasonably reflect differences in service provisions to differently situated customers.

The cost allocation methodology used herein begins by assigning all costs to one of three categories. The cost allocation process is performed with data available in the City's budget and accounting documents. The three categories include:

- Customer costs, such as meter reading and billing, are fixed costs that tend to vary as a function of the number of customers being served. Customer costs are allocated to customers based on the number of accounts. That is, every customer will pay an equal share of customer-related costs.
- Capacity costs are also fixed costs; however, these tend to vary in relation to the capacity of the water system. Customers that place greater or lesser burdens on the capacity of the water system should bear greater or lesser shares of these costs. The sizing of the water system is based on the potential demand that each customer could place on the water system. Capacity costs are allocated to customers based on the hydraulic capacity of the water meter. The hydraulic capacity reflects the potential demand that a customer could place on the water system at any given time. A customer with a large meter size will be assigned a large share of fixed capacity-related costs than one with a smaller meter. Capacity costs include costs associated with the water system's capacity including contributions to the capital program, debt service, maintenance costs, and certain fixed operating costs.
- Commodity costs are variable costs that vary with the amount of actual water use. Water treatment costs and energy costs are two typical examples. However, in an effort to encourage water conservation, fixed costs are frequently included in commodity components such that a majority of costs are recovered on the basis of usage. Even though some commodity costs are fixed, rather than variable, it is reasonable to allocate these costs to customers on the basis of usage, rather than the capacity relationship expressed by meter size. A significant portion of the water utility's fixed costs is recovered through water usage charges.

The water conservation best management practice for retail water rates (BMP 1.4), as promulgated by the CUWCC, specifies that at least 70 percent of water rate revenue be generated through usage charges. The City's current water rates generate about 63 percent of revenue from usage (commodity) charges, and therefore does not meet this guideline, with current water demand. Proposed water rates provide a revenue mix. As water demands rebound with the end of drought conditions the portion of water rate revenue from water usage charges will increase.

Based on a review of estimated costs for FY 15-16 for the water utility, customer service costs are estimated to be about 4 percent of the annual water rate revenue requirement. This leaves 33 percent of the revenue requirement allocated to capacity costs. In summary, the cost allocation resulted in a distribution of costs to customer, capacity, and commodity categories at about 4 percent, 33 percent, and 62 percent, respectively.

### *Water Rate Design*

The third step in the rate setting process is the design of water rates to recover costs from each customer class and generate the revenue needed for the utility. The City's water rates include both fixed monthly base charges and water usage rates. **Exhibit II-8** presents the calculation of base charges and water usage rates for the water rates proposed for June 2016. The calculation of each of these is described below.

### *Base Charges*

Base charges are intended to recover the customer and capacity costs identified through the cost of service analysis. Base charges apply to all customer water bills, regardless of the amount of water actually used. Customers that use no water during a month should still be required to pay the monthly base charge, as service is immediately available to them. In calculating base charges customer costs are allocated equally to all customers and capacity costs are allocated based on meter size in relation to the hydraulic capacity associated with the various meter sizes.

The proposed monthly base charge for a 1" meter (typical for a single family home) is \$22.25. Base charges for larger meter sizes vary from \$42.07 to \$200.63, depending on meter sizes ranging from 1 1/2" to 4". These are all higher than current base charges, but properly reflect the capacity relationship across meter sizes, as well as the revenue needs of the utility. The variation of base charges through meter sizes reflects the fact that a small portion of water system costs are directly related to the number of customers served. A majority of fixed costs are allocated on a capacity basis as reflected by the meter size. The changes to the base charges across the range of meter sizes reflect the cost of providing service to customers of varying meter sizes.

**Exhibit II-8  
City of Cloverdale  
Summary of Customer Account and Water Usage Data and Calculation of Water Rates for June 2016**

<i>No. of Accounts</i>	<i>Meter Size</i>				<i>Total Accounts</i>	<i>Ann. Water Use (CCF)</i>
	<i>Up to 1"</i>	<i>1 1/2"</i>	<i>2"</i>	<i>4"</i>		
Single Family Residential	3,159	7	16		3,182	250,000
Multi-Family Residential	94	6	10	1	112	35,500
Non-Residential	167	25	43	1	238	83,400
Irrigation	41	18	16	1	76	32,400
<b>Total Accounts</b>	<b>3,461</b>	<b>56</b>	<b>85</b>	<b>4</b>	<b>3,608</b>	<b>401,300</b>
No. of 1" Equiv. Meters	3,461	112	272	24	3,889	
Hydraulic Capacity Factor	1.00	2.00	3.20	6.00	10.00	
<b>Monthly Base Charges (\$/month)</b>						
Customer Cost	\$ 2.43	\$ 2.43	\$ 2.43	\$ 2.43	\$ 2.43	\$ 2.43
Capacity Cost	\$ 19.82	\$ 39.64	\$ 63.43	\$ 118.93	\$ 198.21	\$ 198.21
<b>Total Service Charge</b>	<b>\$ 22.25</b>	<b>\$ 42.07</b>	<b>\$ 65.85</b>	<b>\$ 121.35</b>	<b>\$ 200.63</b>	
Annual Service Charge Rev.	\$ 923,922	\$ 28,269	\$ 67,169	\$ 5,825	\$ 4,815	\$ 1,030,000
<b>FY 16-17 Water Rate Revenue Requirement</b>						
Customer Costs	\$ 105,000	4%			\$ 4.35	\$ 1,087,092
Capacity Costs	\$ 925,000	33%			\$ 4.35	\$ 154,367
Commodity Costs	\$ 1,745,000	63%			\$ 4.35	\$ 362,654
<b>Total Revenue Rqmt.</b>	<b>\$ 2,775,000</b>				<b>\$ 4.35</b>	<b>\$ 140,887</b>
					<b>Totals</b>	<b>\$ 1,745,000</b>

*Water Usage Rates*

The current water rates include a 3-tier usage rate structure for single family customers. As a result of a recent court decision related to Proposition 218 and cost of service issues, it is recommended that the City eliminate the current tier structure and adopt a uniform water rate for all customers. The proposed uniform water usage rate for June 2016 is calculated simply by dividing the commodity costs by estimated annual water usage, resulting in a water usage rate of \$4.35 per CCF, as shown in Exhibit II-8.

*Outside of City Water Rates*

It is recommended that the City continue to charge customers located outside the City limits an additional 5 percent relative to the proposed water rates. About 5 percent of the water utility's costs are covered by the City's General Fund. Customers outside the City do not contribute to the General Fund as residents and businesses within the City do, so slightly higher water rates are justified for this small group of customers. There do not appear to be any other material cost of service differences associated with serving customers located outside the City limits.

The proposed water rates reflect the cost of providing water service to customers and will provide additional revenue essential to continuing to provide water service.

**PROPOSED WATER RATE SCHEDULES**

**Exhibit II-9** summarizes proposed water rate schedules for rates to become effective beginning in June 2016. The proposed water rates for June 2016 reflect an overall 7 percent increase in revenue relative to the current water rates, as well as rate structure changes. Water rate schedules for July 2017, July 2018, and July 2019 represent annual rate increases of 5 percent each year, in accordance with revenue needs identified with the financial plan presented earlier. No rate structure changes are proposed in these later years, and all base charges and water usage rates are to change by the same percentage.

**Exhibit II-9**  
**City of Cloverdale**  
**Proposed Monthly Water Rate Schedules (1)**

	June 2016	July 2017	July 2018	July 2019
<b>Monthly Base Charges</b>				
Up to 1" Meter	\$ 22.25	\$ 22.92	\$ 23.61	\$ 24.32
1 1/2" Meter	\$ 42.07	\$ 43.33	\$ 44.63	\$ 45.97
2" Meter	\$ 65.85	\$ 67.83	\$ 69.86	\$ 71.96
3" Meter	\$ 121.35	\$ 124.99	\$ 128.74	\$ 132.60
4" Meter	\$ 200.63	\$ 206.65	\$ 212.85	\$ 219.24
<b>Water Usage Rates (\$/CCF)</b>				
All Water Usage	\$ 4.35	\$ 4.48	\$ 4.61	\$ 4.75

**Notes:**

(1) Water rates outside the City should continue to be 5 percent higher than inside the City.

## WATER SHORTAGE FINANCIAL ANALYSIS

This water rate study also included an analysis of the financial impacts associated with drought and reduced water sales. Coming on the heel of a very dry year in 2013, the continuation of dry conditions in 2014 resulted in the Governor requesting a 20 percent reduction in water use throughout California and the State Water Resources Control Board (SWRCB) adopting an emergency regulation requiring all urban water suppliers to enforce programs that reduce outdoor water usage. With more severe drought conditions in 2015, in April 2015 the Governor declared a statewide water emergency and ordered urban water agencies to reduce water use by 25 percent. In implementing the Governor's Executive Order, the SWRCB has required the City to reduce water use by 20 over 2013 levels. The City of Cloverdale, like other communities in the state, has responded by requiring customers to reduce water usage and implementing restrictions on water use.

The City's water utility can be affected in several ways by drought conditions. Changes in operating and maintenance costs and revenues can include:

- Reduced water sales and water sales revenue
- Reduced groundwater production and production costs
- Increased water conservation program costs.

While the reduction in water sales revenue will be partially offset by the reduction in water production costs, revenue will decline more than costs creating a financial deficit. Increased water conservation program costs, including education and assistance programs, add to the financial deficit created by water shortage.

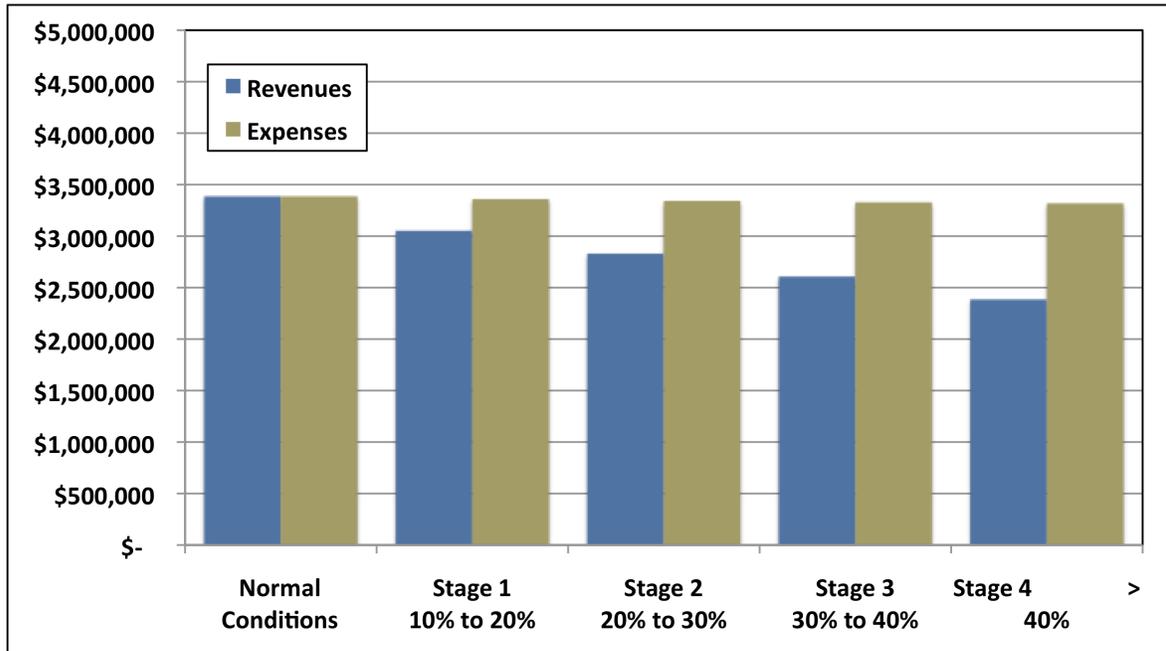
In response to water shortage, and the financial deficit created, the City has the ability to take several actions. The analysis presented herein focuses on three potential courses of action, including:

- Using available financial reserves, including designating a portion of reserves for drought/emergency purposes
- Supplementing water rate revenues through imposition of water shortage surcharges
- In the most severe conditions, reducing the annual contribution (transfers) of water rate revenue to the Capital Fund that supports the capital improvement program; this may or may not affect the timing of capital project expenditures.

The City could also reduce operating and maintenance costs, where possible, defer capital projects, or seek outside funding sources to help bridge a financial deficit.

Using the financial plan model, an analysis of the potential financial impacts of water shortages has been performed. The analysis includes estimating the magnitude of reduced revenue, reduced costs, and increased costs that may be associated with each stage of water shortage. **Exhibit II-10** graphically illustrates the relative magnitude of the financial deficit created by reduced water sales resulting from water shortage conditions.

**Exhibit II-10**  
**City of Cloverdale**  
**Estimated Financial Deficit Created by Water Shortage**



The water shortage financial analysis reflects conditions through various stages of water shortage. The stages, as defined below, allow the analysis to consider the financial impacts and response strategy over a range of potential shortage conditions. It is recommended that the City incorporate the defined stages of water shortage into its *Water Shortage Contingency Plan*, which will be an element of the *2015 Urban Water Management Plan* currently in development.

- Normal Condition - No water use reduction required
- Stage 1 - Minor Shortage - 10 to 20 percent water use reduction goal
- Stage 2 - Moderate Shortage - 20 to 30 percent water use reduction goal
- Stage 3 - Urgent Shortage - 30 to 40 percent water use reduction goal
- Stage 4 - Critical Shortage - Over 40 percent water use reduction goal

**Exhibit II-11** summarizes estimated FY 15-16 operating revenues and expenses under *normalized* water supply conditions and under various stages of water shortage. The shortage analysis starts with normal conditions whereby revenues and expenses are effectively in balance. Under water shortage conditions, a financial deficit will emerge and increase with increasing severity of drought conditions. **Exhibit II-12** graphically illustrates how the financial deficit created by reduced water sales could be bridged through a combination of actions. Because the water utility has limited financial reserves, in Stage 1, the City would rely on the Contingency Reserve and would also implement the proposed water shortage rate surcharges to provide supplemental water rate revenue. In more severe conditions, the City may also need to reduce transfers to the Capital Fund the support of the capital improvement program.

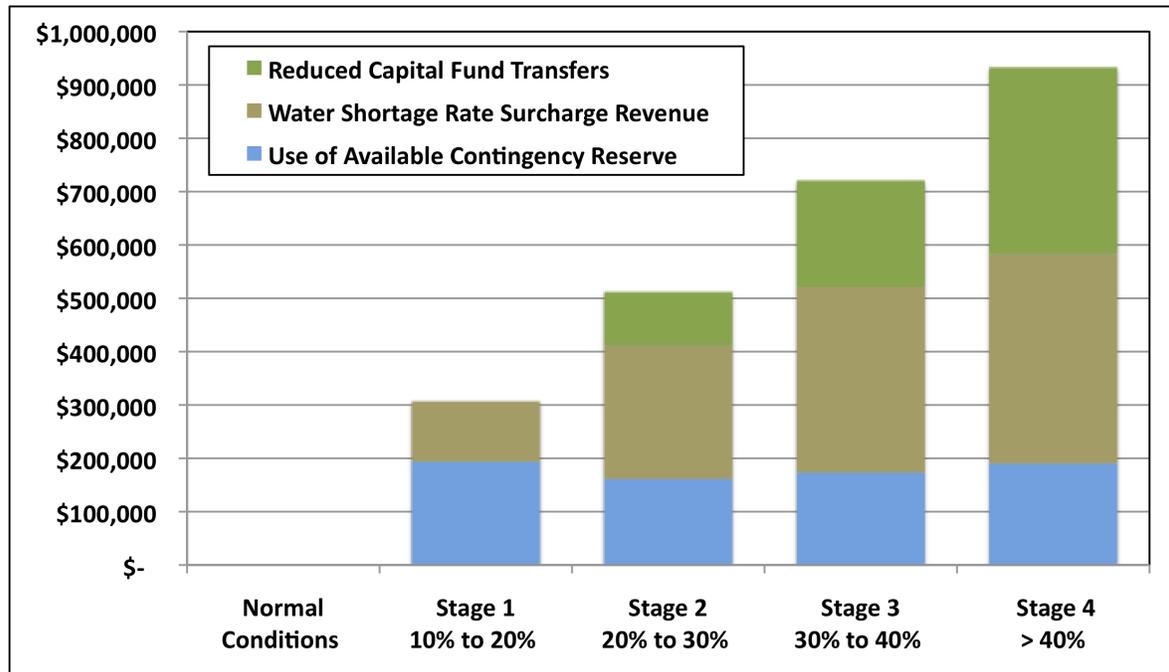
**Exhibit II-11  
City of Cloverdale  
Bridging the Financial Deficit Created by Water Shortages (FY 15-16)**

	<b>Normal Supply Conditions (1)</b>	<b>Stage 1 Minor Shortage (Voluntary)</b>	<b>Stage 2 Moderate Shortage (Mandatory)</b>	<b>Stage 3 Urgent Shortage (Mandatory)</b>	<b>Stage 4 Critical Shortage (Mandatory)</b>
Use Reduction Goal -->	None	10% to 20%	20% to 30%	30% to 40%	> 40%
Modeled Use Reduction -->	0%	15%	25%	35%	45%
<b>Est. Financial Deficit from Water Shortage</b>					
Reduced Water Sales Revenue		(334,000)	(556,000)	(779,000)	(1,001,000)
Reduced Water Production Costs		36,000	61,000	85,000	109,000
Increased Conservation Costs		(9,000)	(17,000)	(27,000)	(41,000)
<b>Est. Total Financial Deficit</b>	<b>-</b>	<b>(307,000)</b>	<b>(512,000)</b>	<b>(721,000)</b>	<b>(933,000)</b>
<b>Multi-Pronged Corrective Strategy</b>					
Use Portion of Conting. Reserve (2)		194,000	162,000	174,000	191,000
Reduce Transfers to Capital Fund		-	100,000	200,000	350,000
Impose Water Shortage Surcharge (3)		113,000	250,000	347,000	392,000
<b>Total Corrective Actions</b>	<b>-</b>	<b>307,000</b>	<b>512,000</b>	<b>721,000</b>	<b>933,000</b>
<b>Water Shortage Charge (3) --&gt;</b>	<b>None</b>	<b>6%</b>	<b>15%</b>	<b>24%</b>	<b>32%</b>

**Notes:**

- (1) Analysis based on FY 15-16 budget with adjustments to reflect normal water supply conditions.
- (2) The Contingency Reserve is currently funded at about \$700,000 (25% of expenditures).
- (3) Water shortage charges are an incremental increase in the water usage rates. Monthly base charges are not affected.

**Exhibit II-12  
City of Cloverdale  
Bridging the Deficit Gap Created by Water Shortages**



**Exhibit II-13** presents additional details of the analysis of estimated FY 15-16 annual revenue and expenses at each stage of water shortage, based on the limited use of the Contingency Reserve. The analysis assumes water shortage rate surcharges, as described later in this section, would also be used to help limit the financial strain created by reduced water sales during drought conditions.

The water shortage analysis suggests that the current target level for the Contingency Reserve of 25 percent of annual operating and maintenance costs may be insufficient for mitigating much of the financial risk associated with water shortage (even with supplemental revenue from the water shortage rate surcharge). The City should consider modifying its current reserve policy, perhaps increasing the contingency reserve to 50 percent of annual operating and maintenance costs. At present, even with proposed water rate increases, the Contingency Reserve is fully funded; however, very little surplus is anticipated during the five-year planning period. Because continuation of the current drought is a possibility, adopting the water shortage rate surcharges is an important step in protecting the water utility's financial condition against the uncertainty associated with drought conditions.

**Exhibit II-13**  
**City of Cloverdale**  
**Estimated Financial Deficit Created by Water Shortages (FY 15-16)**

	<b>Normal Supply Conditions (1)</b>	<b>Stage 1 Minor Shortage (Voluntary)</b>	<b>Stage 2 Moderate Shortage (Mandatory)</b>	<b>Stage 3 Urgent Shortage (Mandatory)</b>	<b>Stage 4 Critical Shortage (Mandatory)</b>
Use Reduction Goal -->	None	10% to 20%	20% to 30%	30% to 40%	> 40%
Modeled Use Reduction -->		15%	25%	35%	45%
<b>Revenues</b>					
Base Charge Revenues	946,000	946,000	946,000	946,000	946,000
Water Usage Charge Revenues (2)	2,225,000	1,891,000	1,669,000	1,446,000	1,224,000
Water Shortage Surcharge Rev. (3)		113,000	250,000	347,000	392,000
Other Revenue and Transfers In	215,000	215,000	215,000	215,000	215,000
<b>Total Revenue</b>	<b>3,386,000</b>	<b>3,165,000</b>	<b>3,080,000</b>	<b>2,954,000</b>	<b>2,777,000</b>
(% of Normal)		-7%	-9%	-13%	-18%
<b>Expenditures and Transfers</b>					
Treatment, Maint., & Operations	1,098,000	1,098,000	1,098,000	1,098,000	1,098,000
Water Conservation (4)	50,000	59,000	67,000	77,000	91,000
Water Production (5)	243,000	207,000	182,000	158,000	134,000
Metering and Revenue	318,000	318,000	318,000	318,000	318,000
Administrative Overhead	282,000	282,000	282,000	282,000	282,000
Debt Service	489,000	489,000	489,000	489,000	489,000
Transfer to Capital Replac. Fund	500,000	500,000	400,000	300,000	150,000
Addition to Reserves	406,000	406,000	406,000	406,000	406,000
<b>Total Expend. and Trans.</b>	<b>3,386,000</b>	<b>3,359,000</b>	<b>3,242,000</b>	<b>3,128,000</b>	<b>2,968,000</b>
(% of Normal)		-1%	-4%	-8%	-12%
<b>Surplus/Deficit in Operations</b>	<b>-</b>	<b>(194,000)</b>	<b>(162,000)</b>	<b>(174,000)</b>	<b>(191,000)</b>

**Notes:**

- (1) Analysis based on FY 15-16 budget with adjustments to reflect normal water supply conditions.
- (2) Water usage revenue would decline in proportion to water sales.
- (3) Water shortage charges are an incremental increase in the water usage rates. Monthly base charges are not affected.
- (4) Estimated water conservation program costs assumed to increase in inverse proportion to water use reductions.
- (5) Estimated water production costs include electricity for pumping and operating supplies.

## WATER SHORTAGE RATE SURCHARGES

To help encourage water conservation and to help bridge the financial deficit created by a water shortage, it is recommended that the City adopt water shortage surcharges that could be implemented when water shortage conditions are declared by the City Council. The water shortage rate surcharges would be incremental increases in the water usage rate. Even though the water shortage rate surcharges represent an increase in the water rates, total water rate revenue will still decline with reduced water sales in each stage of shortage. That is, the supplemental revenue generated through the water shortage rate surcharges would only partially bridge the deficit gap created by drought and reduced water sales.

In addition, because a multi-pronged approach to water shortages is suggested, the water shortage rate surcharges have been specifically design such customers that meet water use reduction goals will have lower water bills with the water shortage rate surcharges than they would with normal water usage and normal water rates. Customers that do not meet water use reduction goals may pay more for water service because of the water shortage rate surcharges.

**Exhibit II-14** presents the proposed June 2016 water rate schedule including the effect of water shortage rate surcharges in Stages 1, 2, 3, and 4. As an example, the water usage rate would increase from \$4.35 per CCF to \$4.61 per CCF during Stage 1 conditions (6 percent surcharge). Because the water shortage rate surcharge would only apply to the water usage rate (and not the fixed monthly base charges) the impact on the total water bill would be mitigated.

The water shortage rate surcharge is not intended to be a penalty for excessive use; rather it represents each customer's fair share of the cost of partially bridging the financial deficit created by reduced water sales during periods of water shortage. Customers would participate in bearing this cost in proportion to their water use.

Water shortage rate surcharges would provide relatively modest revenue increases for dealing with significant water supply shortages. As illustrated graphically in **Exhibit II-15**, the water shortage rate surcharge revenue only partially replaces lost revenue due to reduced water sales. As a result, even with the water shortage rate surcharges, the proposed water rates for water shortage conditions are less than the total cost of providing water service. The information in Exhibit II-15 reflects revenue estimates based on implementation of water shortage rate surcharges in FY 15-16.

If adopted, the water shortage rate surcharges would be implemented when the City Council declares a water shortage of specified severity (stage). The surcharges would be temporary and continue only as long as the shortage conditions exist. When the shortage is declared over, then the water shortage rate surcharges would be discontinued.

**Exhibit II-14  
City of Cloverdale**

**Proposed Temporary Water Shortage Rate Surcharges Applied to Water Rates for June 2016 (1)**

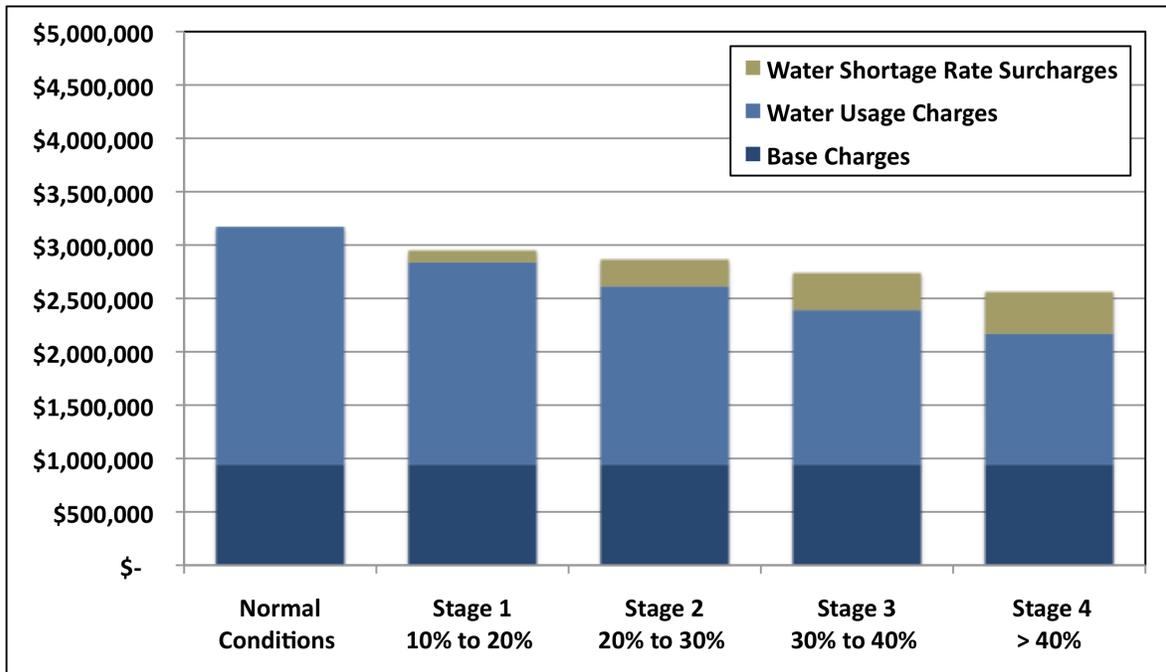
	<b>Normal Supply Conditions (1)</b>	<b>Stage 1 Minor Shortage (Voluntary)</b>	<b>Stage 2 Moderate Shortage (Mandatory)</b>	<b>Stage 3 Urgent Shortage (Mandatory)</b>	<b>Stage 4 Critical Shortage (Mandatory)</b>
Use Reduction Goal -->	None	10% to 20%	20% to 30%	30% to 40%	> 40%
<b>Wtr. Short. Surch. (2) --&gt;</b>	<b>None</b>	<b>6%</b>	<b>15%</b>	<b>24%</b>	<b>32%</b>
<b>Monthly Base Charges</b>					
Up to 1" Meter	\$ 22.25				
1 1/2" Meter	\$ 42.07				
2" Meter	\$ 65.85		No Changes to Base Charges		
3" Meter	\$ 121.35				
4" Meter	\$ 200.63				
<b>Water Usage Rates (\$/CCF)</b>					
All Water Usage (3)	\$ 4.35	\$ 4.61	\$ 5.00	\$ 5.39	\$ 5.74

**Notes:**

- (1) The water shortage rate surcharge percentages are shown applied to the proposed water usage rate for June 2016 for illustrative purposes. The percentages would be applied to any then-current water usage rates when implemented by declaration of a water shortage by the City Council.
- (2) The water shortage rate surcharge would be an incremental (percentage) increase in the water usage rate, but would not be applied to monthly base charges.
- (3) The water usage rates shown for Stages 1 through 4 incorporate the water shortage rate surcharge.

**Exhibit II-15  
City of Cloverdale**

**Estimated Water Rate Revenues Under Water Shortage Conditions**



*Bill Impacts of Water Shortage Rate Surcharges*

Water shortage rate surcharges have been specifically designed such that customers achieving required water use reduction goals will have lower water bills than they would with normal water rates and normal water usage. Customers that do not meet water use reduction goals may have higher water bills. Because the water shortage rate surcharges apply to all water usage, all customers will participate in bridging the financial gap created by water shortage. Of course, those customers that use the least amount of water or conserve the most will pay less through the water shortage rate surcharges.

**Exhibit II-16** illustrates how three different single family customers would be affected by the water shortage rate surcharges across various shortage conditions. Monthly water bills are shown for customers that, under normal conditions, use 11 CCF monthly (typical), 5 CCF (typical in winter), and 20 CCF (typical in summer) of water. Water bills are calculated for customers meeting requested water use reduction goals, and customers that do not conserve at all.

**Exhibit II-16**  
**City of Cloverdale**  
**Sample Single Family Residential Water Bills with Water Shortage Rate Surcharges**

<b>Water Shortage Stage</b>	<b>Water Use Reduction Goal</b>	<b>Monthly Water Use (CCF)</b>	<b>Base Charge</b>	<b>Water Usage Charge</b>	<b>Water Shortage Charge</b>	<b>Total Water Bill</b>	<b>% Change from Normal Bill</b>
<b>Average Single Family Customer Meeting Reduction Goals</b>							
Normal Supply Conditions	None	11	\$ 22.25	\$ 47.85	\$ -	\$ 70.10	
Stage 1 Minor Shortage	10% to 20%	9	\$ 22.25	\$ 39.15	\$ 2.35	\$ 63.75	<b>-9.1%</b>
Stage 2 Moderate Shortage	20% to 30%	8	\$ 22.25	\$ 34.80	\$ 5.22	\$ 62.27	<b>-11.2%</b>
Stage 3 Critical Shortage	30% to 40%	7	\$ 22.25	\$ 30.45	\$ 7.31	\$ 60.01	<b>-14.4%</b>
Health & Safety Per Capita Limit	> 40%	6	\$ 22.25	\$ 26.10	\$ 8.35	\$ 56.70	<b>-19.1%</b>
<b>Average Single Family Customer With No Water Use Reduction</b>							
Normal Supply Conditions	None	11	\$ 22.25	\$ 47.85	\$ -	\$ 70.10	
Stage 1 Minor Shortage	10% to 20%	11	\$ 22.25	\$ 47.85	\$ 2.87	\$ 72.97	<b>4.1%</b>
Stage 2 Moderate Shortage	20% to 30%	11	\$ 22.25	\$ 47.85	\$ 7.18	\$ 77.28	<b>10.2%</b>
Stage 3 Critical Shortage	30% to 40%	11	\$ 22.25	\$ 47.85	\$ 11.48	\$ 81.58	<b>16.4%</b>
Health & Safety Per Capita Limit	> 40%	11	\$ 22.25	\$ 47.85	\$ 15.31	\$ 85.41	<b>21.8%</b>
<b>Low Water-Using Single Family Customer Meeting Reduction Goals</b>							
Normal Supply Conditions	None	5	\$ 22.25	\$ 21.75	\$ -	\$ 44.00	
Stage 1 Minor Shortage	10% to 20%	4.0	\$ 22.25	\$ 17.40	\$ 1.04	\$ 40.69	<b>-7.5%</b>
Stage 2 Moderate Shortage	20% to 30%	3.5	\$ 22.25	\$ 15.23	\$ 2.28	\$ 39.76	<b>-9.6%</b>
Stage 3 Critical Shortage	30% to 40%	3.0	\$ 22.25	\$ 13.05	\$ 3.13	\$ 38.43	<b>-12.7%</b>
Health & Safety Per Capita Limit	> 40%	2.5	\$ 22.25	\$ 10.88	\$ 3.48	\$ 36.61	<b>-16.8%</b>
<b>Low Water-Using Single Family Customer With No Water Use Reduction</b>							
Normal Supply Conditions	None	5	\$ 22.25	\$ 21.75	\$ -	\$ 44.00	
Stage 1 Minor Shortage	10% to 20%	5	\$ 22.25	\$ 21.75	\$ 1.31	\$ 45.31	<b>3.0%</b>
Stage 2 Moderate Shortage	20% to 30%	5	\$ 22.25	\$ 21.75	\$ 3.26	\$ 47.26	<b>7.4%</b>
Stage 3 Critical Shortage	30% to 40%	5	\$ 22.25	\$ 21.75	\$ 5.22	\$ 49.22	<b>11.9%</b>
Health & Safety Per Capita Limit	> 40%	5	\$ 22.25	\$ 21.75	\$ 6.96	\$ 50.96	<b>15.8%</b>
<b>High Water-Using Single Family Customer Meeting Reduction Goals</b>							
Normal Supply Conditions	None	20	\$ 22.25	\$ 87.00	\$ -	\$ 109.25	
Stage 1 Minor Shortage	10% to 20%	17	\$ 22.25	\$ 73.95	\$ 4.44	\$ 100.64	<b>-7.9%</b>
Stage 2 Moderate Shortage	20% to 30%	15	\$ 22.25	\$ 65.25	\$ 9.79	\$ 97.29	<b>-10.9%</b>
Stage 3 Critical Shortage	30% to 40%	13	\$ 22.25	\$ 56.55	\$ 13.57	\$ 92.37	<b>-15.4%</b>
Health & Safety Per Capita Limit	> 40%	11	\$ 22.25	\$ 47.85	\$ 15.31	\$ 85.41	<b>-21.8%</b>
<b>High Water-Using Single Family Customer With No Water Use Reduction</b>							
Normal Supply Conditions	None	20	\$ 22.25	\$ 87.00	\$ -	\$ 109.25	
Stage 1 Minor Shortage	10% to 20%	20	\$ 22.25	\$ 87.00	\$ 5.22	\$ 114.47	<b>4.8%</b>
Stage 2 Moderate Shortage	20% to 30%	20	\$ 22.25	\$ 87.00	\$ 13.05	\$ 122.30	<b>11.9%</b>
Stage 3 Critical Shortage	30% to 40%	20	\$ 22.25	\$ 87.00	\$ 20.88	\$ 130.13	<b>19.1%</b>
Health & Safety Per Capita Limit	> 40%	20	\$ 22.25	\$ 87.00	\$ 27.84	\$ 137.09	<b>25.5%</b>

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### SECTION III. SEWER RATES

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This section of the report describes the financial plan and sewer rate recommendations for the City's sewer utility. The five-year financial plan is used to determine annual sewer rate revenue requirements. The annual rate revenue requirement is the amount of revenue needed from sewer rates to cover planned operating, maintenance, debt service, and capital program costs with consideration of other revenues and financial reserves. The organization of the section is similar to the preceding section on water.

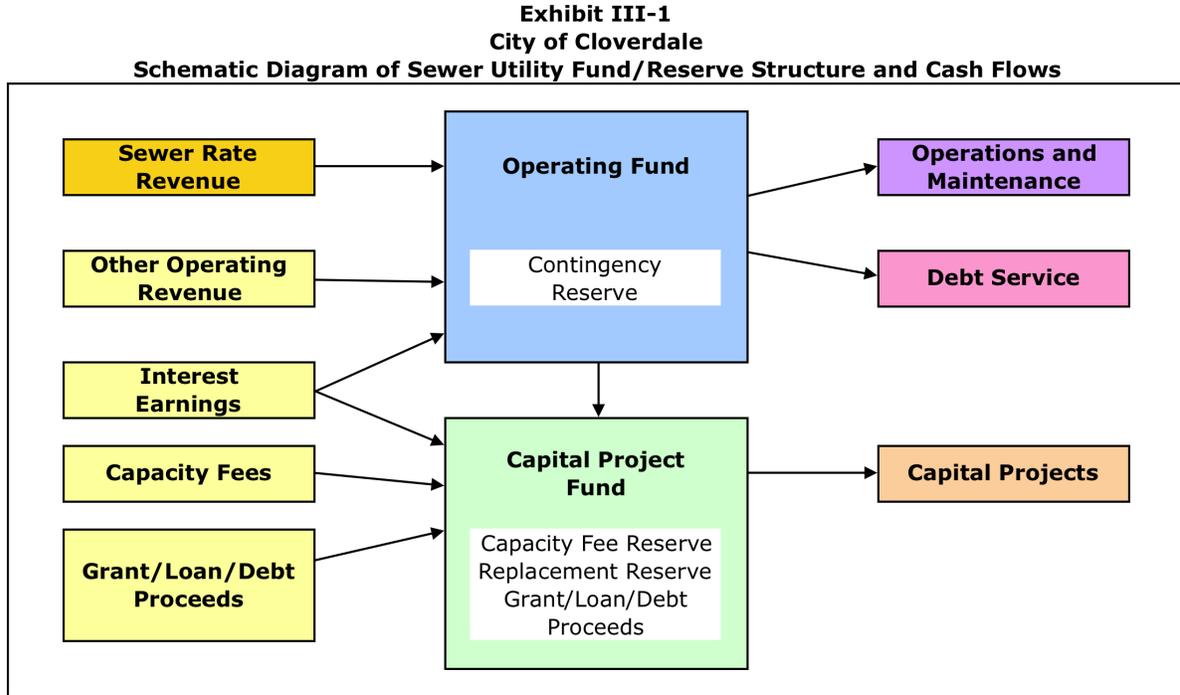
#### FUND STRUCTURE AND CASH FLOWS

The financial plan is an annual cash flow model. As a cash flow model, it differs from standard accounting income statements, and balance sheets. The financial plan models sources and uses of funds into, out of, and between the various funds and reserves of the sewer utility.

The financial plan model is based on a fund structure not currently used by the City. This structure was discussed with staff, with concurrence that it would provide a helpful framework for evaluating the financial needs of the utility and for clearly demonstrating how operating and maintenance costs, debt service obligations, and capital program needs are being addressed. The proposed structure includes a Capital Project Fund, separate from the Operating Fund, for the purpose of meeting capital program needs. In other respects, such as reserve and account structures, the financial plan model is consistent with current practices of the City. **Exhibit III-1** is a schematic diagram of the funds/reserves and major cash flows associated with the financial plan model.

An understanding of the fund/reserve structure is helpful in understanding the financial plan worksheets that model annual cash flows through the sewer utility from one year to the next. The fund/reserve structure is comprised of:

- **Operating Fund** – The Operating Fund is the primary fund within the sewer utility. Most of the sewer system's revenues, including sewer rate revenues, flow into the Operating Fund and all operating and maintenance costs, including debt service payments, are paid out of this fund. Funds are also transferred from the Operating Fund to the Capital Projects Fund to help pay for capital projects intended to rehabilitate and upgrade facilities.
  - *Contingency Reserve* – The City currently has a policy goal to maintain Contingency Reserves within the Operating Fund equal to 25 percent of annual operating and maintenance costs for the sewer system. The purpose of the Contingency Reserve is to provide working capital and funds for unplanned operating and maintenance expenditures. The balance in the Sewer Operating Fund at the beginning of FY 15-16 was above the target Contingency Reserve. In addition, the repayment of a loan by the water utility back to the sewer utility in FY 15-16 will also help improve the sewer utility's financial condition.



- *Available Fund Balance* - The balance in the Operating Fund in excess of the target amount for the Contingency Reserves is shown in the financial plan as Available Balance. After all other obligations are met the Available Balance is available to offset rate increases, and the financial plan model generally seeks to reduce any Available Balance over time. A negative value for the Available Balance indicates the shortfall in maintaining the minimum Contingency Reserve.
- *Capital Projects Fund* - The Capital Projects Fund is used to account for revenues and debt proceeds available for capital project expenditures. Capital projects funded from this fund are intended to rehabilitate, upgrade, and expand the sewer system to meet current and future needs of the sewer utility. The financial plan model generally seeks to maintain a positive balance in the Capital Projects Fund while also covering the costs of planned capital improvement projects. The Capital Projects Fund for the sewer utility is comprised of two separate reserves.
  - *Capacity Fee Reserve* - The reserve is used to account for capacity fee revenues and expenditures, in compliance with the Government Code.
  - *Replacement Reserves* - Replacement reserves are those monies transferred from the Operating Fund to the Capital Projects Fund, but not yet expended on capital projects.

Unlike the water utility, the sewer utility does not have unexpended debt proceeds.

## FINANCIAL PLAN ASSUMPTIONS

The financial plan was created to reflect the FY 15-16 budget and financial conditions as of the beginning of the fiscal year. The financial plan also reflects the City's debt service obligations and capital improvement program, as identified by City staff, during the five-year planning period.

The process used to develop the financial plan involved estimating future revenues and expenditures based on information provided by the City. Future operating and maintenance costs were developed for the planning period through FY 19-20. City staff also identified capital improvement needs at a planning level through this planning period. The financial plan is based on the best available information and assumptions are believed to be reasonable; however, no assurance can be provided as to the accuracy and completeness of the estimates.

Primary assumptions reflected in financial plan analyses include:

- *Interest Rates* – Interest earned on fund/reserve balances is estimated to be 0.25 percent per year through FY 17-18, and then 0.5 percent per year for the remainder of the planning period. Interest calculations are based on beginning-of-year balances. Interest accrues to each of the funds. The City also pays interest on outstanding long-term debt obligations. The interest payments on outstanding debt are those contained in existing contracts and repayment schedules.
- *Inflation Rates* – For financial planning purposes annual inflation for operating and maintenance costs, as well as capital improvement project costs, is assumed to be 3.0 percent annually.
- *Growth Projections* – The financial plan incorporates customer data as of June 2015. The plan assumes that the customer base be stable through FY 16-17 and will grow by 0.5 percent per year from FY 17-18 through FY 19-20.
- *Customer Demand* – Sewer rate analyses rely on average winter water usage by residential customers and total water use of non-residential customers. Usage data from FY 14-15 have been used in the sewer rate analyses.
- *Operation and Maintenance Costs* – The financial plan model is based on current operating and maintenance costs as reflected in the FY 15-16 operating budget, with future estimates developed based on the assumed rate of inflation.
- *Capital Improvement Program* – The sewer utility's capital improvement plan includes multiple projects totaling about \$3.6 million over a five-year period, as summarized in **Exhibit III-2**.

While sewer capacity fee reserves could be used to help pay for wastewater treatment plant (WWTP) capacity enhancements, most of the sewer system improvement costs will need to be funded from a portion of sewer rate revenues.

**Exhibit III-2**  
**City of Cloverdale**  
**Wastewater System Capital Improvement Program**

Project Name	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20
Collect. System Renewal/Replac.	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000
Biosolids Removal		\$ 500,000			
WWTP Capacity Enhancements		\$ 150,000	\$ 850,000		
WWTP Entrance Bridge Replac.				\$ 500,000	
Corp. Yard Materials Storage		\$ 100,000			
<b>Total</b>	<b>\$ 300,000</b>	<b>\$ 1,050,000</b>	<b>\$ 1,150,000</b>	<b>\$ 800,000</b>	<b>\$ 300,000</b>
Inflation Adjusted Total	\$ 300,000	\$ 1,082,000	\$ 1,220,000	\$ 874,000	\$ 338,000

**Notes:**

(1) Inflated at 3.0 percent per year. Inflated values carried to financial plan exhibits.

The sewer system financial plan includes annual transfers from the Operating Fund to the Capital Projects Fund to pay for planned capital improvement projects. Annual transfers begin with \$600,000 in FY 15-16 and increase to \$1,000,000 in FY 17-18, then declines to \$700,000 by FY 19-20. These transfers are intended to provide the necessary cash flow for the capital program.

- *Debt Obligations* – The one existing sewer system long-term debt obligation is summarized in **Exhibit III-3**. The sewer utility currently pays about \$84,000 annually on debt service related to a 1996 SWRDB SRF loan. This loan will be fully repaid in FY 17-18.

The sewer system financial plan does not include any new debt issues during the five-year planning period.

**Exhibit III-3**  
**City of Cloverdale**  
**Summary of Sewer System Debt Service Obligations**

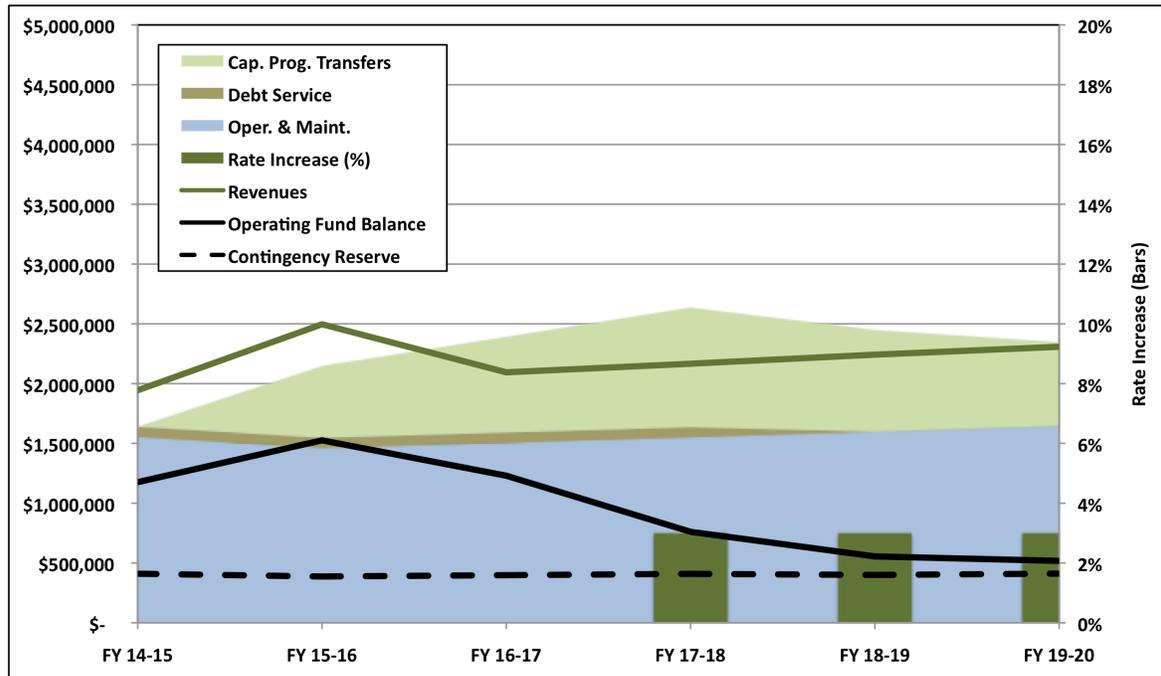
	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20
<b>SEWER SYSTEM</b>						
<b>1996 SWRCB SRF Loan</b>						
Principal Payment	75,521	77,636	79,809	81,973		
Interest Payment	8,818	6,704	4,530	2,295		
Total Payment	84,339	84,340	84,339	84,268	-	-
Remaining Balance	239,418	161,782	81,972			

**Exhibit III-4** provides the details of the financial plan model of the City's sewer utility. **Exhibit III-5** graphically summarizes the revenues, expenses, year-end fund balance, and estimated annual rate increases for the sewer system Operating Fund. The financial plan incorporates the recommended 3 percent per year increases in sewer rates, as described below.

**Exhibit III-4  
City of Cloverdale  
Sewer System Financial Plan**

	<b>Actual FY 14-15</b>	<b>Budgeted FY 15-16</b>	<b>FY 16-17</b>	<b>FY 17-18</b>	<b>FY 18-19</b>	<b>FY 19-20</b>
	Overall Rate Increase -->		<b>0%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>
<b>OPERATING FUND</b>						
<b>Beginning Balance</b>	871,041	1,175,957	1,525,968	1,229,829	760,761	554,961
<b>Revenues and Transfers In</b>						
Sewer Rates and Charges	1,734,470	1,856,000	1,865,000	1,931,000	1,999,000	2,059,000
Sewer Use Permits	550	-	-	-	-	-
Industrial Wastewater Permits	111,885	111,900	115,300	118,800	122,400	126,100
Penalties	13,379	14,966	15,400	15,900	16,400	16,900
Interest	2,454	1,500	3,800	3,100	3,800	2,800
Refunds and Reimbursements	161	-	-	-	-	-
Interfund Transfers In		420,000				
Interfund Transfers In-PERS	81,243	92,140	94,900	97,700	100,600	103,600
<b>Total Revenues &amp; Transfers In</b>	<b>1,944,142</b>	<b>2,496,506</b>	<b>2,094,400</b>	<b>2,166,500</b>	<b>2,242,200</b>	<b>2,308,400</b>
<b>Expenditures and Transfers Out</b>						
<i>Sewer Operations</i>						
Salaries and Benefits	732,122	766,472	789,500	813,200	837,600	862,700
Legal Services	115	200	200	200	200	200
Banking Fees	4,663	5,000	5,200	5,400	5,600	5,800
Other Professional Fees	17,963	56,000	57,700	59,400	61,200	63,000
Misc. Contractual Services	134,164	46,570	48,000	49,400	50,900	52,400
Other Gov't Services	24,404	20,890	21,500	22,100	22,800	23,500
Computer Maintenance	4,893	18,798	19,400	20,000	20,600	21,200
Vehicle Repairs	8,245	4,500	4,600	4,700	4,800	4,900
General Repair/Maintenance	21,718	12,000	12,400	12,800	13,200	13,600
Advertising	258	-	-	-	-	-
Postage & Shipping	11,244	10,000	10,300	10,600	10,900	11,200
Printing & Binding	573	-	-	-	-	-
Training, Conference, Tuition	598	600	600	600	600	600
Travel Expenses, Meals	35	100	100	100	100	100
Rentals	4,640	6,000	6,200	6,400	6,600	6,800
Operating Supplies	33,318	27,500	28,300	29,100	30,000	30,900
Small Tools & Equipment	40,000	30,000	30,900	31,800	32,800	33,800
Utilities-Gas & Electric	198,660	190,000	195,700	201,600	207,600	213,800
Utilities-Telephone, Pagers & Cell	175	250	300	300	300	300
Utilities-Water	64,717	40,000	41,200	42,400	43,700	45,000
Machinery & Equipment	3,701	15,000	15,500	16,000	16,500	17,000
Construction	602					
Sub-Total TMO	1,306,808	1,249,880	1,287,600	1,326,100	1,366,000	1,406,800
<i>Debt Service</i>						
1996 SWRCB SRF Loan	84,339	84,340	84,339	84,268	-	-
Sub-Total Debt Service	84,339	84,340	84,339	84,268	-	-
<i>Transfers Out</i>						
General Fund (Admin. Overhead)	248,079	212,275	218,600	225,200	232,000	239,000
Sewer Capital Project Fund	-	600,000	800,000	1,000,000	850,000	700,000
Sub-Total Transfers Out	248,079	812,275	1,018,600	1,225,200	1,082,000	939,000
<b>Total Expend. &amp; Transfers Out</b>	<b>1,639,226</b>	<b>2,146,495</b>	<b>2,390,539</b>	<b>2,635,568</b>	<b>2,448,000</b>	<b>2,345,800</b>
<b>Ending Balance</b>	<b>1,175,957</b>	<b>1,525,968</b>	<b>1,229,829</b>	<b>760,761</b>	<b>554,961</b>	<b>517,561</b>
Conting. Reserve (25% of expend.)	410,000	387,000	398,000	409,000	400,000	411,000
Available Balance	765,957	1,138,968	831,829	351,761	154,961	106,561
<b>SEWER CAPITAL PROJECT FUND</b>						
<b>Beginning Balance</b>		160,897	461,297	180,497	113,197	256,597
<b>Revenue and Transfers In</b>						
Transfer from Operations	-	600,000	800,000	1,000,000	850,000	700,000
Sewer Capacity Fees			-	151,800	166,800	171,800
Interest Earnings		400	1,200	900	600	-
<b>Total Revenues &amp; Transfers In</b>	<b>-</b>	<b>600,400</b>	<b>801,200</b>	<b>1,152,700</b>	<b>1,017,400</b>	<b>871,800</b>
<b>Expenditures</b>						
Capital Projects		300,000	1,082,000	1,220,000	874,000	338,000
<b>Total Capital Expenditures</b>	<b>-</b>	<b>300,000</b>	<b>1,082,000</b>	<b>1,220,000</b>	<b>874,000</b>	<b>338,000</b>
<b>Ending Balance</b>	<b>160,897</b>	<b>461,297</b>	<b>180,497</b>	<b>113,197</b>	<b>256,597</b>	<b>790,397</b>
Capacity Fee Reserve	151,000	151,000	1,000	-	166,800	338,600
Replacement Reserve	9,897	310,297	179,497	113,197	89,797	451,797

**Exhibit III-5  
City of Cloverdale  
Summary of Sewer System Operating Fund**



**FINANCIAL PLAN FINDINGS AND CONCLUSIONS**

The preceding portion of this section described the basic framework and assumptions underlying the financial analyses. Specific findings and conclusions pertaining to the sewer utility are presented below, beginning with a description of the current situation.

At present, the City’s sewer utility has:

- Sufficient cash in the operating fund to maintain a contingency reserve required by City policy
- Current annual operating and maintenance costs, including debt service obligations totaling about \$1.55 million
- Current annual sewer utility revenues of about \$1.85 million
- Planned sewer system capital improvements in FY 15-16 totaling about \$300,000, and averaging about \$750,000 annually over the next five years
- While not needed immediately without modest annual sewer rate increases, the Sewer Operating Fund may not be able to meet service and financial obligations and adequately fund the planned capital improvement program while maintaining prudent financial reserves.

Modest increases in sewer rates are needed in future years to meet the sewer utility’s financial needs. It is recommended that the City increase sewer rates as indicated below:

June 2016	0%
July 2017	3%
July 2018	3%
July 2019	3%

While an overall rate increase is not immediately needed, change to the rates are recommended to reflect the cost of service analysis, as described later in this section.

The financial plan model reflects assumptions and estimates that are believed reasonable at the present time. However, conditions change. It is recommended that the City review the financial condition of the sewer utility annually as part of the budget process, and perform a more comprehensive financial plan and sewer rate update study every 3 to 5 years, unless otherwise needed sooner.

### CURRENT SEWER RATES

The City of Cloverdale provides sewer service to nearly 3,675 customers, including about 2,750 single family residences and about 700 multi-family dwelling units. There are about 215 non-residential sewer accounts.

The City's current sewer rates were last adjusted in July 2015 and are summarized in **Exhibit III-6**. Current sewer rates include flat monthly charges for single family homes and multi-family dwelling units, and strength-based water usage rates for non-residential customers. In addition, the school district pays for sewer service based on average daily attendance (ADA).

### CUSTOMER ACCOUNT DATA AND SEWER FLOW AND LOADING ESTIMATES

Sewer rate calculations are based on a number of factors related to the City's customers. Factors include the number of customers, customer classes, water usage and sewer flows, and strength characteristics of sewage as determined by BOD and TSS. **Exhibit III-7** summarizes customer account and water usage data obtained from the City's utility billing system, as well as estimates of resulting sewer flow and loading characteristics.

Residential sewer flows are estimated based on average water usage during winter months. A review of residential water usage data indicated that about 73 percent of annual water usage returns to the sewer system (based on average winter water usage). For multi-family customers, about 82 percent of annual water usage is estimated to return to the sewer system. For multi-family customers irrigation water usage tends to be either minimal or separately metered. Non-residential sewer flows are based on actual water usage, as most non-residential irrigation is separately metered. However, sewer rate calculations assume a 90 percent rate of return to the sewer system to reflect minor irrigation usage.

The sewer utility serves about 2,750 single family homes, about 700 multi-family dwellings, and about 215 non-residential customers. On average, single family sewer flows (based on winter water usage) are about 5.5 CCF per month. For multi-family dwellings, the average sewer flow is about 3.4 CCF per month (based on winter water usage). Non-residential sewer flows vary based on customer characteristics.

**Exhibit III-6  
City of Cloverdale  
Current Monthly Sewer Rates**

<b>Residential Flat Rates</b>			
Single Family	\$	38.64	per DU
Multi-Family	\$	29.05	per DU
<b>Non-Residential Base Charges</b>			
Up to 1" Meter	\$	8.63	
1 1/2" Meter	\$	15.54	
2" Meter	\$	23.84	
3" Meter	\$	43.20	
4" Meter	\$	70.84	
6" Meter	\$	139.99	
<b>Non-Residential Usage Charges (\$/CCF)</b>			
Low Strength	\$	4.34	per CCF
Medium Strength	\$	5.39	per CCF
High Strength	\$	7.79	per CCF
<b>Public Schools</b>			
Per 100 ADA	\$	105.51	per 100 ADA

**Notes:**

(1) Effective in July 2015.

Sewer rate analyses consider the strength (loading) characteristics of sewage entering treatment facilities. Strength factors for biochemical oxygen demand (BOD) and total suspended solids (TSS) are considered, as these factors play a key role in treatment plant operations. Residential customers are assigned standard residential strength factors of 240 mg/l for BOD and 200 mg/l for TSS. Low, medium, and high non-residential strength categories have been defined with strength factors as indicated below:

- Low strength:           240 mg/l for BOD    200 mg/l for TSS
- Medium strength:    500 mg/l for BOD    300 mg/l for TSS
- High strength:       1,000 mg/l for BOD   600 mg/l for TSS
- Schools:               150 mg/l for BOD    100 mg/l for TSS

Applying residential and non-residential strength factors to estimates of annual sewer flows results in an estimated annual sewage volume and loading that is commensurate to actual treatment plant inflows. Strength factors assigned to each category of customer are based on guidelines published by the California State Water Resources Control Board (SWRCB) and other sources.

**Exhibit III-7  
City of Cloverdale  
Sewer Customer Account Data and Estimated Sewer Flows and Loadings**

Customer Class	No. of DUs/ Accts. (1)	No. of ESFDs	Water Usage (1)	Rate of Return	Estimated Annual Sewer Flow		BOD Strength (4)	Annual BOD Loading	TSS Strength (4)	Annual TSS Loading
					CCF	MG				
<b>Residential</b>										
Single Family	2,754	2,754	247,795	73%	180,863	135	240	270,788	200	225,656
Multi-Family (3)	696	436	34,759	82%	28,636	21	240	42,874	200	35,728
<b>Non-Residential</b>										
Low Strength	133	194	27,310	90%	24,579	18	240	36,800	200	30,666
Medium Strength	55	81	9,614	90%	8,653	6	500	26,989	300	16,193
High Strength	27	39	19,323	90%	17,391	13	1,000	108,489	600	65,093
Schools	9	24	7,196	71%	5,108	4	150	4,780	100	3,187
<b>Totals</b>	<b>3,674</b>	<b>3,528</b>	<b>345,997</b>		<b>265,229</b>	<b>198</b>	<b>297</b>	<b>490,718</b>	<b>228</b>	<b>376,524</b>

**Notes:**

- (1) Based on utility billing system data for FY 14-15. DU = dwelling units.
- (2) Based on annualized average winter water usage for residential accounts and annual water usage for non-residential accounts.
- (3) Utility billing indicate there are 696 multi-family dwelling units served by the wastewater utility through 109 separate service connections.
- (4) Based on previous sewer rate analyses, SWRCB guidelines, and adjustments to better match actual treatment plant flows and loadings.

## SEWER RATE CALCULATIONS

There are three steps to determining sewer rates. These are:

- Determine annual sewer rate revenue requirements
- Analyze the cost of providing service to each customer class
- Design sewer rates to recover costs from each customer class.

### *Sewer Rate Revenue Requirements*

The 5-year financial plan was used to identify the sewer rate revenue requirements for each fiscal year of the five-year planning period. Sewer rate calculations presented herein are based on the revenue to be generated from rates proposed for June 2016 and reflect an overall rate increase of 3 percent relative to the current sewer rates. The revenue requirement for sewer rate calculation is \$1,865,000. This amount differs from the sewer rate revenue shown in Exhibit III-4, because that financial plan exhibit reflects the rate revenue in FY 15-16, which would be from a combination of the current sewer rates and the proposed sewer rates.

### *Cost of Service Analysis*

Once the annual sewer rate revenue requirement has been determined, the next step in the rate setting process is to evaluate the cost of providing service. Sewer rate calculations contained herein are intended to generate the level of revenue commensurate with the revenue requirement from the City's sewer service customers. The manner in which each customer is responsible for the sewer utility's costs is the determining factor in the cost of service analysis.

To develop equitable sewer rates, the revenue requirement is allocated to various customer classifications according to the services provided and the demands placed on the sewer system.

**Exhibit III-8** summarizes how the sewer rate revenue requirement is allocated to fixed charges as well as to flow, BOD, and TSS components, which comprise the usage charges. Once total costs are allocated, unit costs were determined by dividing the total cost for each component by the number of units identified in Exhibit III-7. These unit costs become the basis for then assigning costs to customer classes.

The cost of service analysis for sewer service is more complicated than water rate analysis in that treatment costs are separated from collection system costs. Collection system costs are allocated entirely on the basis of flow, whereas treatment costs are allocated on the basis of flow, BOD, and TSS.

**Exhibit III-8  
City of Cloverdale  
Determination of Unit Costs**

Cost Category	Category Allocation Percentages	Parameter Allocation Percentages (5)	Annual Cost Allocated to Each Parameter	Total Quantities (6)	Unit Cost for Each Parameter
<b>Fixed Charge Costs (1)</b>					
	25%				
Customer Accounts		20%	\$ 93,000	3,674	\$ 25.31
Equiv. Single Family Dwellings (ESFDs)		80%	\$ 373,000	3,528	\$ 105.73
<b>Usage Charge Costs for Collection (2)</b>					
	35%				
Flow (MG)		100%	\$ 653,000	198	\$ 3,291.47
<b>Usage Charge Costs for Treatment (3)</b>					
	40%				
Flow (MG)		34%	\$ 254,000	198	\$ 1,280.30
BOD (lbs)		33%	\$ 246,000	490,718	\$ 0.501
TSS (lbs)		33%	\$ 246,000	376,524	\$ 0.653
<b>Total FY 16-17 Wastewater Rate Rev. Rqmt. (4)</b>			<b>\$ 1,865,000</b>		

**Notes:**

- (1) Includes estimated administrative costs, debt service costs, a portion of maintenance costs, and transfer to the capital fund.
- (2) Includes estimated collection system and a portion of maintenance costs.
- (3) Includes estimated wastewater treatment costs.
- (4) Revenue requirement for FY 16-17 based on financial plan model presented in Section III.
- (5) Parameter allocations based on previous rate analyses, information provided by City, and rate setting practices.
- (6) From Exhibit III-7.

The City's budget structure does not lend itself to the segregation of costs into collection and treatment components, or to the allocation of treatment costs to flow, BOD and TSS parameters. We have relied on the information that is available for allocating costs to the various categories, as well as relied upon professional judgment and standard estimating practices used in rate setting to allocate costs across flow, BOD, and TSS parameters. The sewer revenue requirement has been allocated 25 percent to fixed service charges, 35 percent to the collection system, and 40 percent to treatment. Sewer treatment costs have been allocated 34 percent to flow, 33 percent to BOD, and 33 percent to TSS. We believe these allocations are reasonable, and are within the ranges found in other sewer rate analyses.

Unit costs are applied to the annual sewer flows, as well as BOD and TSS loadings associated with each customer class to arrive at the allocation of total costs to each customer class. **Exhibit III-9** presents the allocation of costs to each user class.

**Exhibit III-9  
City of Cloverdale  
Allocation of Sewer Costs to Users (1)**

No. of DUs/ Accts.	Customer Class	Fixed Charge Costs		Usage Charge Costs						Allocation of Total Costs		
		Customer Unit Cost = \$ 25.31	Capacity Unit Cost = \$ 105.73	Collection	Flow	Flow Unit Cost = \$ 1,280.30	BOD Unit Cost = \$ 0.501	SS Unit Cost = \$ 0.653	Allocation of Total Costs			
	<b>Residential</b>											
2,754	Single Family	\$ 69,712	\$ 291,182	\$ 445,288	\$ 173,206	\$ 135,747	\$ 147,431	\$ 1,262,566				
696	Multi-Family	\$ 17,618	\$ 46,103	\$ 70,502	\$ 27,424	\$ 21,493	\$ 23,343	\$ 206,482				
	<b>Non-Residential</b>											
133	Low Strength	\$ 3,367	\$ 20,512	\$ 60,514	\$ 23,538	\$ 18,448	\$ 20,036	\$ 146,414				
55	Medium Strength	\$ 1,392	\$ 8,564	\$ 21,303	\$ 8,286	\$ 13,530	\$ 10,580	\$ 63,655				
27	High Strength	\$ 683	\$ 4,102	\$ 42,816	\$ 16,654	\$ 54,386	\$ 42,528	\$ 161,171				
9	Schools	\$ 228	\$ 2,538	\$ 12,576	\$ 4,892	\$ 2,396	\$ 2,082	\$ 24,711				
<b>3,674</b>	<b>Totals</b>	<b>\$ 93,000</b>	<b>\$ 373,000</b>	<b>\$ 653,000</b>	<b>\$ 254,000</b>	<b>\$ 246,000</b>	<b>\$ 246,000</b>	<b>\$ 1,865,000</b>				

**Notes:**

(1) Unit costs from Exhibit III-8 are multiplied by the sewer flow, the BOD loading, or the SS loading for each customer class from Exhibit III-7.

**Exhibit III-10** presents the final sewer user rates and charges recommended for each customer class. Rates for residential customers include flat monthly charges for each dwelling unit. Non-residential (low, medium, and high) customers are subject to a monthly base charge based on meter size and sewer usage rates applied to actual monthly water usage. Usage charges vary for each strength category. The usage charges have also been adjusted for an estimated 90 percent rate of return to the sewer system. That is, it is estimated that 10 percent of non-residential water use (exclusive of dedicated irrigation meters) does not return to the sewer system. Sewer rates for schools include a monthly flat rate applied to the average daily attendance (ADA) for each school.

### *Sewer Rate Design*

The proposed sewer rates maintain the current overall sewer rate structure. This structure was modified in 2012 in the following ways. First, single family homes and multi-family dwellings continue to be charged a flat monthly charge for sewer service. Based on demand and cost of service analyses, it is recommended that separate monthly charges continue to apply to single family homes and to multi-family dwelling units. With the proposed sewer rates the difference between these charges reflect the different demand characteristics of each residential type. Second, fixed monthly service (base) charges for non-residential customers continue to be established based on the size of the water meter (similar to water rates). This allows the charge to each customer to reflect the potential demand that can be placed on the sewer system. Third, strength-based usage rates for non-residential customers should be continued with three strength categories - low, medium, and high.

The proposed sewer rates and rate structure reflect the cost of providing service across customer classes and between customers within a class.

### **PROPOSED SEWER RATE SCHEDULES**

**Exhibit III-11** summarizes the proposed sewer rate schedule for June 2016, as well as rate adjustments for July 2017, July 2018, and July 2019. The proposed sewer rates for June 2016 are revenue neutral, overall, relative to current sewer rates. This is commensurate with revenue needs identified in the financial plan. Proposed rates for July 2017, July 2018, and July 2019 also reflect annual increases of 3 percent. These rate increases occur without additional rate structure changes. In other words, in July 2017, July 2018, and July 2019 all sewer customers will experience equal percentage increases in sewer bills. Without rate restructuring all bills will change by the same percentage.

**Exhibit III-10  
City of Cloverdale  
Sewer Rate Determination for FY 16-17**

No. of DUs/ Accts.	Customer Class	Est. Ann. Sewer Flow CCF	BOD Strength mg/l	TSS Strength mg/l	Monthly		Usage Rate (1) \$/CCF	Fixed Charges	Usage Charges	Total Annual Revenue	Flat Rates (\$/mo.)
					Fixed Charge \$/DU	Usage Rate (1) \$/CCF					
	<b>Residential</b>										
2,754	Single Family	180,863	240	200	\$ 10.92	\$ 4.99	\$ 360,894	\$ 901,673	\$ 1,262,566	\$ 38.20 /DU	
696	Multi-Family	28,636	240	200	\$ 7.63	\$ 4.99	\$ 63,721	\$ 142,762	\$ 206,482	\$ 24.72 /DU	
	<b>Non-Residential</b>										
133	Low Strength	24,579	240	200	<b>Varies by</b>	<b>\$ 4.49</b>	\$ 23,878	\$ 122,536	\$ 146,414		
55	Medium Strength	8,653	500	300	<b>Meter Size</b>	<b>\$ 5.59</b>	\$ 9,956	\$ 53,699	\$ 63,655		
27	High Strength	17,391	1,000	600	<b>(2)</b>	<b>\$ 8.09</b>	\$ 4,786	\$ 156,385	\$ 161,171		
9	Schools	5,108	150	100		\$ 3.05	\$ 2,765	\$ 21,946	\$ 24,711	\$ 148.15 /100 ADA	
<b>3,674</b>	<b>Totals</b>	<b>265,229</b>					<b>\$ 466,000</b>	<b>\$ 1,399,000</b>	<b>\$ 1,865,000</b>		

**Notes:**

- (1) Sewer usage rates apply to average winter water use for residential customers and actual monthly water use for non-residential customers.
- (2) Monthly service charges for non-residential customers vary based on the size of the water meter (see below).

**Exhibit III-11**  
**City of Cloverdale**  
**Proposed Monthly Sewer Rate Schedules**

	June 2016	July 2017	July 2018	July 2019
<b>Residential Flat Rates</b>				
Single Family Residential (per DU)	\$ 38.20	\$ 39.35	\$ 40.53	\$ 41.75
Multi-Family Residential (per DU)	\$ 24.72	\$ 25.46	\$ 26.22	\$ 27.01
<b>Non-Residential Base Charges</b>				
Up to 1" Meter	\$ 10.92	\$ 11.25	\$ 11.59	\$ 11.94
1 1/2" Meter	\$ 19.73	\$ 20.32	\$ 20.93	\$ 21.56
2" Meter	\$ 30.30	\$ 31.21	\$ 32.15	\$ 33.11
3" Meter	\$ 54.97	\$ 56.62	\$ 58.32	\$ 60.07
4" Meter	\$ 90.22	\$ 92.93	\$ 95.72	\$ 98.59
<b>Non-Residential Usage Charges (\$/CCF)</b>				
Low Strength	\$ 4.49	\$ 4.62	\$ 4.76	\$ 4.90
Medium Strength	\$ 5.59	\$ 5.76	\$ 5.93	\$ 6.11
High Strength	\$ 8.09	\$ 8.33	\$ 8.58	\$ 8.84
<b>Public Schools</b>				
Per 100 ADA	\$ 148.15	\$ 152.59	\$ 157.17	\$ 161.89