FINAL DRAFT

COST OF SERVICE STUDY

San Diego Public Utilities Department Water and Wastewater Funds

B&V PROJECT NO. 176664

PREPARED FOR

City of San Diego, CA

26 JULY 2013



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Notice

This Draft Final Report is a working product and undergoing City review. While we have used generally accepted rate-setting methodologies, City policies and considerations may change the results in this report. Further, as a Cost-of-Service study, the City is evaluating how current conditions affect the cost of providing service to its different customer classes and potentially recalibrating its rates to obtain appropriate cost recovery. This study is not intended to be a comparison of the current Rate Case to former Rate Cases.

Introduction

This report was prepared for the City of San Diego Public Utilities Department (PUD) to document the development of multi-year financial plans, cost of service analyses, and the design of rate structures for the PUD's Water and Wastewater Funds. The specific goals of the study were to:

- Review and evaluate existing policies and procedures affecting utility rates;
- Evaluate the adequacy of projected revenues under existing rates to meet projected revenue requirements;
- Develop a sound financial plan for the Water and Wastewater Funds covering a two-year study period for both ongoing operations and planned capital improvements;
- Allocate projected Fiscal Year 2013-2014 (FY 14) revenue requirements to the various customer classes in accordance with the respective service requirements; and
- Develop a suitable rate schedule that produces revenues adequate to meet financial needs of each utility system while recognizing customer costs of service and local and state policy considerations such as California Constitution Articles XIII C and D (Proposition 218), Proposition 26, and Senate Bill x7-7 (SBx7-7).

This Cost of Service (COS) study reviews the cost of providing water and wastewater service to the City's customers. To that end, the study examines the revenues generated by each Fund and makes recommendations for revenue adjustments, as needed. This study is a recalibration of the City's rates to reflect current conditions and not a comparison of formerrate cases to the present one.

BACKGROUND

The City of San Diego (City) is located in San Diego County and stretches to the United States and Mexico international border. The City is the largest city in San Diego County with a population of roughly 1.3 million (2010 US Census). The City owns and operates two self-supporting enterprises that are subject to this cost of service (COS) analysis: Water and Wastewater.

Both utility systems provide service to residential, commercial and industrial customers as well as several wholesale customers such as California-American Water Company (water service) and the U.S. Navy (wastewater service). The City's wastewater system owns and operates wastewater treatment plants that serve the City as well as agencies outside the City boundaries (Participating Agencies) via the Metro system. The City, through PUD, operates both utility systems as self-supporting enterprises, with revenues and expenditures accounted for separately from its other enterprise and General Fund activities.

The Water Enterprise (Water) serves 1.3 million residential, commercial, industrial, and wholesale customers by providing potable water. To serve its customers, Water obtains water from two primary sources: local water sources and purchased water supplies from the San Diego County Water Authority (CWA). CWA purchases include treated water delivered to the City's water distribution system and raw water transported to the City's water treatment plants.

The Wastewater Enterprise (Wastewater) serves 2.5 million customers by providing collection, treatment, and disposal wastewater services. Wastewater processes nearly 180 million gallons of sewage daily via a vast network of facilities, which include an extensive collection system, regional wastewater treatment, cogeneration, and a biosolids production center. The Wastewater system is comprised of two components: The Metropolitan Sewerage Sub-System (Metro), which treats wastewater from city customers and from 12 other cities/districts (the Participating Agencies); and the Municipal Wastewater Collection Sub-System (Muni), which collects and conveys wastewater from customers within the City. The Point Loma Wastewater Treatment Facility serves as a regional treatment facility handling sanitary waste from City customers as well as Metro customers. Additionally, Wastewater operates and maintains two water reclamation plants: North City and South Bay.

Both systems operate in an area subject to strict regulatory oversight by Federal and State agencies such as the US Environmental Protection Agency, California Department of Public Health and the Air Pollution Control District. Legally, Water and Wastewater must comply with a multitude of laws, including, but not limited to the Safe Water Drinking Act, Clean Water Act, and the State Ocean Plan. Complying with these regulations and resulting mandates contributes to a large share of the cost burden of both systems.

Changes since the Last Rate Case

The City's last utility rate case occurred in 2007. Since that time, a number of significant external and internal changes have occurred which have subsequently affected PUD's finances and operations. Fundamental to the development of the 2007 Rate Case were four assumptions: No changes to economic conditions; moderate growth in water sales; timely issuance of long-term debt for capital projects; and purchased water cost increases in-line with historical averages. Table 1 summarizes the major changes to the assumptions underlying the 2007 Rate Case.

Assumption	Current Reality
Housing market boom will continue to fuel economic	Housing bubble burst in 2008. The housing market is slowly recovering.
Growth will fuel increased water sales. Additionally, residential usage per account will be steady at current levels.	Drought hits the nation's southwest in 2009. As a result, water conservation messaging becomes the norm and agencies develop drought restrictions. Per capita consumption drops to lowest levels in a decade.
Favorable debt market conditions for utilities.	The City experienced delays in entering the debt market. Moreover, the financial market crash of late 2007 resulted in a tightening of lending activities and increased scrutiny on credit-worthiness.
CWA purchased water costs will increase at the same rate as seen over the past 5 years.	Since 2008, the effective rate that the City pays for purchased water from CWA (cost/acre-foot purchased) has doubled. Infrastructure investments by both CWA and Metropolitan Water District of Southern California, restricted allocations from the Colorado River, and the Bay-Delta all continue to drive costs up, while declining sales reflecting conservation efforts are driving down revenues.

Table 1 Major Changes to Underlying 2007 Rate Case Assumptions

Current Rate Case Focus

Over the next few years, the City will be moving forward with an Indirect Potable Reuse (IPR) project; negotiating a new permit for the Point Loma Wastewater Treatment Plant; and the cost for desalinated water from Carlsbad that will become part of the CWA supply portfolio. As of the time of this report, the City is still evaluating the costs associated with these major projects. Consequently, the study period examined in the rate case presented herein (2013 Rate Case) is limited to the next two fiscal years (FY 14 and FY 15) and does not include the impact of desalination water costs, IPR, or the outcome of the Point Loma waiver.

One of the major drivers for the 2013 Rate Case is the increase in purchase water costs realized by the City over the past two years and over the study period. The City's local water supply only provides about five to ten percent of customer needs and the City purchases the vast majority of needed water from CWA. As noted previously, infrastructure investments, ongoing drought conditions and regulatory-imposed restrictions are driving purchased water costs. Figure 1 illustrates the City's historical effective rate paid for purchased water. The effective rate is the total amount paid to CWA divided by the total volume of water purchased in acre-feet (AF).



Historically, the City has passed increased rates from CWA through to its customers. Over the past two years (Calendar Years 2012 and 2013), PUD has used one-time revenue sources, identified operational efficiencies, and additional local supplies to absorb the CWA pass-through increases, which is estimated to be approximately \$35 million. These increases, however are not one-time, but continue on yearly. Continuing to absorb these increases creates a structural deficit that is not sustainable.



The 2013 Rate Case examines what actions the PUD should undertake to maintain the financial viability of the Water and Wastewater enterprises in light of the results of the 2007 Rate Case, increasing purchased water costs, minimal economic growth, regulatory requirements, and needed future large infrastructure investments.

PURPOSE

The purpose of this report is to present the findings obtained from Black & Veatch Corporation's (Black & Veatch's) study of Water and Wastewater rate structures and alternatives, financing, and capital needs. The study develops a financial plan that projects operating revenue, expenses and capital financing costs for the City's Water and Wastewater Enterprise Funds over a two-year planning period ending June 30, 2015. As part of the plan, future revenues under existing rates, operation and maintenance expense, principal and interest expense on debt, and capital improvement requirements are considered. Black & Veatch made annual projections of customers, water use, revenues, and expenditures based on historical data and estimates for the next two years.

SCOPE OF WORK

The City retained Black & Veatch in 2012 to update its cost of service and rate study for its Water and Wastewater enterprises. Presented herein are the results of a study of the Water and Wastewater Fund's projected revenues, revenue requirements, cost of service, and rates for service.

For purposes of this report, the study period is the two fiscal years beginning July 1, 2013 and ending June 30, 2015. Unless otherwise noted, references in this report to a specific year are for the City's year ending June 30. To avoid confusion between calendar and fiscal years, the term FY refers to the year beginning July 1 and ending June 30. Black & Veatch projected revenues and revenue requirements for the study period based on a review of historical factors and Water and Wastewater's operating and capital budgets and financial policies. The study of revenue requirements recognizes projected operation and maintenance (O&M) expenses, establishment and/or maintenance of reserve funds, and capital financing requirements. Capital financing requirements include payments on outstanding bond and loan issues as well as capital improvement expenditures met from annual revenues and available reserve funds.

The Water Fund's costs of service were allocated to customer classes utilizing a cost causative approach endorsed by the American Water Works Association (AWWA) M1 rate setting manual. This allocation methodology produces cost of service allocations recognizing the projected customer service requirements for the City. The design of proposed rates is in accordance with allocated cost of service and local policy considerations, such as reserve funding levels. Additionally, this study evaluates the extent to which the existing rate structure recovers revenues from customer classes in accordance with cost of service allocations.

OVERVIEW OF LEGAL AND INDUSTRY BEST PRACTICES FOR COST-OF-SERVICE STUDIES

Rate-setting procedures in California require that agencies responsible for imposing property-related charges must demonstrate a nexus between the cost of providing services and the services or benefits received. The state of California considers water and wastewater services as property-related fees and

as such, subject to these constitutional and statutory requirements. Presented in the next few sections are brief summaries of the relevant laws governing the study.

Proposition 26

California voters adopted Proposition 26 in November 2010. Included in the language of proposition, which amended California Constitution Article XIII C, Section 1, is a definition of "tax". Essentially, as defined by Proposition 26, a tax is any "levy, charge, or exaction of any kind imposed by a local government" with specifically outlined exceptions. These exceptions are:

- A charge imposed for a specific benefit conferred or a privilege granted directly to the payor that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of conferring the benefit or granting the privilege, and
- A charge imposed for a specific government service or product provided directly to the payor that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of providing the service or product.•

Proposition 26 establishes that the "...local government bears the burden of proving by a preponderance of the evidence that a levy, charge, or other exaction is not a tax, that the amount is no more than necessary to cover the reasonable costs of the governmental activity, and that the manner in which those costs are allocated to a payor bear a fair or reasonable relationship to the payor's burdens on, or benefits received from, the governmental activity."

Proposition 13

Government Code Section §50076, adopted in 1979 provides that "special taxes shall not include any fee which does not exceed the reasonable cost of providing the service or regulatory activity for which the fee is charged."

Government Code Section §54999.7

Under this section, rate-setting activities by public agencies are directed to follow cost-of-service principles and states that fees for "...for public utility service, other than electricity or gas, shall not exceed the reasonable cost of providing the utility service." It also provides that these fees will be "established in consideration of service characteristics, demand patterns, and other relevant factors."

Generally Accepted Rate-Setting Standards

The American Water Works Association (AWWA) and the Water Environmental Federation (WEF) are the industry organizations tasked with providing guidance on the operation and management of water and wastewater utilities. Both organizations have established a general set of principles used to guide the development of water rates. These principles were developed to provide a consistent approach and minimum standards to rate-setting procedures. It is important to note that both AWWA and WEF observe that there is no prescribed single approach for establishing cost-based rates. Rather, agencies must exercise judgment to align rates and charges with local conditions and requirements, as well as applicable state law.

Black & Veatch has used the guidelines contained in the AWWA and WEF documents and followed the applicable State law, including Proposition 218, to conduct the analyses contained herein.

DISCLAIMER

In conducting our study, we reviewed the books, records, agreements, capital improvement programs, customer sales and financial projections of the Water and Wastewater Funds, as we deemed necessary to express our opinion of the operating results and projections. While we consider such books, records, documents, and projections to be reliable, Black & Veatch has not verified the accuracy of these documents.

The projections set forth in this report are intended as "forward-looking statements". In formulating these projections, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodology utilized in performing the analyses follows generally accepted practices for such projections. Such assumptions and methodologies are reasonable and appropriate for the purpose for which they are used. While we believe the assumptions are reasonable and the projection methodology valid, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that actually occur. Such factors that may affect the Funds' ability to manage the system and meet water quality, waste discharge, and/or other regulatory or environmental requirements include: the City's ability to execute the capital improvement program as scheduled and within budget; regional climate and weather conditions affecting the demand for water; and adverse legislative, regulatory or legal decisions (including environmental laws and regulations).

Water Rate Study

REVENUE AND REVENUE REQUIREMENTS

To meet the costs associated with providing water service to its customers, the Water Fund derives revenue from a variety of sources including water user charges, other water sales, rental income, capacity fees, interest earned from the investment of available funds, meter installation fees, and other miscellaneous revenues. Black & Veatch used a combination of an analysis of historical and future system growth in terms of number of accounts and water consumption to project the level of future revenue generated in the study.

With revenue derived from the various sources, the Water Fund meets the cash requirements of operation and maintenance (O&M); principal, interest, and reserve payments on revenue bonds and State Revolving Fund (SRF) loans indebtedness; and recurring annual capital expenditures for replacements, system betterments, and extensions not debt financed. Operation and maintenance expenses are those expenditures necessary to maintain the system in good working order. Routine annual capital expenditures, which include equipment replacements, consist of recurring annual replacements, minor extensions, and betterments, which are normally revenue financed. Other capital costs include principal and interest payments, bond covenant-required payments, and cash financed capital improvements.

Customerand Water Usage Projections

To forecast revenue, customer bills and billed water sales volume needs to be determined within Water's service area. Recent historical trends demonstrate little to no growth in water connections over the past few years. This situation is largely due to depressed economic and housing activity within the City's service population. To be conservative for this two-year rate case, Black & Veatch has assumed no water connection growth for FY 14 and FY 15. Table 2 illustrates the historical customer accounts and anticipated customers for the next two fiscal years.

	Fiscal Year Ending June 30,				
	Estimated	mated Projected			
Descriptio n	FY 13	FY 14	FY 15		
	(Connections)	(Connections)	(Connections)		
Single Family	221,949	221,949	221,949		
Other Domestics	30,159	30,159	30,159		
Non-Residential [*]	16,841	16,841	16,841		
Temp Construction	347	347	347		
Irrigation	7,497	7,497	7,497		
Fire Service	5,575	5,575	5,575		
Total Acco unts	282,368	282,368	282,368		

Table 2Average Number of Connections

[*] Non-Residential customers include Commercial, Industrial, and Outside City.

Projected water sales volumes use projected number of customers, customer bills and historical water usage patterns per customer class. Table 3 illustrates the historical and projected water billed volume in hundred cubic feet (HCF). Black & Veatch obtained several years of detailed consumption data and thus

historical patterns of customer water usage were determined. Using historical water usage as a benchmark, the projected water sales volumes remain flat over the study period as shown in Table 3.

Table 3	Historical	and Pro	iected	Billed	Volume
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	Fiscal	Year Ending Jun	ie 30,
	Estimated	Projected	
Description	FY 13	FY 14	FY 15
	(HCF)	(HCF)	(HCF)
Single Family	27,880,636	27,880,636	27,880,636
Other Domestics	17,521,723	17,521,723	17,521,723
Non-Residential [*]	20,319,467	20,319,467	20,319,467
Temp Construction	242,238	242,238	242,238
Irrigation	10,424,191	10,424,191	10,424,191
Total Water Usage (HCF)	76,388,255	76,388,255	76,388,255
Total Water Usage (AF)	175,363	175,363	175,363

[*] Non-Residential customers include Commercial, Industrial, and Outside City. HCF = hundred cubic feet

Revenue Projections

Water generates revenue primarily from water sales. Since revenue generated outside of water sales are not subject to rate increases, we have excluded them from this portion of the analysis. The cash flow portion of this report incorporates these additional revenue sources.

Water's user-charge sales are composed of two parts, a monthly service charge and a commodity charge. The monthly service charge is an amount based on meter size designed to recover fixed costs, which do not vary with the volume of water used by a customer such as meter reading, customer billing, and debt service. The commodity charge is an amount based on units of consumption measured by the number of HCF of water consumed during the billing cycle. An HCF unit of water is approximately 748 gallons. Included in the commodity charge are the costs associated with water purchases. Table 4 summarizes the City's current water rates for all customer classes.

Service Charge (\$/mo nth)				Fire Protection (\$/Month)			Commodity Charge	(\$/HCF)	
Meter	Rate	Meter	Rate	Line	Rate	Line	Rate	Class	Rate
3/4"	\$19.33	6"	\$440.73			6"	\$25.05	Single Family [**]	
1"	\$28.46	8"	\$701.64	1"	\$6.26	8"	\$33.40	Tier 1	\$3.61
1.5"	\$49.34	10"	\$1,006.94	1.5"	\$6.26	10"	\$41.75	Tier 2	\$3.92
2"	\$75.44	12"	\$1,875.82	2"	\$8.35	12"	\$50.10	Tier 3	\$4.40
3"	\$136.74	16"	\$3,267.86	3"	\$12.53	16"	\$66.80	Other Domestics	\$3.92
4"	\$224.15			4"	\$16.70			Non-Residential [*]	\$3.76
								Temp Construction	\$4.01
								Irrigation	\$4.01

Table 4 Existing Rates (Effective March 1, 2011)

[*] Non-Residential customers include Commercial, Industrial, and Outside City.

[**] Tier 1 = 0-7 HCF monthly; Tier 2 = 7-14 HCF monthly; and Tier 3 = 15+ HCF monthly. Bi-Monthly Tiers = 2x Monthy Tiers.

Table 5 below incorporating the existing water rates illustrate water sales revenue remaining flat during the study period (FY 14 and FY 15).

Table 5 Revenue under Existing Rates

	Fiscal Year Ending June 30,				
	Estimated	Projected			
Description	FY 13	FY 14	FY 15		
	(\$)	(\$)	(\$)		
Single Family	160,376,000	160,376,000	160,376,000		
Other Domestics	82,090,200	82,090,200	82,090,200		
Non-Residential [*]	87,273,500	87,273,500	87,273,500		
Temp Construction	1,286,400	1,286,400	1,286,400		
Irrigation	47,111,800	47,111,800	47,111,800		
Fire Service	1,770,900	1,770,900	1,770,900		
Total Revenue	\$379,908,800 \$379,908,800 \$379,908				

[*] Non-Residential customers include Commercial, Industrial, and Outside City.

Operation and Maintenance Projections

Summarized in Table 6 are Water's projected O&M expenditures. These expenditures include costs related to personnel, contract services, operating supplies, utilities, and general and administrative. The forecasted expenditures are based on Black & Veatch and City staff's expertise and knowledge. The

figure box to the right summarizes key assumptions for inflation rates used in the O&M expense projections and applied to FY 15. Purchased water increases reflect adopted calendar year 2014 (CY 14) CWA rates and CWA's estimated projection for CY 15. The levels of adjustment illustrated above are consistent with recent increases seen throughout the area. Total O&M increases to roughly \$383.9 million in FY 14 and \$397.3 million in FY 15, due mainly to the increased cost of purchased water. Additional planned activities that contribute to the observed O&M increases include:



- Operating Supplies: 1%
- Contracts: 1%
- IT Expenses: 0%
- Energy& Utilities: 5%
- Routine Capital: 0%
- Other Expenses: 0%
- A multi-year condition assessment program that will focus on evaluating 2,100 miles of asbestos cement (AC) water pipelines, along with the water conveyance and transmission pipelines
- An operational efficiency evaluation intended to focus on optimizing plant and distribution system processes

Based on PUD's historical performance, Black & Veatch has applied an adjustment to PUD's FY 14 and FY 15 budgets to reflect more closely expected expenditure levels. Applying the O&M adjustment factors produces expenditures of \$374.9 million in FY 14 and \$389.3 million in FY 15.

	Fiscal Year Ending June 30,				
	Estimated	Proj	ected		
Description	FY 13	FY 14	FY 15		
	(\$)	(\$)	(\$)		
Department Management	8,131,677	15,348,000	17,965,100		
Finance & Information Technology	16,634,789	19,118,600	19,587,000		
Assurance	4,218,061	5,653,100	4,815,900		
Customer Support Services	8,296,745	8,697,300	9,397,500		
Long Range Planning	12,337,358	12,134,300	12,989,500		
Engineering Program Management	5,461,892	9,244,400	10,967,700		
Environmental Monitoring &					
Technical Services	4,700,140	5,538,900	4,953,700		
Water Operations	81,166,265	88,078,500	87,506,000		
Water Supply	203,373,904	220,110,100	229,124,500		
SubtotalO&M Expenses	344,320,832	383,923,200	397,306,900		
Less O&M Adjustments		(9,000,000)	(8,000,000)		
Total O&M Expenses	\$344,320,832	\$374,923,200	\$389,306,900		

Table 6 Historical and Projected Operation and Maintenance Expenses

Capital Improvement Program

While O&M expenses cover day-to-day operations, Water incurs additional capital expenditures to repair and replace existing water facilities. As a result, Water has developed a long-term Capital Improvement Program (CIP) that identifies future water facilities needs. The CIP shown in Table 7 is for FY 14 through FY 15 and summarizes the capital improvement projects by category during the study period. As part of the financial plan analyses, starting in FY 15, Black & Veatch applied an annual inflation allowance of 2.27 percent based on the 5-year Engineering News Record's (ENR's) historical average for Construction Cost Indices.

Table 8 presents a detailed listing of projects (uninflated values) for the study period. The CIP is a constantly evolving program and PUD staff review all projects on an annual basis. Consequently, projects may shift out in time or drop off the CIP if they become unnecessary. Conversely, PUD may add projects as the need arises. Black & Veatch suggests that the reader not construe the projects listed in Table 8 as "set in stone", but rather as indicative of the nature of projects planned for execution over the study period. We note that the CIP project totals presented in Tables 7 and 8 reflect capital expenditures (cash out the door) versus the budgeted (encumbered) values shown in the City's approved CIP. Furthermore, as part of the current rate case, Black & Veatch in discussions with PUD staff have applied a 15 percent discount rate to the CIP (expenditure) values to more closely align study period execution with historic levels.

Black & Veatch notes that over the past few years, the City has implemented a number of business process changes including the following:

- Changes to the Municipal Code allowing for Multiple Award Construction Contracts (MACC) that speed the selection and award process for design build procurements,
- Increasing the task limits for Job Order Contracts, and

• Developing an order project cascade list to allow CIP funds remaining in a project at completion to move directly to a priority project.

The PUD expects to see the full effect of these changes after the current rate case.

Table 7	Capital	Improvement	Program

	Fiscal Year En	ding June 30,
	Proje	ected
Description	FY 14	FY 15
	(\$)	(\$)
Water Treatment Plants	4,742,876	2,407,776
Pipeline Projects	74,251,470	52,361,245
Recycled Water Projects	1,947,848	247,310
Storage Projects	5,247,254	13,354,900
Pump Stations	6,043,424	16,518,523
Pipeline - Transmission	6,150,209	19,095,079
Miscellaneous	5,252,497	9,222,579
Groundwater-Related Projects	311,265	200,000
Subto tal Capital Impro vement Program	103,946,844	113,407,413
Less Adjustments	(15,592,027)	(17,011,112)
Add Inflationary Factor		2,188,196
Total Capital Improvement Program (Inflated)	\$88,354,818	\$98,584,497

The proposed CIP includes a slow ramp-up for main replacement – moving from an average of 20 miles/year from the past two years to 23 miles of small diameter cast iron mains for FY 14 and then 28 miles for FY 15. PUD's target is 30+ miles/year thereafter. Another priority CIP project for PUD during the study period is the SAP Enterprise Asset Management (EAM) project, which will help PUD prioritize future repair and replacement projects. As described in the 2007 Rate Case, Water is under a California Department of Public Health (DPH) compliance order. Of the proposed Water CIP, approximately \$23.1 million is associated with DPH-dictated projects.

From FY 14 through FY 15, Water is projecting expenditures of \$186,936,900 (after adjustments) for the Water CIP.

Capital Fund Financing

Table 9 presents a proposed financing plan for Water's CIP. Financing for the CIP comes from a combination of funds on hand, State Revolving Fund (SRF) loan proceeds, grant monies, previously collected capacity fees, transfers, and cash financing.

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Table 8 Ur	ninflated Capital Improvement Program by Project without Adjustments
-	Table 8 Un

	Fiscal Year End	ing June 30,		Fiscal Year End	ing June 30,		Fiscal Year End	ing June 30,
Description	Projec FY 14	FY 15	Description	FY 14	FY 15	Description	FY 14	FY 15
	(\$)	(\$)		(\$)	(\$)		(\$)	(\$)
College Ranch Hydro Pump Station	307,447	3,175,417	Water Group Job924	2,133,173	0	Lindbergh Field Pipeline	2,708,123	469,617
Scripps Ranch Rsvr Slope Rpr&Bracket Rpl	312,607	0	Water Group Job925	853,994	0	3012 - DB Water	2,330,049	0
San Carlos Reservoir Enhancements	61,635	0	Water Group Job 926	1,881,536	1,654,988	University Ave Pipeline Replacement	679,216	4,938,572
Catalina Standpipe Renovation	1,199,498	307,664	Water Group Job954	72,536	58,244	Upas St. Pipeline Replacement	757,250	3,601,723
La Jolla Country Club Reservoir	227,470	3,047,600	Water Group Job928	680,920	0	Miramar Clearwell Improvements	3,636,699	1,607,417
La Jolla View Reservoir	596,362	3,840,210	Water & Sewer Group J ob 929 (W)	953,716	0	Chollas Building	451,085	1,753,702
Carmel Valley Recycled Waterline	402,931	0	Water & Sewer Group 930 (W)	3,010,704	243,414	Montezuma PPL/ Mid-City Pipeline - Ph 2	329,512	465,909
Camino Del Sur Pipeline - North of SRS56	726,520	43,540	Water Group Job 931	714,231	0	Otay 1st /2nd Pipeline	1,599,340	4,297,824
CALTRANS Pacific Beach PPL Central (W)	3,091	67,567	Water & Sewer Group J ob 934 (W)	756,818	661,132	Colony Hill Water Main Relocation	301,997	0
Water Group 616	5,442,686	989,788	Water Group Job 935	958,626	0	Water Group 787 CI (CH)-1	1,513,179	716,204
Group 3011-Sewer & Water Group 648	38,402	0	Water Group Job 936	821,783	2,652,680	Pacific Beach Pipeline	1,048,569	731,269
Group 3011-Sewer & Water Group 650	277,771	0	Water Group Job 937	359,273	1,521,316	Scripps Ranch Pump Station	4,605,460	2,000,062
Group 3011-Water Group 651	284,551	0	Water Group Job 939	17,863	1,238,457	Harbor Drive Pipelines Replacement	3,067,781	121,852
Water Group 525B (BL)	1,611,911	0	Water Group Job 940	104,227	1,784,561	Tierrasanta (Via Dominique) Pump Station	587,561	8,262,664
Water Group 525C (BL)	41,220	1,826,271	Water Group Job 941	261,239	0	Water and Sewer Group J ob 816	339,640	440,360
Sewer & Water Group 694 (W)	19,602	695,341	Water Group Job 942	171,666	384,232	Miramar Contract A Roof System Redesign	70,000	3,743,504
Sewer & Water Group 693 (GP3) (05)-1	152,956	43,041	Water Group Job 943	43,680	514,334	Lake Murray Dam Outlet Tower Seismic Retrofit	0	60,107
Sewer & Water Group 695 (W)	114,530	265,488	Water Group Job 944	59,158	30,891	Muirland Pump Station Rehabilitation / Replacement	t 229,298	548,153
Sewer & Water Group 701	9,024	201,785	Water Group Job 945	1,847,257	429,175	Otay WTP Building Improvement	0	100,000
Sewer & Water Group 711 (CC5) (02)-1	5,698	29,465	Water & Sewer Group J ob 946	2,603,686	1,342,819	Paradise Mesa No. 2 PS Upgrade (D/B)	0	555,159
Sewer & Water Group 723 (MH11) (04)	330,366	0	Water Group Job947	1,048,719	152,587	RW PS Drain Line Relocation (JOC)	198,181	0
Sewer & Water Group 732 (PN7) (DEF)-1	495,304	0	Water Group Job 948	105,130	72,171	Mission Valley Basin Groundwater Production (D/B)	0	100,000
Water Group 910 CI	907,080	0	Water Group Job949	4,344,280	1,318,899	Montezuma Pump Station rehabilitation (D/B)	50,000	613,025
Sewer & Water Group 754	50,872	0	Water Group Job952	65,329	201,121	College Ranch Standpipe	0	50,000
Sewer & Water Group 758	470,146	27,356	Water Group Job 953	1,156,245	192,459	Otay 1st PL University Heights (D/B)	410,939	1,600,000
Sewer & Water Group 761 (CC)-1	1,143,983	444,968	J uan Street- Water Pipeline Replacement	734,674	227,520	Miramar Pipeline Segment Replacement (D/B)	100,000	102,532
3014 - Swr & Wtr Grp 685 (CH3) (04)	536,622	175,826	Water Group Job 958	3,929,130	861,154	El Capitan Portable Water	532,780	0
Sewer & Water Group 774 (CH12VC)-1	524,928	0	Water Group Job959	2,502,721	0	San Diego Formation Site A (D/B)	0	100,000
Sewer & Water Group 780 (CH)-1	2,031	0	Water & Sewer Group J ob 956(W)	1,119,297	0	Otay 2nd Pipeline Steel Replacement Phase 1	269,174	794,797
Sewer & Water Group 781 (CH)-1	319,563	0	Water & Sewer Group J ob 957(W)	2,491,189	282,243	Otay 2nd Pipeline Steel Replacement Phase 2	309,915	915,093
Group 3011 - Water Group 807	267,297	0	Water Group Job 960	367,777	0	Park Village Extension (GRC)	100,000	0
Manning Cyn Swr and Wtr Replacement (W)	15,437	485,619	Water Group 964 (W)	27,993	0	San Vicente Ground Water Well	81,245	0
3014 - Swr & Wtr Grp 770 (CH)-1	300,759	197,872	Sewer & Water Group J ob 815 (W)	3,750	116,052	San Pasqual USGS Monitoring Wells	230,020	0
Group 3011 - Water Group 806	254,731	0	Water Group 961	438,941	685,688	Soledad Pump Station Upgrade	100,000	155,637
Sewer & Water Group 809 (LI)	1,398,000	802,563	Water & Sewer Group 965 (W)	88,486	779,116	Miramar WTP Basins Cathodic Protection (JOC)	298,943	0
Sewer & Water Group 822	239,545	0	Water Group Job963	0	13,818	Lake Hodges Dam Modification	705,971	1,620,552
Sewer & Water Group 799 (CC)-1	2,324,053	0	Water Group Job962	97,187	1,733,019	Sodium Hypochlorite at Otay WTP (D/B)	100,359	700,359
Sewer & Water Group 788 (EA)-1	355,984	86,458	Sewer & Water GJ Crown Pt s La Playa (W)	229,632	654,671	Pacific Highlands RWP - Part Agmt	33,121	0
Sewer & Water Group 814	80,708	43,837	Rancho Santa Fe Farm Rd. Water Main	452,924	129,076	Barrett Flume	100,000	1,592,073
Sewer & Water Group 820 (LI)	918,205	478,828	Additional Water Miles	0	20,000,000	Catalina 12in Cast Iron Mains (D/B)	373,961	668,962
Sewer & Water Group 687B	88,007	0	Miramar WTP - Contract D	263,292	0	La Jolla Scenic Dr 16 in Main	213,784	547,034
Water Group 907 CI	52,144	0	Otay WTP Concrete Work	742,526	0	30th Street Pipeline Replacement (D/B)	225,395	572,503
Water Group 909 CI - Phase I	75,742	0	Morena Reservoir Outlet Tower Upgrade	851,142	4,098,772	69th & Mohawk Pump Station	63,658	665,760
Water Group 909 CI - Phase II	496,238	0	Lower Otay Reservior Emerg Outlet Improv	1,242,568	46,897	Cielo & Woodman Pump Station	100,000	542,647
Water Group 914 CI (PB)	2,575,599	458,710	WDSU - Enclosed Pumps - Ph II	1,208,685	0	Recycled Water Tank Modifications (JOC)	0	70,215
Water Group 919 CI	541,806	0	WDSU - Reservoirs & Dams - Ph II	421,018	0	Otay 1st/2nd PPLWest of Highland Avenue	50,000	590,130
Water Group 525E (BL)	197,958	853,497	WDSU - Water Tanks & Standpipes - Ph II	806,790	0	Lower Otay Outlet Tower	50,000	283,098
Water Group J ob 921	406,721	0	Water Group 790	212,525	0	EAM ERP I mpl ementation	2,194,920	2,133,300
Water Group J ob 922	1,219,167	582,067	El Capitan Pipeline No. 2	146,559	0			
Water Group J ob 923	449,998	1,189,758	Recycled Water System Upgrades	520,216	133,555	Total CIP witho ut Adjustments and Uninflated	\$103,946,844	\$113,407,413

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Table 9 CIP Financing Plan

	Fiscal Year E	nding June 30,
	Pro	jected
Description	FY 14	FY 15
	(\$)	(\$)
Source of Funds		
Bond Proceeds	0	0
SRF Proceeds	9,213,800	0
Grants	644,000	0
Capacity Fees	7,952,300	7,972,000
PAYGO Funds	17,671,000	19,716,900
Other Cash Financing	22,255,500	70,895,600
DRES Transfers	30,618,200	0
Capital Reserve Transfers	0	0
Total Sources	\$88,354,800	\$98,584,500
Use o fFunds		
Capital Projects	88,354,800	98,584,500
Total Uses	\$88,354,800	\$98,584,500

Water maintains several funds used to finance CIP projects as well as to separate the commingling of rate funds, bond proceeds and capacity fee funds. The capital funds generate revenue from developer capacity fees, transfers and debt proceeds. With new development in the City being relatively flat, Water will depend on rate and fee revenue, reserves and loan proceeds to execute planned CIP projects. PUD is proposing no debt financing for the study period CIP. Instead, PUD proposes to finance the 2013 Rate Case CIP through a combination of fully drawing down the Dedicated Reserve from Efficiency and Savings (DRES) reserves and using cash on hand.

Operating Fund Financing

Tables 10 and 11 summarize the proposed operating financial plan for Water over the study period. This financial plan generates sufficient funds to cover short-term and long-term expenses. Sources of revenue include water sales under existing rates, additional revenues realized from proposed rate adjustments, miscellaneous revenue and interest earnings on available balances.

The projected water revenue under existing rates represents service and commodity charges at current rate levels that are subject to rate adjustments. Based on the existing revenue indicated, additional annual revenue adjustments are necessary to meet operating fund requirements and fiscal policy objectives. To reduce ratepayer confusion over multiple adjustments throughout the year, PUD proposes to implement revenue adjustments effective January 1 of 2014 and January 1 of 2015, as shown on Lines 2 and 3. This timing corresponds to the effective date for CWA increases. Any changes to the capital-financing policies and/or CIP may alter these results since the operating fund helps supplement funds for traditional repair and replacement projects. Line 4 illustrates the resulting dollar impact of the proposed revenue adjustments.

				Fisca	al Year Ending June	30,
Line				Estimated	Proje	ected
No.		Description		FY 13	FY 14	FY 15
				(\$)	(\$)	(\$)
	Revenue					
	Date Devenue					
1	Rate Revenue	Evicting Data		270 009 900	270 009 900	270 009 900
T	Revenue Iron	Months	Pato	579,908,800	579,908,800	579,908,800
	Vear	Fffective	Adjustment			
2	FY 14	6	7 25%		13 771 700	27 543 400
3	FY 15	6	7.50%		13,771,700	15 279 500
4	Increased Rev	venue Due to A	diustments	0	13.771.700	42.822.900
5	Subtotal Ra	ate Revenue	-,	379,908,800	393,680,500	422.731.700
				, ,	, ,	, ,
C	Other Operat	ting Revenue		12,002,000	12 427 700	42 255 500
6	Cal Amercian	Sales		12,002,600	12,437,700	13,355,500
/	Other Water	Sales		8,160,800	8,030,300	7,892,900
8	Service Charg	jes		1,160,000	1,216,000	1,267,000
9	New Water Se	ervices		500,000	5 800,000	750,000
11	Sorvicos Popo	luing Rentais	ndc	5,644,000	5,809,000	5,807,100
12	Other Reven		nus	5 / 91 / 00	636,000	2 182 000
12	Subtotal Ot	ther Operating	Revenue	39 /07 300	34 665 000	37 532 500
15	Subtotal Of	the operating	Nevenue	33,407,300	54,005,000	57,552,500
	Non-Operatin	ng Revenue				
14	Damages Rec	overed		0	0	225,000
15	Sale of Land			0	0	0
16	Earnings on I	nvestments		2,851,800	2,536,300	3,837,100
17	Subtotal No	on-Operating R	levenue	2,851,800	2,536,300	4,062,100
	Transfers					
18	From Operati	ng Reserve		0	0	0
19	From Rate Sta	abilization Res	erve	11,800,000	18,000,000	0
20	From Seconda	ary Purchase R	leserve	0	0	0
21	From DRES Re	eserve		0	0	0
22	Subtotal No	on-Operating R	levenue	11,800,000	18,000,000	0
23	Total Reve	nue		\$433,967,900	\$448,881,800	\$464,326,300

Table 10 Operating Fund Financing Plan – Part I: Revenues [+]

[+] Amounts may not total due to rounding.

		Fisca	l Year Ending June	30,
Line		Estimated	Proje	cted
No.	Descriptio n	FY 13	FY 14	FY 15
		(\$)	(\$)	(\$)
	Revenue Requirements			
	Operating & Maintenance			
24	O&M Expenses	140,946,900	154,813,000	160,182,500
25	Water Supply	203,373,900	220,110,100	229,124,500
26	Subtotal O&M	344,320,800	374,923,100	389,307,000
	Debt Service			
27	Existing Revenue Bonds	59,850,900	62,119,600	62,123,800
28	Existing SRF Loans	4,531,400	4,715,100	5,330,000
29	Proposed Revenue Bonds	0	0	0
30	Total Debt Service	64,382,300	66,834,700	67,453,800
	Transfers			
31	To CIP Fund (PAYGO)	14,000,000	17,671,000	19,716,900
32	To CIP Fund (Other Capital Financing) [*]	31,669,800	22,255,500	70,895,600
33	To Operating Reserve	0	144,900	1,018,500
34	To Capital Reserve	0	0	0
35	To Rate Stabilization Reserve	0	0	0
36	To Secondary Purchase Reserve	0	40,600	1,203,000
37	To DRES	2,969,500	0	0
38	Total Transfers	48,639,300	40,112,000	92,834,000
39	Total Revenue Requirements	\$457,342,400	\$481,869,800	\$549,594,800
40	Not Appual Cash Palance	(22 274 500)		(95 269 500)
40	Reginning Fund Balance	359,067,000	335 692 500	302 704 500
42	Net Cumulative Fund Balance	\$335.692.500	\$302.704.500	\$217.436.000
	Minimum Trust December Defenses [**]	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
12	Operating Reserves Bulances [1]	20 556 500	29 701 400	20 710 000
45	Capital Basarya	29,330,300	29,701,400	50,719,900
44	Capital Reserve	38 500 000	20 500 000	20 500 000
45	Secondary Durchase Reserve	12 502 900	12 544 500	13 747 500
40	DRFS Reserve	30 618 200	12,544,500	13,747,500
47	Total Minimum Target Reserves	116 178 600	67 745 900	69 967 400
49	Cumulative Fund Balance Less Reserves	\$219,513,900	\$234,958,600	\$147,468,600

Table 11 Operating Fund Financing Plan – Part II: Revenue Requirements and Ending Balances [+]

[+] Amounts may not total due to rounding.

[*] Other Capital Financing are other funds that include capital cash balance,

transfers from operating, capacity fee, interest income, etc.

[**] Reserve targets are set by the City's Reserve Policy.

In addition to rate revenue, other operating and non-operating charges contribute to the income of the Water Enterprise. Typically, these revenue sources are minimal and volatile and thus, for the purposes of this report, they remain constant in the revenue projections, in the absence of specific data. Non-operating sources include interest income and revenue from damages recovered.

Lines 18 through 22 summarize transfers from various reserve accounts. For the 2013 Rate Case, PUD expects to draw down available monies in from the Rate Stabilization Reserve. The transfer of \$18 million from the Rate Stabilization Reserve for FY 14 is the maximum available and leaves the minimum required balance per City Reserve Policy. Line 23 shows total revenues for the study period.

Lines 24 through 26 present O&M expenses less anticipated O&M savings and matches the figures from Table 6. A summary of debt service on existing bond issues and SRF loans is on Lines 27 and 28, while Line 29 shows debt service from any proposed revenue bonds. Transfers to fund the CIP and other reserve accounts in accordance with the City's Reserve Policy occur on Lines 31 through 38. The total revenue requirements for the study period appear on Line 39.

Line 40 calculates the net annual cash balance for each year and then Lines 41 and 42 summarize the impact to the ending fund balances for Water. Finally, we note that the beginning fund balance shown on Line 41 for FY 13 is inclusive of reserve amounts. To obtain a true picture of the operating condition for Water, we subtract out these reserve amounts, as shown on Lines 43 through 48. Line 49 presents the net cumulative fund balance less reserves.

Black & Veatch notes that the figures presented in Tables 10 and 11 are based on Tables 2 through 9 and may not total due to rounding.

Summary of Revenues, Expenditures, and Obligations

To maintain financial viability as an enterprise fund, Water's annual revenues must be sufficient to satisfy three elements:

- 1. Adequate cash flow to cover O&M, capital and debt obligations
- 2. Meet debt service coverage (DSC) covenants
- 3. Maintain reserve funds

Long-term financial viability requires meeting all three elements. The need for revenue adjustments is either "cash flow" driven or "coverage" driven depending on which of the first two elements creates the larger adjustment.

Table 12 summarizes Water's current outstanding senior (parity) and subordinate debt obligations. Water's debt requirements have two separate DSC requirements. For senior or parity debt, the DSC is 1.2x; for aggregate debt, the DSC is 1.0x. Black & Veatch recommends that PUD consider using a 1.25x minimum target for aggregate debt instead of the 1.0x. Factors that Rating Agencies evaluate to determine the credit rating include the system's financial profile, economic conditions, governance and management, operating profile, and legal provisions of bond documents. In recent years, the Rating Agencies have noted the pressure on Water's DSC and that continued lowering of the DSC could lower the system's financial profile, which could result in a negative rating action. Raising the minimum target to 1.25x in addition to implementing pass-through increases could help mitigate such negative credit implications.

Based on the analyses of revenues and revenue requirements, it is evident that Water is coveragedriven and needs revenue increases in order to meet revenue requirements and satisfy DSC covenants.

Table 12 Estimated Debt Service Coverage on Existing Debt

		Fiscal	Year Ending Jun	e 30,
Line		Estimated	Proje	ected
No.	Description	FY 13	FY 14	FY 15
		(\$)	(\$)	(\$)
	Operating Revenue			
1	Water Sales	400,072,200	414,148,500	443,980,100
2	Service Charges	1,160,000	1,216,000	1,267,000
3	New Water Services	500,000	300,000	750,000
4	Land and Building Rentals	5,644,000	5,809,000	5,867,100
5	Services Rendered Other Funds	6,448,500	6,236,000	6,218,000
6	Other Revenue	5,491,400	636,000	2,182,000
7	Total Operating Revenue	419,316,100	428,345,500	460,264,200
	Operating Expenses			
8	Denartment Expenses	140 946 900	154 813 000	160 182 500
9	Water Purchase	203 373 900	220 110 100	229 124 500
10	Total Operating Expenses	344 320 800	374 923 100	389 307 000
10		344,320,000	574,525,100	303,307,000
	Net Operating Revenue	74,995,300	53,422,400	70,957,200
11	Transfer (to)/from Rate Stabilization Fund	11,800,000	18,000,000	0
12	Interest Income on Operating Funds	2,851,800	2,536,300	3,837,100
13	Interest Income on Debt Service Reserve Fund	1,528,100	1,334,600	1,334,600
14	Capacity Fee Proceeds	7,932,600	7,952,300	7,972,000
15	Less: Senior Debt Service Reserve Fund Interest	(1,173,700)	(980,200)	(980,200)
16	TotalNet Adjusted System Revenues	97,934,100	82,265,400	83,120,700
	Debt Service			
17	Total Parity Debt Service	39.879.000	40.064.400	40.682.200
18	Total Aggregate Debt Service	64,382,282	66,834,672	67,453,847
				· ·
10	Senior Debt Service Coverage (Line 16 / (Line 17 + Line 15)			
19	Projected Senior DebtService	39,879,000	40,064,400	40,682,200
20	Senior Debt Service Coverage without Revenue Adjustments	2.53	1.74	0.97
21	Senior Debt Service Cover with Revenue Adjustments	2.53	2.10	2.09
	Aggregate Debt Service Coverage ((Line 16 + Line 15) / Line 22)			
22	Projected Aggregate Debt Service	64,382,282	66,834,672	67,453,847
23	Aggregate Debt Service Coverage without Revenue Adjustments	1.54	1.03	0.59
24	Aggregate Debt Service Coverage with Revenue Adjustments	1.54	1.25	1.25

Over the last two years (Calendar Years [CY] 2012 and 2013), PUD absorbed CWA's purchased water increases. PUD estimates that the cumulative impact of these increases is approximately \$35 million. PUD was able to absorb the impacts through a combination of one-time revenues, drawing on reserves, and implementing operational efficiencies. However, as Tables 10 and 11 indicate, continued absorption of the CY 12/CY 13 pass-through increases, and trying to absorb the CWA CY 14 increase is not sustainable. If the City does not make revenue adjustments in FY 14, then by FY 15, PUD will not meet DSC requirements for senior or aggregate debt.

The revenue requirements of Water consist of system O&M expenses, routine capital outlay for minor expenditures on equipment not financed from bond proceeds, debt service requirements on existing and proposed bonded debt, and transfers to other funds. Moreover, the revenues generated should be

sufficient to cover reserve requirements, rate covenant requirements, and adequate levels of working capital.

As shown on Line 39 in Table 11, total revenue requirements for Water increases during the study period can be correlated with prior year (CY 12 and CY 13) and current (FY 14 and FY 15) increases in water purchase costs. The total revenue requirements will increase to \$481.9 million in FY 14 and \$549.6 million in FY 15. Subtracting total revenue requirements from total revenues results in the projected annual operating fund surpluses or deficits shown on Line 40 of Table 11.

The suggested revenue adjustments are 7.25 percent in FY 14 and 7.5 percent in FY 15 as shown on Lines 2 and 3 of Table 10. The 7.25 percent in FY 14 represents 5 percent cost recovery of prior year CWA pass-through costs and a 2.25 percent increase due to CWA's CY 14 increase. For FY 15, the Water Fund requires 0.5 percent of the increase to meet the target aggregate coverage ratio of 1.25x, 2.25 percent for the CWA CY 15 increase, and the remainder for prior years CWA increases. Black & Veatch notes that the CY 15 increase from CWA is an estimate. For the purpose of the 2013 Rate Case, only 5.25 percent is "known". The additional 2.25 percent, bringing the total to 7.5 percent will be the maximum requested by PUD.

Black & Veatch further notes that the indicated percentage revenue increase discussed above are overall revenue increases. The results of the cost of service analysis presented later in this report may indicate that rate increases may vary from this average for the various customer classes with some classes receiving a greater than average increase, while others receive a less than average increase or perhaps a decrease.

Test Year Revenue Requirements

In analyzing Water's cost of service for allocation to customer classes, the annual revenue requirements for FY 14 is selected as the Test Year (TY) requirements to demonstrate the development of cost-of-service water rates.

COST OF SERVICE ALLOCATIONS

The revenue requirements to be derived from rates and charges for water service are summarized in Lines 1 through 10 of Table 13. In analyzing the Water Fund's cost of service for allocation to customer classes, the annual revenue requirements for FY 14 are selected as the Test Year requirements to demonstrate the development of cost of service water rates. In determining the cost of service met from charges for water service, we use the figures present in Tables 10 and 11 and deduct income received from other sources that are not subject to rate adjustments from the total revenue requirements. The adjustments section includes recognition that available cash is used (Line 10) and adding in 6 months of additional rate revenue from the revenue increase since it is effective for only 6 months (Line 11). As a result, the total cost of service to be recovered from rates is shown on Line 13, Column 5.

Table 13 Total Costs to be Recovered from Rates for TY 14

Line		Operating		
No.	Description	Expense	Capital Cost	Total Cost
(1)	(2)	(3)	(4)	(5)
		(\$)	(\$)	(\$)
	Revenue Requirements			
1	O&M Expenses	154,813,000		154,813,000
2	Water Supply	220,110,100	0	220,110,100
3	Debt Service	0	66,834,700	66,834,700
4	Transfers	185,500	39,926,500	40,112,000
5	Subtotal	375,108,600	106,761,200	481,869,800
	Less Revenue Requirements Met from Other	Sources		
6	Other Operating Revenue	34,665,000	0	34,665,000
7	Other Non-Operating Revenue	2,536,300	0	2,536,300
8	Transfers	18,000,000	0	18,000,000
9	Subtotal	55,201,300	0	55,201,300
	Adjustments			
10	Adjustment for Annual Cash Balance	32,988,000	0	32,988,000
11	Adjustment to Annualize Rate Increase	(13,771,700)	0	(13,771,700)
12	Subtotal	19,216,300	0	19,216,300
13	Cost of Service to be Recovered from Rates	300,691,000	106,761,200	407,452,200

Functional Cost Components

In developing an equitable rate structure, we allocate revenue requirements to the various customer classifications according to the cost of service rendered. Allocations of these requirements to customer classes of Water should take into account water flow, the number of customers, and other relevant factors.

Customer classification occurs to reflect groups of customers with similar service requirements for whom a utility can serve at a similar cost. Each class represents a particular type of service requirement. For the purposes of the cost of service analysis, the customer classifications in this study include single

family and multi-family residential, commercial, industrial, irrigation, outside City, construction, and private fire protection.

Figure 2 illustrates the process for allocating costs of service to customer classes. The cost-of-service methodology first allocates costs to functional cost components, then to cost categories, and subsequently distributes the costs to customer classes. In this analysis, there are six primary cost components: (1) base flow, or volume costs, (2) maximum day cost, (3) peak hour costs, (4) meter services, (5) customer and billing costs, and (6) fire protection.



Figure 2. Cost of Service Allocation Methodology

Allocation to Cost Components

In this report, Black & Veatch analyzes the cost of providing water service by system function in order to properly allocate the costs to the various classes of customers and subsequently design rates. As a basis for allocating costs of service among customer classes, we have separated costs into the following four basic functional cost components: (1) "Base"; (2) "Extra Capacity"; (3) "Customer"; and (4) "Direct Assignment." In order to provide service to its customers at all times, PUD must be capable of not only providing the total amount of water used, but also meet peak or maximum rates of demand.

- Base costs include the purchase of water, regulatory fees, debt service costs, water treatment, energy, administration, and operating and maintenance costs of the System associated with service to customers to the extent required for a constant, or average annual rate of use.
- Extra Capacity costs represent those operating costs incurred in meeting demands in excess of average, and capital related costs for additional plant and system capacity beyond that required for the average rate of use.

- Customer costs are those elements that tend to vary in proportion to the number of customers connected to the system. These include meter reading, billing, collecting and accounting, and maintenance and capital costs associated with meters and services.
- Directly assigned costs are costs specifically identified as, those incurred to serve a specific customer group(s). The separation of costs of service into these principal categories facilitates allocating such costs to the various customer classes based on the respective service requirements of each class.

Similar to the 2007 Rate Case, this rate case also uses the base-extra capacity allocation method. Figure 3 illustrates some of the base-extra capacity concepts for water systems.





Black & Veatch has allocated each element of cost to functional cost components using the parameter or parameters having the most significant influence on the magnitude of that element of cost. We allocate O&M and general and administrative (G&A) expense items directly to appropriate cost components, while the allocation of capital and replacement costs, uses a detailed allocation of related capital investment. The separation of costs into functional components provides a means for distributing such costs to the various classes of customers based on their respective responsibilities for each particular type of service.

For volume-related cost allocations, the first step in determining the allocation percentages is to assign system peaking factors. The Base element is equal to the average daily demand (ADD) and assigned a value of 1.0. PUD's maximum day (Max Day) demand is estimated to be 1.50 times the ADD.

Thus, the Max Day is assigned a value of 1.50. The maximum instantaneous usage is approximated by the maximum hourly (Max Hour) usage and is estimated to be 2.25 times the ADD. Thus, Max Hour is assigned a value of 2.25. These peaking factors are based on a combination of historic billing data and discussions with PUD staff.

Cost components that are solely Base-related, are allocated 100 percent to Base. Cost components that are designed to meet Max Day requirements, such as reservoirs, are allocated to Base and Max Day factors as follows:

Base = (1.0/1.50) x 100 = 66.7% Max Day = (1.50 - 1.0)/1.50 x 100 = 33.3%

Cost components that are designed to meet Max Hour design requirements, such as Distribution, are allocated in a similar fashion, as follows:

Base = (1.0/2.25) x 100 = 44.4%

Max Day = (1.50 - 1.0)/2.25 x 100 = 22.2% Max Hour = (2.25 - 1.50)/2.25 x 100 = 33.3%

Allocation of Operation and Maintenance Expenses

Table 14 summarizes the allocation percentages used to generate Table 15. Table 15 shows the allocation of O&M expense to cost functions. Where possible, percentage allocations use data gathered from employee time cards. O&M costs such as general and administrative expenses (G&A) are distributed to functional cost components based on the average of the other line item costs. The total Test Year expense less funds available from other sources equal the net O&M expense recovered from rates. Line 13 presents a Net Test Year O&M expense of \$300.7 million.

	Base	Extra (Capacity	Custo	mer	Fire
Description	Base	Max. Day	Max. Ho ur	Meters	Cust/Bill.	Protection
Department Management	48.00%	25.00%	20.00%	5.00%		2.00%
Finance & Information						
Technology	53.00%	15.00%	15.00%	7.50%	7.50%	2.00%
Employee Services & Quality						
Assurance	48.00%	25.00%	20.00%	5.00%		2.00%
Customer Support Services	0.00%				100.00%	
Long Range Planning	100.00%					
Engineering Program						
Management	45.00%	25.00%	25.00%			5.00%
Environmental Monitoring &						
Technical Services	66.67%	33.33%				
Water Operations	35.00%	25.00%	20.00%	15.00%		5.00%
Fringe Benefits Adjustments	48.00%	25.00%	20.00%	5.00%		2.00%
Water Supply	70.00%			18.50%	10.00%	1.50%

Table 140&M Allocation Percentage for TY 14

Allocation of Capital Costs

The estimated investment in water system facilities serves as a proxy for the further distribution of capital-related costs to the various customer classes. Table 16 illustrates the allocation of estimated plant investment serving water customers for the Test Year. The total plant investment of just over \$2 billion shown on Line 13 represents the estimated Test Year original cost less accumulated depreciation of plant in service.

The allocation of specific items of investment to identified cost categories uses the basis previously described. For example, source of supply items correspond to flow (volume cost component) and then further delineated by whether the asset is common-to-all or primarily serves specific customers. Water treatment designs rely on treatment plant flow and are assigned to the volume cost function. Elements such as storage facilities serve to address system peaking needs, and as such have a max hour cost component.

				Commo	nto All Custome	ers
Ľ	Je		Base	Extra Ca	apacity	Custo
ž	p. Description	Total Costs	Base	Мах. Day	Max. Hour	Meters
		(\$)	(\$)	(\$)	(\$)	(\$)
	Operating Expenses					
-	L Department Manageme	ent 14,504,800	6,962,300	3,626,200	2,901,000	725,200
	Finance & Information					
7	2 Technology	18,068,200	9,576,200	2,710,200	2,710,200	1,355,100
	Employee Services & Q	luality				
3	3 Assurance	5,342,500	2,564,400	1,335,600	1,068,500	267,100
4	t Customer Support Serv	vices 8,219,500	0	0	0	0
- U	Long Range Planning	11,467,600	11,467,600	0	0	0

Table 15 Allocation of O&M Expenses to Functional Cost Components

				Commo	nto All Custo me	ers
Line	a		Base	Extra Ca	pacity	Custo
No	. Description	Total Costs	Base	Мах. Day	Max. Hour	Meters
		(\$)	(\$)	(\$)	(\$)	(\$)
	Operating Expenses					
Ч	Department Management	14,504,800	6,962,300	3,626,200	2,901,000	725,200
	Finance & Information					
2	Technology	18,068,200	9,576,200	2,710,200	2,710,200	1,355,100
	Employee Services & Quality					
e	Assurance	5,342,500	2,564,400	1,335,600	1,068,500	267,100
4	Customer Support Services	8,219,500	0	0	0	0
ŋ	Long Range Planning	11,467,600	11,467,600	0	0	0
	Engineering Program					
9	Management	8,736,500	3,931,500	2,184,100	2,184,100	0
	Environmental Monitoring &					
7	Technical Services	5,234,600	3,489,700	1,744,900	0	0
∞	Water Operations	83,239,400	29,133,700	20,809,900	16,647,900	12,485,900
6	Water Supply	220,110,100	154,077,000	0	0	40,720,400
10	Total O&M Expenses	374,923,200	221,202,400	32,410,900	25,511,700	55,553,700
11	Transfers	185,500	64,900	46,400	37,100	27,800
12	Total	375,108,700	221,267,300	32,457,300	25,548,800	55,581,500
	Less Other Revenue					
13	Miscellaneous Revenues	55,201,300	19,320,400	13,800,300	11,040,300	8,280,200
14	Other Adjustments	19,216,300	6,725,700	4,804,100	3,843,300	2,882,400
15	Net Operating Expenses	\$300,691,100	\$195,221,200	\$13,852,900	\$10,665,200	\$44,418,900

3,301,700 8,658,900

9,300

0

8,668,200

31,585,600

4,162,000

0

22,011,000 31,585,600

0

0

436,800

0

0 0

0

106,900

0

8,219,500

2,760,100 960,800

0 0

\$4,947,300

\$31,585,600

Protection (\$)

Cust/Bill. (\$)

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Fire

361,400

1,355,100

290,100

0

2	0
2	0

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Costs to F
Net Capital
Allocation of I
Table 16

					o nto All Custo me	ers		
Line			Base	Extra C	apacity	Customer		Fire
No.	Description	Total Costs	Base	Мах. Day	Max. Hour	Meters & Billing	Cust/Bill.	Pro tectio n
		(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
	Plant Assets							
1	Source of Supply	139,961,100	139,961,100	0	0	0	0	0
2	Pumping	41,246,400	27,497,600	13,748,800	0	0	0	0
£	Treatment	520,542,700	347,028,500	173,514,200	0	0	0	0
4	Transmission & Distribution	1,192,994,300	530,219,700	265,109,800	397,664,800	0	0	0
Ŋ	Meters & Service	39,852,900	0	0	0	39,852,900	0	0
9	Hydrants	3,321,100	0	0	0	0	0	3,321,100
7	Customer Billing	0	0	0	0	0	0	0
∞	General Plant	28,821,800	15,423,500	6,722,300	6,036,200	590,400	0	49,400
б	Recycled Water	34,119,200	15,164,100	7,582,000	11,373,100	0	0	0
10	Total Plant Assets	2,000,859,500	1,075,294,500	466,677,100	415,074,100	40,443,300	0	3,370,500
	Less Other Revenue							
11	Miscellaneous Revenues	0	0	0	0	0	0	0
12	Other Adjustments	0	0	0	0	0	0	0
13	Net Capital Expenses	\$2,000,859,500	\$1,075,294,500	\$466,677,100	\$415,074,100	\$40,443,300	\$0	\$3,370,500
14	Capital Cost Allocation	\$106,761,200	\$57,131,200	\$24,900,800	\$22,359,200	\$2,187,000	\$0	\$183,000

Units of Service

To establish the total cost responsibility of each class of service, we need to develop the unit costs of service for each cost function and assign those costs to the customer classes based on the respective service requirements of each. Each customer class receives its share of base, maximum day and peak hour costs. The number of units of service required by each customer class provides a means for the proportionate distribution of costs previously allocated to respective cost categories. Table 17 summarizes the estimated units of service for the various customer classes.

The cost of service responsibility for base costs varies with the volume of water requirements and may be distributed to customer classes on that basis. Extra-capacity costs are those costs associated with meeting peak rates of water use, and are distributed to customer classes based on their respective system capacity requirements in excess of average requirement rates. Customer costs, which consist of meter related costs, billing, collection and accounting costs, are allocated based on the number of equivalent meters and bills. Private fire protection costs are allocated based on equivalent fire hydrants.

Table 17 shows the estimated units of service for the various customer classifications. Estimates of test year annual water requirements, shown in Column 1, are based on the projections of total water sales from Table 3. Average daily use of all water sales, which is simply Column 2 divided by 365 days, is presented in Column 3. Columns 4 through 9 represent the estimated maximum day and peak hour capacity factors for each customer class.

In the overall rate-setting process, there is a need to establish a base level of cost for which the cost of all customers can be measured. Customer-related meter and service costs are allocated based on the number of equivalent 5/8" and 3/4" meters because these meter sizes are the most prevalent meter size found in many water utilities. Included in the development of meter cost ratios is the direct cost of the various categories of labor involved in the installation, fringe benefit related overheads and other appropriate administrative overheads applicable to the labor costs, all direct materials and supplies costs, and the cost of equipment used in the installation.

Generally, equivalent meter cost ratios should be used when assigning elements of costs specifically related to meters among the various sizes of meters used by the customer in the system. PUD's most prevalent meter size is $\frac{3}{4}$ ", and therefore is considered equal to one-meter equivalent. All larger meters are given a meter equivalent ratio based on hydraulic capacity, as illustrated in the box to the right. Thus, a 6-inch meter is the equivalent of thirty-three $\frac{3}{4}$ " meters based on hydraulic capacity.

	Capacity	Fire
Meter Size	Meter Ratio	Hydrant Ratio
5/8", 3/4"	1.00	
1"	1.70	0.01
1.5"	3.30	0.03
2"	5.30	0.06
3"	10.00	0.16
4"	16.70	0.34
6"	33.30	1.00
8"	53.30	2.13
10"	76.70	3.83
12"	143.30	6.19
16"	250.00	13.19

Customer billing and accounting costs are distributed to

classes based on number of bills for each customer class. The final column presents direct charges for fire protection and these costs are allocated using equivalent hydrant ratios summarized in the box above.

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Line		Consum	ption		Maximum Day			Maximum Ho ur				Fire
No.	Description	Annual	Avg. Day	Factor	Total	Extra	Factor	Total	Extra	Meters	Cust/Bills	Protection
	Column Reference	(1)	(2) = (1)/365	(3)	$(4) = (3) \times (2)$	(5) = (4) - (2)	(9)	(7) = (6) X (2)	(8) = (7) - (4)	(6)	(10)	(12)
	Units of Measure	(HCF)	(HCF/day)		(HCF/day)	(HCF/day)		(HCF/da y)	(HCF/day)	(EMs)	(Bills)	(EHs)
1	Single Family	27,880,636	76,385	175%	133,674	57,289	325%	248,252	114,578	235,295	2,663,388	0
2	Other Domestics	17,521,723	48,005	185%	88,809	40,804	335%	160,816	72,007	71,431	361,908	0
ę	Non-Residential [*]	20,319,467	55,670	200%	111,340	55,670	270%	150,308	38,969	61,721	202,092	0
4	Temp Construction	242,238	664	225%	1,493	830	425%	2,821	1,327	1,839	4,164	0
S	Irrigation	10,424,191	28,559	200%	57,119	28,559	420%	119,950	62,831	30,043	89,964	0
9	Subtotal	76,388,255	209,283		392,435	183,152		682,147	289,712	400,329	3,321,516	
	FireService											
7	Public Fire	0	0		1,249	1,249		5,994	4,745	0	0	25,060
∞	Subtotal	0	0		1,249	1,249		5,994	4,745	0	0	25,060
6	Total Water System	76,388,255	209,283		393,683	184,400		688,140	294,457	400,329	3,321,516	25,060

[*] Non-Residential customers include Commercial, Industrial, and Outside City.

In accordance with M1 standards and typical engineering design, the provision of the maximum hour component addresses peak system needs, in addition to those posed by fire protection requirements. To the extent possible, actual system and billing data by customer class is used to derive maximum day and maximum hour capacity factors. For the purposes of this analysis, peak factors were obtained from the City's Water Facilities Master Plan, January 2011, and from the City Engineering Department. As noted previously, these data sources yielded a maximum day to average day, or base, demand ratio of 1.50 and a maximum hour ratio of 2.25. These ratios are within the ranges typically experienced by other utilities across the nation.

Cost of Service Allo cations

Costs of service are allocated to the customer classes by application of unit costs of service to respective service requirements. Unit costs of service are based upon the total costs previously allocated to functional components and the total number of applicable units of service. Dividing the costs allocated to functional cost components by the respective total units of service requirements develops unit costs of operation and maintenance expense, and net capital costs.

Unit Costs of Service

Table 18 presents total Test Year O&M expense (Table 14) and net capital costs (Table 15) allocated to functional cost components.

				Com	monto All Custo	omers		
Line			Base	Extra C	Capacity	Custo	omer	Fire
No.	Descriptio n	Total Co sts	Base	Max. Day	Max. Ho ur	Meters	Cust/Bill.	Protection
		(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
	Unit Cost of Service							
1	Net Operating Expense	300,691,000	195,221,100	13,852,900	10,665,200	44,418,900	31,585,600	4,947,300
2	Capital Costs	106,761,200	57,131,200	24,900,800	22,359,200	2,187,000	0	183,000
3	Total Cost of Service	407,452,200	252,352,300	38,753,700	33,024,400	46,605,900	31,585,600	5,130,300
4	Units of Service (Total)		76,388,255	184,756	295,808	400,329	3,388,416	32,196
5	Cost per Unit		\$3.30	\$209.76	\$111.64	\$116.42	\$9.32	\$159.35
6	per Unit		HCF	HCF/Day	HCF/Day	EM	Bill	EH

Table 18 Unit Costs of Service for TY 14

Distribution of Costs of Service to Customer Classes

The customer class responsibility for service is obtained by applying the unit costs of service to the number of units for which the customer class is responsible. Table 19 illustrates this process, in which the unit costs of service are applied to the customer class units of service.

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Allocation of
Table 19

				Comm	onto All Custo r	ners		
Line			Base	Extra C	apacity	Custo	mer	Fire
No.	Description	Total Co sts	Base	Max. Day	Max. Hour	Meters	Cust/Bill.	Protection
		(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
			HCF	HCF/Day	HCF/Day	EM	Bill	EH
1	Cost per Unit		\$3.30	\$209.76	\$111.64	\$116.42	\$9.32	\$159.35
	Single Family							
2	Units		27,880,636	57,289	114,578	235,295	2,663,388	0
£	Allocation of costs of service	169,133,600	92,105,100	12,016,700	12,791,700	27,392,900	24,827,200	0
	Other Domestics							
4	Units		17,521,723	40,804	72,007	71,431	361,908	0
ŋ	Allocation of costs of service	86,171,300	57,883,900	8,558,900	8,039,000	8,315,900	3,373,600	0
	Non-Residential [*]							
9	Units		20,319,467	55,670	38,969	61,721	202,092	0
7	Allocation of costs of service	92,223,200	67,126,300	11,677,100	4,350,500	7,185,500	1,883,800	0
	Temp Construction							
∞	Units		242,238	830	1,327	1,839	4,164	0
6	Allocation of costs of service	1,375,300	800,200	174,000	148,200	214,100	38,800	0
	Irrigation							
10	Units		10,424,191	28,559	62,831	30,043	89,964	0
11	Allocation of costs of service	51,777,900	34,436,800	5,990,500	7,014,500	3,497,500	838,600	0
	PublicFire							
12	Units		0	1,249	4,745	0	0	25,060
13	Allocation of costs of service	4,784,800	0	261,900	529,700	0	0	3,993,200
	Private Fire							
14	Units		0	356	1,351	0	66,900	7,136
15	Allocation of costs of service	1,986,100	0	74,600	150,800	0	623,600	1,137,100
16	TOTAL COSTS OF SERVICE	\$407,452,200	\$252,352,300	\$38,753,700	\$33,024,400	\$46,605,900	\$31,585,600	\$5,130,300

[*] Non-Residential customers include Commercial, Industrial, and Outside City.

Adequacy of Existing Rates to Meet Costs of Service

Presented in Table 20 is a comparison of the allocated cost of service and revenue under existing rates for the system in total. Adjustments to the allocated cost of service take place in Column 3. For the Water Enterprise, public fire protection provides a general benefit to all customers, and thus, is allocated to all customers. The last column in the table indicates the approximate adjustment to customer class rate levels necessary to recover 100 percent of the allocated costs of service.

Line No.	Description	Allocated COS (\$)	Beneficial Use Allo catio n (\$)	Adjusted COS (\$)	Rev Under Existing Rates (\$)	Indicated Rev Increase (%)
	Column Reference	(1)	(2)	(3)	(4)	(5)
1	Single Family	169,133,600	2,328,700	171,462,300	160,376,000	6.91%
2	Multi Family	86,171,300	1,186,400	87,357,700	82,090,200	6.42%
3	Non-Residential [*]	92,223,200	1,269,700	93,492,900	87,273,500	7.13%
4	Construction	1,375,300	0	1,375,300	1,286,400	6.91%
5	Irrigation	51,777,900	0	51,777,900	47,111,800	9.90%
6	Subtotal	400,681,300	4,784,800	405,466,100	378,137,900	7.23%
7	Public Fire	4,784,800	(4,784,800)	0	0	0.00%
8	Private Fire	1,986,100	0	1,986,100	1,770,900	12.15%
9	Subtotal	6,770,900	(4,784,800)	1,986,100	1,770,900	12.15%
10	Total Water System	\$407,452,200	\$0	\$407,452,200	\$379,908,800	7.25%

Table 20 Comparison of Adjusted COS with Revenues under Existing Rates

[*] Non-Residential customers include Commercial, Industrial, and Outside City.

PROPOSED RATE ADJUSTMENTS

The initial consideration in the derivation of water rate schedules for utility service is the establishment of equitable charges to the customers commensurate with the cost of providing that service. While the cost of service allocations to customer classes should not be construed as literal or exact determinations, they offer a guide to the necessity for, and the extent of, rate adjustments. Practical considerations sometimes modify rate adjustments by taking into account additional factors such as the extent of change from previous rate levels, existing contracts, and past local policies and practices.

Existing Rates

A summary of existing water rates was presented earlier in Table 4. The existing rates consist of a service charge, which varies by customer class and meter size, and a separate commodity charge for each customer class applicable to each hundred cubic feet of billed water sales. The commodity charge uses a tier structure for all customer classes.

Proposed Rate Options

The costs of service analysis described in the preceding sections of this report provide a basis for the design of rates. It is important to note that the COS analysis represents current conditions and as discussed earlier in this report, current conditions are significantly different from those present during the 2007 Rate Case. As such, the discussions that follow illustrate a recalibration of the COS analysis to reflect a more accurate depiction of the costs of providing service to each customer class and rate recovery.

The rate schedule shown in the following tables take into consideration City policies and shows rates reflecting some modifications to the existing tier structure in order to better recover costs of service. At the request of the City, Black & Veatch examined four rate structures for the single-family residential (SFR) class and two options for the irrigation class. In order to implement any proposed rate structure modifications by January 1, 2014, modifications to other customer classes are not included due to lack of detailed customer data and / or the need to validate specific customer information. Rate structure modifications to these other customer classes may be included as part of the 2016 Rate Case.

The four SFR options examined are as follows:

- Option 1 Maintain the existing rate structure
- Option 2 Increase the pricing differential between tiers
- Option 3 Add a fourth tier
- Option 4 Modify Option 3 to have a smaller allowance in Tier 3

The two Irrigation rate structure options are as follows:

- Option 1 Maintain the existing structure
- Option 2 Develop a three tiered block structure that varies by meter size

Since the City's last rate case, Southern California has experienced severe drought conditions. As a result, consumer awareness regarding the need to conserve water is very high. Moreover, the increased use of water-efficient devices (toilets, dishwashers, washers, etc.) has helped customers conserve. To

provide an incentive for those who conserve, the proposed rate structure for single-family residential customers now includes a fourth tier. This new tier replaces the existing Tier 1 and is much smaller. The three units of water included in Tier 1 are priced at the lowest rate since it represents the City's least expensive source of water – local supply. In addition to expanding the number of tiers, the proposed structure also adjusts the pricing differential between the tiers to reflect more accurately the costs for each tier.

With the exception of Option 1, the meter charge or base fee, reflects the estimated cost of service rate. It includes the allocated cost of billing, meter service, and some elements of water supply (fixed costs charged by CWA). As described previously, the meter charges also reflect the recommendation of applying hydraulic capacity ratios to the meter sizes noted from the last rate case.

Tables 21 through 26 summarize the TY 14 and FY 15 rates for each proposed option.

		Meter Charge			Fire Protection	า
Meter Size or			Options2,3&			Options 2, 3 &
Fire Line Size	Existing Rates	Optio n 1	4	Existing Rates	Optio n 1	4
	(\$/monthly)	(\$/monthly)	(\$/monthly)	(\$/monthly)	(\$/monthly)	(\$/monthly)
5/8", 3/4"	19.33	20.34	18.89			
1"	28.46	29.95	25.59	6.26	6.57	2.40
1.5"	49.34	51.94	40.89	6.26	6.57	2.40
2"	75.44	79.42	60.03	8.35	8.77	3.73
3"	136.74	143.98	104.98	12.53	13.16	14.42
4"	224.15	236.03	169.07	16.70	17.54	18.44
6"	440.73	464.10	327.86	25.05	26.30	27.23
8"	701.64	738.85	519.16	33.40	35.07	38.46
10"	1,006.94	1,060.36	742.99	41.75	43.84	49.68
12"	1,875.82	1,975.34	1,380.05	50.10	52.61	59.29
16"	3.267.86	3.441.25	2,400.67	66.80	70.14	96.14

 Table 21
 Proposed Meter Rates for FY 14 (Effective January 1, 2014)

 Table 22
 Proposed Meter Rates for FY 15 (Effective January 1, 2015)

		Meter Charge			Fire Protection	1
Meter Size or			Options 2, 3 &			Options 2, 3 &
Fire Line Size	Existing Rates	Optio n 1	4	Existing Rates	Optio n 1	4
	(\$/monthly)	(\$/monthly)	(\$/monthly)	(\$/monthly)	(\$/monthly)	(\$/monthly)
5/8", 3/4"	19.33	21.87	20.31			
1"	28.46	32.19	27.51	6.26	7.06	2.58
1.5"	49.34	55.84	43.96	6.26	7.06	2.58
2"	75.44	85.38	64.53	8.35	9.43	4.00
3"	136.74	154.78	112.86	12.53	14.15	15.50
4"	224.15	253.73	181.75	16.70	18.86	19.82
6"	440.73	498.91	352.44	25.05	28.27	29.27
8"	701.64	794.27	558.10	33.40	37.70	41.34
10"	1,006.94	1,139.88	798.72	41.75	47.13	53.41
12"	1,875.82	2,123.49	1,483.55	50.10	56.56	63.74
16"	3,267.86	3,699.34	2,580.72	66.80	75.40	103.35

											_
	Monthly	Tiers [*]	R	late		MonthlyTiers [*] Rate		Rate	Monthly Tiers [*]		Rate
				Optio n	Optio n			Optio n			Optio n
Class	From	То	Existing Rates	1	2	From	То	3	From	То	4
	hcf	hcf	\$/hcf	\$/hcf	\$/hcf	hcf	hcf	\$/hcf	hcf	hcf	\$/hcf
Single Family	0	7	3.61	3.89	3.71	0	3	3.52	0	4	3.64
	8	14	3.92	4.21	4.62	4	10	4.05	5	12	4.08
	15+		4.40	4.72	5.54	11	20	5.29	13	18	5.82
						21+		7.40	19+		8.19
Other Domestics			3.92	4.21	4.34			4.34			4.34
Non Residential			3.76	4.04	4.17			4.17			4.17
Temp Construction			4.01	4.31	4.62			4.62			4.62

Table 23 Proposed Commodity Rates for TY 14 (Effective January 1, 2014)

[*] Bi-monthly tiers are twice monthly allowances

Table 24 Proposed Commodity Rates for FY 15 (Effective January 1, 2015)

	Monthly	Tiers [*]	R	ate		MonthlyTiers [*]		Rate	Monthly	/ Tiers [*]	Rate
			- · · · · ·	Optio n	Optio n			Optio n			Optio n
Class	From	То	Existing Rates	1	2	From	То	3	From	То	4
	hcf	hcf	\$/hcf	\$/hcf	\$/hcf	hcf	hcf	\$/hcf	hcf	hcf	\$/hcf
Single Family	0	7	3.61	4.18	3.99	0	3	3.79	0	4	3.91
	8	14	3.92	4.53	4.97	4	10	4.36	5	12	4.38
	15+		4.40	5.07	5.96	11	20	5.68	13	18	6.26
						21+		7.95	19+		8.80
Other Domestics			3.92	4.53	4.67			4.67			4.67
Non Residential			3.76	4.34	4.49			4.49			4.49
Temp Construction			4.01	4.63	4.97			4.97			4.97

[*] Bi-monthly tiers are twice monthly allowances

Table 25 Proposed Irrigation Commodity Rates for TY 14 (Effective January 1, 2014)

	Monthly	Tiers [*]	Rate	Rate		Monthly Tiers [*]		
				Optio n	Meter			Optio n
Class	From	То	Existing Rates	1	Size	From	То	2
	hcf	hcf	\$/hcf	\$/hcf	inches	hcf	hcf	\$/hcf
Irrigation	All	Use	4.01	4.62	≤1	0	25	4.45
						26	70	4.58
						>71		4.72
					1½ & 2	0	80	4.45
						81	200	4.58
						>201		4.72
					≥3	0	525	4.45
						526	4,100	4.58
						> 4,100		4.72

[*] Bi-monthly tiers are twice monthly allowances

	MonthlyTiers [*]		Rate	Rate		Monthly Tiers [*]		
				Optio n	Meter			Optio n
Class	From	То	Existing Rates	1	Size	From	То	2
	hcf	hcf	\$/hcf	\$/hcf	inches	hcf	hcf	\$/hcf
Irrigation	All	Use	4.01	4.97	≤1	0	25	4.78
						26	70	4.93
						>71		5.07
					1½ & 2	0	80	4.78
						81	200	4.93
						>201		5.07
					≥3	0	525	4.78
						526	4,100	4.93
						> 4,100		5.07

Table 26 Proposed Irrigation Commodity Rates for FY 15 (Effective January 1, 2015)

[*] Bi-monthly tiers are twice monthly allowances

Revenue Sufficiency

Presented in Table 27 is a comparison of Test Year allocated cost of service with revenues for each rate structure option. Test year costs of service are obtained from Table 19 and the proposed rates recover essentially 100 percent of the total cost of service.

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		Rev Under SFR		Rev Under SFR		Rev Under SFR Option3 &		Rev Under SFR Optio n4 &	
Description	Adjusted Co st of Service	& Irrigation Ontion1	Percent Recoverv	& Irrigatio n Ontio n 2	Percent Recoverv	Irrigation Option1	Percent Recoverv	Irrigation Option1	Percent Recoverv
	(\$)	(\$)	(%)	(\$)	(%)	(\$)	(%)	(\$)	(%)
Single Family	171,462,300	171,946,800	100%	171,252,900	100%	171,498,600	100%	170,966,600	100%
Multi Family	87,357,700	88,024,200	101%	87,931,900	101%	87,665,400	100%	87,665,400	100%
Non-Residential [*]	93,492,900	93,613,400	100%	93,600,400	100%	93,795,600	100%	93,795,600	100%
Construction	1,375,300	1,380,900	100%	1,374,700	100%	1,369,300	100%	1,369,300	100%
Irrigation	51,777,900	50,579,500	98%	51,734,200	100%	50,579,500	98%	50,579,500	98%
Subtotal	405,466,100	405,544,800	100%	405,894,100	100%	404,908,400	100%	404,376,400	100%
Fire Service									
Private Fire	1,986,100	1,989,800	100%	1,989,800	100%	1,989,800	100%	1,989,800	100%
Subtotal	1,986,100	1,989,800	100%	1,989,800	100%	1,989,800	100%	1,989,800	100%
Total Water System	\$407,452,200	\$407,534,600	100%	\$407,883,900	100%	\$406,898,200	100%	\$406,366,200	100%
[*] Non-Residential c	customers include	Commercial, Indu	ustrial, and Ou	utside City.					

Comparison of Typical Bills

While the rate structures considered above recover essentially 100 percent of the necessary costs of service for each customer class, Black & Veatch believes it is important to review the impact of any revenue adjustment and rate structure change on typical bills. Figures 4 through 7 illustrate a comparison of a typical bi-monthly bill for a single-family residential customer using 6 HCF, 12 HCF, 30 HCF, and 44 HCF for each rate option.





Figure 5. Single-Family Residential Bi-Monthly Typical Bill for ¾" Meter and Using 12 HCF



SFR Bi-Monthly Bill for 12 HCF



Figure 6. Single-Family Residential Bi-Monthly Typical Bill for ³/₄" Meter and Using 30 HCF





Wastewater Rate Study

REVENUE AND REVENUE REQUIREMENTS

To meet the costs associated with providing wastewater services to its customers, the Wastewater Fund derives revenue from a variety of sources including user charges from traditional customer classes, user charges from the U.S. Navy and regionally-located prisons, wholesale treatment charges, capacity fees, interest earned from the investment of available funds, sale of electricity/gas engine generation, and other miscellaneous revenues. The level of future revenue generated in the study is projected through an analysis of both historical and future system growth in terms of number of accounts and wastewater volume and loadings.

With revenue derived from the various sources, the Wastewater Fund meets the cash requirements of operation and maintenance (O&M); principal and interest payments on both bond and loan indebtedness; contributions to maintain reserve levels in accordance with the City's Reserve Policy, bond covenants, and loan funding agreements; and recurring annual capital expenditures for replacements, system betterments, and extensions not debt financed. Operation and maintenance expenses are those expenditures necessary to operate and maintain the system in good working order. Routine annual capital expenditures, which include equipment replacements, consist of recurring annual replacements, minor extensions, and betterments that are normally revenue financed. Other capital costs include principal and interest payments for bond issuances and SRF funding agreements, and cash financed capital improvements.

CustomerUsage Projections

To forecast revenue, the number of accounts and billed wastewater volume needs to be determined within Wastewater's service area. Growth is incorporated into the equation by projecting the number of accounts as shown in Table 28. Based on the wastewater master plan and discussions with City staff, Black & Veatch estimates that growth will remain flat over the study period.

	Fiscal Year Ending June 30,						
4	Estimated	Projected					
Descriptio n	FY 13	FY 14	FY 15				
	(Connections)	(Connections)	(Connections)				
Single Family	228,113	228,113	228,113				
Multi Family	28,400	28,400	28,400				
Non Residential [*]	15,954	15,954	15,954				
Total Connections	272,467	272,467	272,467				

Table 28 Historical and Projected Average Number of Accounts

[*] Includes Commercial and Industrial customers

Using the projected number of accounts and wastewater flow and effluent loading parameters per customer class, the projected wastewater billed volumes and strength loadings for the City were derived as shown in Table 29. Table 29 summarizes the projected billed volumes in hundred cubic feet (HCF) and pollutant strength loadings for chemical oxygen demand (COD) and total suspended solids (TSS) in pounds.

	Fiscal	Year Ending June	30,	
	Estimated	Projected		
Description	FY 13	FY 14	FY 15	
	(HCF)	(HCF)	(HCF)	
Single Family	19,772,440	19,772,440	19,772,440	
Multi Family	15,322,901	15,322,901	15,322,901	
Non Residential [*]	15,318,564	15,318,564	15,318,564	
Total Billed Wastewater Usage	50,413,905	50,413,905	50,413,905	

Table 29 Historical and Projected Billed Volume and Strength

Projected Wastewater Loadings									
	Fiscal	Year Ending June	30,						
	Estimated Projected								
Description	FY 13	FY 14	FY 15						
	(lbs)	(lbs)	(lbs)						
Chemical Oxygen Demand (COD)									
Commercial/Industrial	65,648,472	65,648,472	65,648,472						
TotalSuspended Solids (TSS)									
Commercial/Industrial	24,981,821	24,981,821	24,981,821						
[*] Includes Commercial and Indus HCF = hundred cubic feet	trial customers								

Revenue Projections

Wastewater's revenues are composed of three parts, depending on the type of customer class. There is a flat monthly service charge, a commodity charge, and a strength charge. The monthly service charge is a flat amount charged to customers predominately consisting of residential customers that have uniform strength characteristics. The user fees incorporate allowances for system return that differ by customer class. This adjustment factor recognizes that not all water consumed discharges to the wastewater system. The strength charge is a fee-based charge for COD and TSS. In accordance with the City's National Pollutant Discharge Elimination System (NPDES) permit, PUD monitors these pollutants as there are specific effluent discharge limits that require treatment of waste streams prior to wastewater stream discharge. Commercial/Industrial and Regional customers are monitored for strength loading. Summarized in Table 30 are the current wastewater rates.

Table 30 Existing Wastewater Rates (Effective March 1, 2012)

Description	Existing Rates	Description	Existing Rates
Single Family		Non-Residential [*]	
Base Sewer Fee (\$/month)	\$15.33	Base Sewer Fee (\$/month)	\$15.33
Flow (\$/HCF)	\$3.5983	Flow (\$/HCF)	\$3.7672
Multi Family		COD (\$/lb)	\$0.2242
Base Sewer Fee (\$/month)	\$15.33	TSS (\$/lb)	\$0.5517
Flow (\$/HCF)	\$5.0276		

[*] Includes Commercial and Industrial customers

Table 31 summarizes wastewater service charge revenue by incorporating the existing wastewater rates with customer usage projections and strength characteristics. Black & Veatch projects that the anticipated revenue generated will remain constant at \$284.5 million over the study period.

	Fiscal	Year Ending June	e 30,	
	Estimated	Projected		
Description	FY 13	FY 14	FY 15	
	(\$)	(\$)	(\$)	
Single Family	113,110,900	113,110,900	113,110,900	
Multi Family	82,261,900	82,261,900	82,261,900	
Non-Residential [*]	89,143,900	89,143,900	89,143,900	
Total Revenue	\$284,516,700	\$284,516,700	\$284,516,700	

Table 31 Revenues under Existing Rates

[*] Includes Commercial and Industrial customers

Operation and Maintenance Projections

Summarized in Table 32 are Wastewater's projected operation and maintenance (O&M) expenditures. These expenditures include costs related to personnel, contract services, operating supplies, utilities, and general administrative. The forecasted expenditures reflecting historical trends and the projected operational needs of the utility, based on Black & Veatch and City staff's expertise and knowledge. The figure box to the right summarizes key assumptions for inflation rates used in

Do		nal	Com	icaci	00/
Pei	SOL	nei	serv	ices:	0%

- Operating Supplies: 1%
- Contracts: 1%
- IT Expenses: 0%
- Energy& Utilities: 5%
- OtherExpenses: 0%

the O&M expense projections and applied to FY 15. The levels of adjustment illustrated on the right are consistent with recent increases seen throughout the area. Total O&M increases to roughly \$229.3 million in FY 14 and \$240.7 million in FY 15.

One of the major activities planned during the study period includes a multi-year condition assessment program that will focus on evaluating large wastewater pipelines and wastewater facilities. Another major expenditure projected over the study period includes the operational efficiency evaluation intended to focus on optimizing plant and distribution system processes. Based on PUD's historical performance, Black & Veatch has applied no adjustments to PUD's FY 14 and FY 15 budgets.

	Fiscal Year Ending June 30,				
	Estimated	Proj	ected		
Description	FY 13	FY 14	FY 15		
	(\$)	(\$)	(\$)		
Muni					
Department Management	4,236,219	6,598,300	8,336,400		
Finance & Information Technology	6,516,711	11,436,700	11,862,300		
Employee Services & Quality Assurance	1,516,094	2,056,400	1,797,200		
Customer Support Services	6,864,715	7,646,400	8,226,900		
Long Range Planning	29,280	32,500	200		
Engineering Program Management	4,239,095	6,167,600	9,777,200		
Wastewater Collection	38,712,882	41,654,600	42,363,200		
Wastewater Treatment	7,047,600	7,415,300	6,200,900		
Environmental Monitoring & Technical					
Services	5,507,192	6,328,900	5,792,600		
Subtotal Muni O&M Expenses	74,669,787	89,336,700	94,356,900		
Metro					
Department Management	1,691,221	8,598,500	9,779,500		
Finance & Information Technology	9,805,879	15,448,100	14,197,000		
Employee Services & Quality Assurance	2,768,289	3,832,900	3,752,900		
Customer Support Services	17	0	41,800		
Long Range Planning	1,336,492	3,440,600	1,984,800		
Engineering Program Management	2,995,426	6,421,500	7,195,700		
Wastewater Collection	0	0	0		
Wastewater Treatment	79,651,987	87,736,600	93,952,300		
Environmental Monitoring & Technical					
Services	15,126,614	14,461,400	15,406,600		
Subtotal Metro O&M Expenses	113,375,927	139,939,600	146,310,600		
Total Wastewater O&M Expenses	\$188,045,713	\$229,276,300	\$240,667,500		

Table 32 Historical and Projected Operation and Maintenance Expenses

Capital Improvement Program

While O&M expenses cover day-to-day operations, the wastewater system incurs additional capital expenditures to replace existing wastewater facilities. As a result, PUD has developed a long-term Capital Improvement Program (CIP) that identifies future wastewater facilities needs. The CIP shown in Table 33 is for FY 14 through FY 15 and summarizes the capital improvement projects by category during the study period. As part of the financial plan analysis, Black & Veatch applied an annual inflation allowance to FY 15 of 2.27 percent based on the 5-year ENR's historical average for Construction Cost Indices.

Table 34 presents a detailed listing of projects (uninflated values) for the study period. The CIP is a constantly evolving program and PUD staff review all projects on an annual basis. Consequently, projects may shift out in time or drop off the CIP if they become unnecessary. Conversely, PUD may add projects

as the need arises. Black & Veatch suggests that the reader not construe the projects listed in Table 34 as "set in stone", but rather as indicative of the nature of projects planned for execution over the study period. We note that the CIP project totals presented in Tables 33 and 34 reflect capital expenditures (cash out the door) versus the budgeted (encumbered) values shown in the City's approved CIP. Furthermore, as part of the current rate case, Black & Veatch in discussions with PUD staff have applied a 15 percent discount rate to the CIP (expenditure) values to more closely align study period execution with historic levels.

Table 33 Capital	Improvement Program
------------------	---------------------

	Fiscal Year Ending June 30,		
	Pro	ojected	
Description	FY 14 FY 15		
	(\$)	(\$)	
Pipelines	88,623,098	75,787,562	
Trunk Sewers	10,817,962	7,089,613	
Muni Pump Station	7,945,118	3,362,769	
Large Pump Station	1,071,327 3,515,69		
Treatment Plants	25,393,658 24,856,28		
Other	6,299,870	6,700,745	
Subtotal Capital Improvement Program	140,151,032	121,312,663	
Less Adjustments	(21,022,655)	(18,196,899)	
Add Inflationary Factor	0 2,338,14		
Total Capital Improvement Program (Inflated)	\$119,128,377	\$105,453,908	

Black & Veatch notes that over the past few years, the City has implemented a number of business process changes including the following:

- Making changes to the Municipal Code allowing for Multiple Award Construction Contracts (MACC) that speed the selection and award process for design build procurements,
- Increasing the task limits for Job Order Contracts, and
- Developing the project cascade list to allow CIP funds remaining in a project at completion to move directly to a priority project.

The PUD expects to see the full effect of these changes after the current rate case.

The proposed CIP includes a continued focus on main replacement to maintain a target of 45 miles. Another priority CIP project for PUD during the study period is the installation of permanent back-up generators at several pump stations, and upgrades to the generator at the Environmental Monitoring and Technical Services Laboratory.

PUD is projecting expenditures of \$224.6 million (after adjustments) for collection and transmission pipelines, treatment, pump stations, trunk sewers and other capital improvement projects over the next 2 years.

	Fiscal Year Endi	ng June 30,		Fiscal Year Enc	ling June 30,
	Project	ed		Projec	cted
Description	FY 14	F 15	Description	FY 14	F 15
	(\$)	(\$)		(\$)	(\$)
Metro TreatmentPlants	4,333,820	4,346,674	Pt Loma-South Access Road Protection Project	0	0
Pump Station Restorations	1,754,915	1,618,674	S. Metro Sewer Rehab Phase 3B	100,000	397,445
Metropolitan System Pump Stations	262,500	515,691	EMT&S Boat Dock & Steam Line Rel ocation	222,167	1,447,251
Pump Station 64,65, Penasquitos, E Mission Gorge	3,100,727	1,744,095	MBC - Biosolids Storage Silos	4,527,083	2,261,852
Sewer Main Replacements	55,341,920	48,298,196	MBC Odor Control Facility Upgrades	200,000	3,337,842
Pipeline Rehabilitation	32,104,038	24,133,391	North City Water Reclamation Plant EDR Upgrade	0	0
Unscheduled Projects	1,177,140	3,355,976	Carmel Valley Trunk Sewer	0	0
Metropolitan Waste Water Department Trunk Sewers	7,041,407	5,909,149	East Mission Gorge Force Main Rehab	100,000	783,019
Metro Facilities Control Systems Upgrade	2,444,623	680,506	East Point Loma TS 12/11 EPAPW	0	0
Municipal Facilities Control Systems Upgrade	200,000	1,136,288	Balboa Avenue Trunk Sewer	0	0
MBC - New Biosolids Truck Loadout Facility	0	0	Montezuma TS 06/13 EPA	716,941	0
Wet Weather Storage Facility Phase 1 (w/ Emergency Streal	0	0	USIU Trunk Sewer 4/13 EPA	204,198	0
South Bay Waste Water Treatment Plant Phase 1	0	0	Lake Murray In Canyon Trunk Sewer 12/11 EPA	0	0
South Bay Pump Station and Conveyance System Phase 1	0	0	Harbor Drive TS 06/13 EPAPW	1,293,339	0
Vulnerability Measures	0	0	Sewer Pump Station 41 Rehabilitation	0	0
S Mission Valley TS 10/11 EPA	5,815	0	MBC DEWTRING CNTRFGS RPLMT (SA) JO#141590	3,000,000	4,000,000
PS Group I - North County SPS Upgrades	0	0	Pipeline Rehabilitation Phase "F-1"	0	0
PS Group II - City Wide SPS	142,285	0	CIP Bond Issuance Reserve	0	0
PS Group III - Sewer Force Mains	747,190	0	CIS ERP Implementation	0	0
PS 84 Upgrade and PS 62 Abandonment	2,200,000	0	Balboa Terrace TS 06/13 EPA	1,356,262	0
NCWRP Sludge PS Upgrade	133,227	0	Backup Generators at SPS's, TP, & EMTS-METRO	1,414,155	4,854,740
SBWRP Demineralization	2,500,000	378,734	EAM ERP Implementation (Muni)	3,433,080	3,336,700
PS2 Power Reliability & Surge Protection	675,600	3,000,000			
Wet Weather Storage Facility	0	100,000			
PLWWTP Grit Processing (GIP)	9,418,600	5,676,441	Total CIP without Adjustments and Uninflated	\$140,151,032	\$121,312,663

Table 34 Uninflated Capital Improvement Program by Project without Adjustments

Capital Fund Financing

Table 35 presents a proposed financing plan for Wastewater's CIP. Financing for the CIP comes from a combination of funds on hand, SRF loan proceeds, previously collected capacity fees, transfers, and cash financing.

Table 35 CIP Financing Plan

	Fiscal Year Ending June 30,		
	Proje	ected	
Descriptio n	FY 14	FY 15	
	(\$)	(\$)	
Source of Funds			
BondProceeds	\$0	\$0	
SRF Proceeds	\$24,675,500	\$5,680,600	
Grants	\$0	\$0	
Capacity Fees	\$9,279,000 \$9,279,00		
PAYGO Funds	\$23,825,700 \$21,090,80		
Other Cash Financing	\$39,026,915	\$69,403 <i>,</i> 500	
DRES Transfers	\$22,321,285	\$0	
Capital Reserve Transfers	\$0		
Total Sources	\$119,128,400 \$105,453,90		
Use of Funds			
Capital Projects	119,128,400	105,453,900	
Total Uses	\$119,128,400	\$105,453,900	

Similar to Water, Wastewater maintains several funds that are used to finance CIP projects as well as to separate the commingling of rate funds, bond proceeds and capacity fee funds. The capital funds include revenue from developer capacity fees, transfers and debt proceeds. Wastewater will depend on rate and fee revenue, reserves and loan proceeds to execute planned CIP projects. PUD is proposing no debt financing for the study period CIP. Instead, PUD proposes to finance the 2013 Rate Case CIP through a combination of fully drawing down Dedicated Reserve from Efficiency and Savings (DRES) reserves and using cash on hand.

Operating Fund Financing

Tables 36 and 37 summarize the proposed operating financial plan for Wastewater over the study period. This financial plan generates sufficient funds to cover short-term and long-term expenses. Sources of funding include wastewater service charge revenue under existing rates, miscellaneous revenue and interest earnings on available balances.

				Fiscal Year Ending June 30,		
Line				Estimated	Proj	ected
No.		Description		FY 13	FY 14	FY 15
				(\$)	(\$)	(\$)
	Revenue					
	Rate Revenue	,				
1	Revenue from	Existing Rates		284,516,700	284,516,700	284,516,700
		Month				
2	Year	Effective	Rate Adj			
3	FY 14	6	0.00%		0	0
4	FY 15	6	0.00%			0
5	Increased Rev	venue Due to Ac	ljustments	0	0	0
6	Subtotal Ra	ate Revenue		284,516,700	284,516,700	284,516,700
	Other Operat	ing Revenue				
7	Other Sewage	Services		8,073,000	8,097,000	8,122,000
8	Maint & Oper	ration Metro		66,949,500	76,531,800	77,931,000
9	Other Sewage	TreatmentPlar	nt	15,000	15,000	15,000
10	New Sewer Se	ervice		0	0	7,000
11	Services Rend	lered Other Fun	ds	8,821,000	8,795,000	4,545,000
12	Other Revenu	ie		3,301,300	310,000	5,615,000
13	Subtotal Ot	her Operating	Revenue	87,159,800	93,748,800	96,235,000
	Non-Operatir	ng Revenue				
14	Sale of Electr	icity/Gas Engin	e Generation	1,480,000	1,406,000	1,850,000
15	Earnings from	n Investments		3,499,300	3,467,600	5,460,500
16	Subtotal No	on-Operating Re	evenue	4,979,300	4,873,600	7,310,500
	Transfers					
17	From Operati	ng Reserve		0	0	0
18	From Rate Sta	bilization Rese	erve	0	0	0
19	From DRES			0	0	0
18	Subtotal Tr	ansfers		0	0	0
20	Total Revenue	e		\$376,655,800	\$383,139,100	\$388,062,200

Table 36 Operating Fund Financing Plan – Part I: Revenues [+]

[+] Amounts may not total due to rounding.

		Fiscal Year Ending June 30,			
Line		Estimated	Estimated Projec		
No.	Descriptio n	FY 13	FY 14	FY 15	
		(\$)	(\$)	(\$)	
	Revenue Requirements				
	Operatina & Maintenance				
21	O&M Expenses (Muni)	74.669.800	89.336.700	94.356.900	
22	O&M Expenses (Metro)	113.375.900	139.939.600	146.310.600	
23	Subtotal O&M	188,045,700	229,276,300	240,667,500	
	Debt Service				
	Existing Long Term Debt				
24	Revenue Bonds	102,487,700	102,483,500	102,486,200	
25	SRF Loans	6,059,200	7,354,000	10,372,900	
	Proposed Long Term Debt				
26	Revenue Bonds	0	0	0	
27	Total Debt Service	108,546,900	109,837,500	112,859,100	
	Transfers				
28	To CIP Fund (PAYGO)	21 337 300	23 825 700	21 090 800	
29	To CIP Fund (Other Capital Financing)	39 374 400	39 026 900	69 403 500	
30	To Operating Reserve	4.192.800	0	2.431.600	
31	To Capital Reserve	0	0	0	
32	To Rate Stabilization Reserve	0	0	0	
33	To DRES	0	0	0	
34	Total Transfers	64,904,500	62,852,600	92,925,900	
25	Total Povenue Pequirements	\$261 /07 100	\$401 966 400	\$446 452 500	
55	Total Nevenue Nequilements	Ş 301, 4 <i>37</i> ,100	Ş401,500,400	Ş 4 40,452,500	
36	Net Annual Cash Balance	15,158,700	(18,827,300)	(58,390,300)	
37	Beginning Fund Balance	432,872,500	448,031,200	429,203,900	
38	Net Cumulative Fund Balance	\$448,031,200	\$429,203,900	\$370,813,600	
	Minimum Target Reserves Balances [*]				
39	Operating Reserve	43,723,800	43,723,800	46,155,400	
40	Capital Reserve	5,000,000	5,000,000	5,000,000	
41	Rate Stabilization Reserve	21,300,000	21,300,000	21,300,000	
42	DRES Reserve	22,321,285	0	0	
43	Total Minimum Target Reserves	92,345,085	70,023,800	72,455,400	
44	Cumulative Fund Balance Less Reserves	\$355,686,115	\$359,180,100	\$298,358,200	

[+] Amounts may not total due to rounding.

[*] Reserves targets are set by the City's Reserve Policy.

Based on the existing revenue indicated on Line 1 of Table 36, additional rate adjustments are not necessary to meet operating fund requirements and fiscal policy objectives for FY 14 and FY 15. Any changes to the capital-financing policies and/or CIP may alter these results since the operating fund helps supplement funds for traditional repair and replacement of projects.

In addition to rate revenue, other operating and non-operating charges contribute to the income of the Wastewater Enterprise. Typically, these revenue sources are minimal and volatile and are thus considered a constant in the revenue projections. A non-operating source includes interest income from the operating fund.

Projected total O&M expenses are shown on Lines 21 through 23. The O&M expenses shown represent expenses associated with operating the wastewater utility for both the Muni and Metro systems. Lines 24 and 25 summarize the debt service on revenue bonds and SRF loans, and proposed debt service on new debt issuances is shown on Line 26. Line 27 is the sum of all outstanding debt

Transfers to fund the CIP and other reserve accounts in accordance with the City's Reserve Policy occur on Lines 28 through 34. The total revenue requirements for the study period appear on Line 35.

Line 36 calculates the net annual cash balance for each year and then Lines 37 and 38 summarize the impact to the ending fund balances for Wastewater. Finally, we note that the beginning fund balance shown on Line 37 for FY 13 is inclusive of reserve amounts. To obtain a true picture of the operating condition for Wastewater, we subtract out these reserve amounts, as shown on Lines 39 through 43. Line 44 presents the net cumulative fund balance less reserves.

Summary of Revenues, Expenditures, and Obligations

Similar to Water, to maintain financial viability as an enterprise fund, Wastewater's annual revenues must be sufficient to satisfy three elements:

- 1. Adequate cash flow to cover O&M, capital and debt obligations
- 2. Meet debt service coverage (DSC) covenants
- 3. Maintain reserve funds

Long-term financial viability requires meeting all three elements. The need for revenue adjustments is either "cash flow" driven or "coverage" driven depending on which of the first two elements creates the larger adjustment.

Tables 38 and 39 summarize Wastewater's current outstanding senior (parity) and subordinate debt obligations. Wastewater's debt requirements have two separate DSC requirements. For senior or parity debt, the DSC is 1.2x; for aggregate debt, the DSC is 1.1x. Black & Veatch recommends that PUD consider using a 1.25x minimum target for aggregate debt instead of the 1.1x. Failure to initiate sufficient revenue increases to maintain adequate DSC ratios and / or meet capital needs may result in downward pressure on the City's bond rating.

		Fiscal Year Ending June 30,		
Line		Estimated	Pro	jected
No.	Descriptio n	FY 13	FY 14	FY 15
		(\$)	(\$)	(\$)
	Parity Debt			
	Revenue Bonds			
1	Revenue Bond, Series 2009A	36,284,981	36,280,481	36,280,931
2	Revenue Bond, Series 2009B	57,701,388	57,701,738	57,703,988
3	Revenue Bond, Series 2010A	8,501,325	8,501,325	8,501,325
4	Subto tal Revenue Bonds	102,487,694	102,483,544	102,486,244
	SR FLoans			
	Point Loma Grit Processing Improvement			
5	S00315/Loan No. C-06-4395-110	0	0	2,078,843
	Sewer Pipeline Rehabilitation Project - MNOP			
6	B10184,B10182,B10185,B10192/Loan No. C-06-4905-110	0	1,294,768	1,294,768
	Sewer Pipeline Rehabilitation Project - Q			
7	B11074/Loan No. C-06-4905-120	0	0	177,811
	Sewer Pipeline Rehabilitation Project - RS			
8	B11062,B11078/Loan No. C-06-4905-130	0	0	529,956
	Sewer Pipeline Rehabilitation Project - T1			
9	B11120/Loan No. C-06-4905-140	0	0	232,309
10	Subtotal SRF Loans	0	1,294,768	4,313,686
11	Total Parity Debt	\$102,487,694	\$103,778,312	\$106,799,930
12	Subordinate Debt			
	SR FLoans			
	Point Loma Digesters 7 & 8			
13	CIP #46-170.0 / Loan No. C-06-4383-110	636,727	636,727	636,727
	Point Loma Central Boilers			
14	CIP #46-170.0 / Loan No. C-06-4542-110	401,210	401,210	401,210
	Point Loma Maintenance Building Expansion			
15	CIP #45-911.3 / Loan No. C-06-4690-110	51,603	51,603	51,603
	South Bay Water Rec. Plant, Package 2			
16	CIP #42-910.6 /Loan No. C-06-4119-410	151,582	151,582	151,582
	South Bay Water Rec. Plant, Package 3			
17	CIP #42-910.6 / Loan No. C-06-4119-510	2,024,698	2,024,698	2,024,698
	South Bay Sewers & Pump Station, Pkg. A			
18	CIP #40-911.3 / Loan No. C-06-4650-110	464,497	464,497	464,497
10	South Bay Sewers & Pump Station, Pkg. B	251 164	251 164	251 164
19	CIP #40-911.3 / LOan NO. C-06-4650-210	251,164	251,164	251,164
20	CIP #46-170.0 / Loop No. C-06-4718-110	191 056	484 056	191 056
20	Environ Monitoring Serv Lab	464,050	484,050	464,050
21	CIP $\#46_{-}1870/1$ can No C-06-4703-110	637 / 32	637 132	637 / 32
21	Point Loma 4th Sludge Pump Modifications	037,432	037,432	037,432
22	CIP #41-925.0/ Loan No. C-06-4786-110	257 218	257 218	257 218
	Point Loma Digesters S1 & S2	237,210	257,210	237,210
23	CIP #46-218.0 / Loan No. C-06-4540-110	699.028	699.028	699.028
24	Subto tal SRF Lo ans	6,059.214	6,059.214	6,059.214
25	Total Subordinate Debt	\$6.059.214	\$6.059.214	\$6.059.214
26	Total Debt	\$108,546,908	\$109.837.526	\$112,859,144

Table 38 Estimated Debt Service Coverage on Existing Debt – Part I: Existing Debt Summary

		Fiscal Year Ending June 30,		ie 30,
Line		Estimated	Pro	jected
No.	Description	FY 13	FY 14	FY 15
		(\$)	(\$)	(\$)
	Debt Service Coverage Calculation			
	Operating Revenue			
27	Sewer Service Charges	284,516,700	284,516,700	284,516,700
28	Other Sewage Services	8,073,000	8,097,000	8,122,000
29	Maint & Operation Metro	66,949,500	76,531,800	77,931,000
30	Other Sewage Treatment Plant	15,000	15,000	15,000
31	New Sewer Service	0	0	7,000
32	Services Rendered Other Funds	8,821,000	8,795,000	4,545,000
33	Other Revenue	3,301,300	310,000	5,615,000
34	Sale of Electricity/Gas Engine Generation	1,480,000	1,406,000	1,850,000
35	Total Operating Revenue	373,156,500	379,671,500	382,601,700
	Operating Expenses			
36	Department Expenses (Muni)	74,669,800	89,336,700	94,356,900
37	Department Expenses (Metro)	113,375,900	139,939,600	146,310,600
38	Total Operating Expenses	188,045,700	229,276,300	240,667,500
39	NetOperating Revenue	185,110,800	150,395,200	141,934,200
40	Transfer (to)/from Rate Stabilization Fund	0	0	0
41	Interest Income on Operating Funds	3,499,300	3,467,600	5,460,500
42	Capacity Fee Proceeds	9,279,000	9,279,000	9,279,000
43	Total Adjusted Net System Revenues	197,889,100	163,141,800	156,673,700
44	Senior Debt Service Coverage (Line 43 / Line 11)	1.93	1.57	1.47
45	Aggregate Debt Service Coverage (Line 43 / Line 26)	1.82	1.49	1.39

Table 39 Estimated Debt Service Coverage on Existing Debt – Part II: Debt Service Coverage Calculatio	Table 39 Estimated Debt Service (Coverage on Existing Debt –	- Part II: Debt Service Coverage Calculat	ion
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Based on the analyses of revenues and revenue requirements, Black & Veatch recommends that Wastewater does not need a rate revenue increase in FY 14 and FY 15. The City and PUD should be able to accomplish its objectives under the assumption that no significant change occurs. While the financial plan should be a working document, Wastewater will need to re-examine the rate structure prior to FY 16 to verify it is still adequate.