City of Los Angeles

Integrated Resources Plan

Financial Plan

December 2006

City of Los Angeles
Department of Public Works
Bureau of Sanitation

and

Department of Water and Power

FINAL

City of Los Angeles Integrated Resource Plan

Financial Plan

December 2006

Prepared for

City of Los Angeles
Department of Public Works
Bureau of Sanitation
and
Department of Water and Power

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Final Report

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Section 1
Introduction

1.1 Background on Integrated Resources Plan

The City of Los Angeles has embarked on a unique approach of technical integration and community involvement to guide policy decisions and water resources facilities planning. The Integrated Resources Plan (IRP) incorporates a future vision of water, wastewater and runoff management in the City that explicitly recognizes the complex relationships that exist among all of the City's water resources activities and functions. Addressing and integrating the water, wastewater and runoff needs of the City in the year 2020, the IRP also takes important steps toward comprehensive basin-wide water resources planning in the Los Angeles area. This integrated process is a departure from the City's traditional single-purpose planning efforts for separate agency functions, and it will result in greater efficiency and additional opportunities for citywide benefits, including potential overall cost savings. The process also highlights the benefits of establishing partnerships with other City departments, neighboring cities, regional agencies, and other associations, both public and private.

The IRP seeks to accomplish two basic goals as part of developing an implementable facilities plan:

- Integrate water supply, water conservation, water recycling and runoff management issues with wastewater facilities planning through a regional watershed approach, and
- Enlist the public in the entire planning and design development process from a very early stage beginning with the determination of policy recommendations to guide planning.

The IRP is a multi-phase program:

- Phase I – Integrated Plan for the Wastewater Program (completed in 2001): Focused on defining the future vision for the City by developing a set of guiding principles to direct future, more detailed water resources planning.
- Phase II – Integrated Resources Plan (completed in 2006): Developed a detailed facilities plan for wastewater and urban runoff management, an environmental impact report, and a financial plan. In addition, a separate recycled water master plan was also prepared for the Los Angeles Department of Water & Power (DWP).
- Phase III – Project Implementation (2006 and beyond): Includes future concept reports, studies, demonstration and pilot projects, and design and construction projects to implement the capital improvement program (CIP) developed as part of Phase II.

The City is facing many challenges including: the dynamic nature of current and projected regulations affecting the recycled water, runoff and wastewater programs; potential community concerns with expansion of existing wastewater facilities or sitting new wastewater, runoff and recycled water facilities in neighborhoods; funding needs for the proposed facilities and programs; and the importance of inter-agency coordination to handle jurisdictional issues. By addressing these challenges now as part of the IRP, the City will move forward towards having the structure and tools in place to adapt to changing conditions in the future.

The combination of Phases I and II constitute the documentation and overall implementation plan for the IRP, which is intended as an integration of the City's water (recycled water and water conservation), wastewater (collection, treatment and biosolids) and runoff (dry weather and wet weather) service functions. By using this integrated approach, the City will establish a framework for a sustainable future for the Los Angeles basin—one where there are sufficient wastewater services, adequate water supply and proper and proactive protection and restoration of the environment.

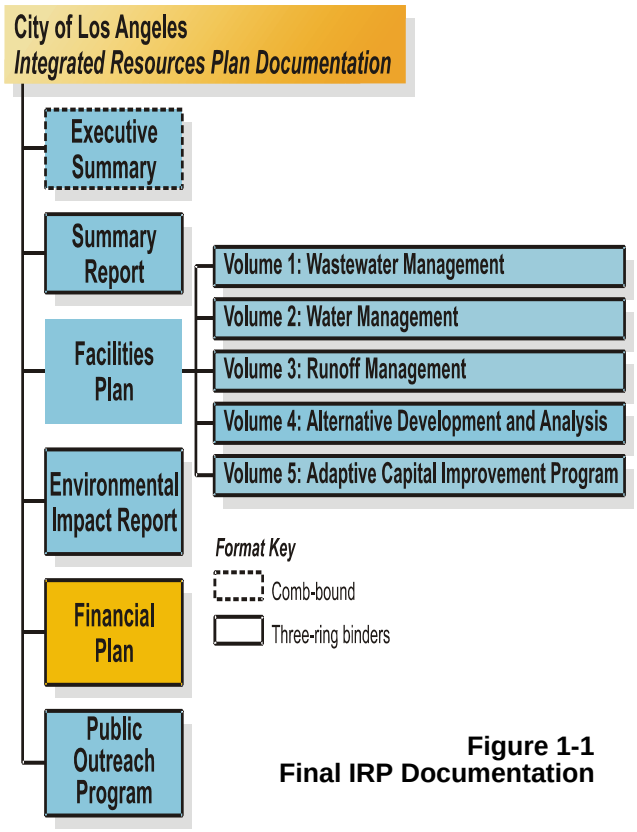


Figure 1-1
Final IRP Documentation

1.2 Overview and Purpose of Financial Plan

The IRP documentation includes a series of volumes consisting of an Executive Summary; a Summary Report; Facilities Plan (five volumes); a Final Environmental Impact Report (EIR); a Financial Plan; and a Public Outreach document. Figure 1-1 illustrates the organization of these volumes.

As part of developing the IRP, over 20 preliminary alternatives were developed and evaluated using a participatory decision-making stakeholder process. Based on stakeholder consensus, four alternatives were selected for further evaluation in an EIR, prepared in accordance with California Environmental Quality Act (CEQA) requirements. Preliminary capital and operations and maintenance (O&M) cost estimates were developed for the four alternatives with the intent to develop a

preferred strategy with further refinement once a Recommended Alternative was selected.

Based on the EIR and additional cost-benefit analysis, Alternative 4 was recommended by staff as the preferred alternative for implementing the IRP. The recommended IRP alternative was approved by City Council on November 14, 2006.

The *IRP Financial Plan* has been developed to present the cost and financial impacts of the Recommended Alternative for both wastewater and runoff management. Financial impacts associated with recycled water and water conservation were not addressed in this financial plan as DWP develops its own CIP and financial planning separate from the IRP process.

The *IRP Financial Plan* will summarize the revenue requirements for baseline conditions (without the IRP) and IRP-related costs, discuss existing and potential funding sources, and present financial impacts (see Table 1 for the outline of the document).

Table 1-1
Sections of the IRP Financial Plan

Section	Brief Description
1 – Introduction	Background of IRP, overview of 4 IRP alternatives, initial financial screening of alternatives, purpose of financial plan
2 – Baseline Revenue Requirement	Summary of baseline revenue requirements for wastewater and runoff management without the IRP.
3 – IRP-Related Capital and O&M Costs	Description of IRP-related capital and O&M costs for the Recommended Alternative.
4 – Funding Sources for IRP	Discussion of existing and potential funding sources for the IRP.
5 – Financial Impacts	Cash flow analysis for baseline condition and IRP scenario with indicated rate impacts for wastewater and urban runoff.
Appendices	Supporting documentation.

The *IRP Facilities Plan, Volume 5: Adaptive Capital Improvement Program* is the basis for the cost assumptions and project timing for the *IRP Financial Plan*. The Adaptive CIP was developed to reflect the Recommended Alternative and includes changes in capital costs and project schedules for the Recommended Alternative since completion of the preliminary capital cost estimates contained in the *IRP Facilities Plan*.

1.3 Overview of Four IRP Alternatives

1.3.1 Description

The *IRP Facilities Plan, Volume 4: Alternatives Analysis and Development* evaluated a number of options and developed four IRP alternatives for further evaluation based on technical and financial coarse screening of twenty preliminary alternatives. These four IRP alternatives represent a range of wastewater treatment options and a range of water resources management options, including runoff management, water recycling, and water conservation.

These alternatives are:

- ***Alternative 1: Expansion of Hyperion Treatment Plant (Hyperion) to 500 million gallons per day (mgd) with high potential for water resources projects (Hyperion Alternative):*** Alternative 1 would focus the expansion of wastewater treatment capacity only at Hyperion by increasing its current capacity of 450 mgd to 500 mgd. Alternative 1 would also upgrade the Donald C. Tillman Water Reclamation Plant (Tillman) to advanced treatment and add wastewater storage at Tillman and wastewater and recycled water storage at the Los Angeles-Glendale Water Reclamation Plant (LAG). In addition, Alternative 1 would reuse up to 42,000 acre-feet per year of recycled water for non-potable reuse, as well as manage up to 42 percent of the dry weather and 47 percent of the wet weather urban runoff generated in the City.

- ***Alternative 2: Donald C. Tillman Water Reclamation Plant (Tillman) Expansion (to 80 mgd) and Los Angeles-Glendale Water Reclamation Plant (LAG) Expansion (to 30 mgd) with high potential for water resources projects (Tillman-LAG Alternative):*** Alternative 2 would focus the expansion of wastewater treatment capacity at Tillman by increasing its assumed derated capacity of 64 mgd to 80 mgd and LAG by increasing its assumed derated capacity of 15 mgd to 30 mgd. Both of these plants would be upgraded to advanced treatment, and wastewater storage at Tillman and wastewater and recycled water storage would be added at LAG. In addition, Alternative 2 would reuse up to 53,200 acre-feet per year of recycled water, as well as manage up to 42 percent of the dry weather and 47 percent of the wet weather urban runoff generated in the City.

- ***Alternative 3: Tillman Expansion (to 100 mgd) with moderate potential for water resources projects (Tillman Moderate Alternative):*** Alternative 3 would focus the expansion of wastewater treatment capacity only at Tillman by increasing its assumed derated capacity of 64 mgd to 100 mgd and upgrading its treatment processes to advanced treatment. This alternative would add wastewater storage at Tillman and wastewater and recycled water storage at LAG. In addition, Alternative 3 would reuse up to 43,400 acre-feet per year of recycled water, as well as manage up to 26 percent of the dry weather and 39 percent of the wet weather urban runoff generated in the City.

- ***Alternative 4: Tillman Expansion (to 100 mgd) with high potential for water resources projects (Tillman High Alternative)***: Alternative 4 would focus the expansion of wastewater treatment capacity only at Tillman by increasing its assumed derated capacity of 64 mgd to 100 mgd and upgrading its treatment processes to advanced treatment. This alternative would add wastewater storage at Tillman and wastewater and recycled water storage at LAG. In addition, Alternative 4 would reuse up to 56,100 acre-feet per year of recycled water, as well as manage 42 percent of the dry weather and 47 percent of the wet weather urban runoff generated in the City.

1.3.2 Initial Capital Improvement Program and Operations and Maintenance Costs

IRP CIP costs and associated O&M costs were developed for both the wastewater and runoff management components of the IRP to evaluate the four IRP alternatives from a financial perspective, using screening-level financial models. The models were developed independent of the City's wastewater and runoff management rate models, but used consistent information and assumptions.

Cost estimates for the wastewater and runoff management rate models consisted of baseline and IRP related cost estimates. Baseline cost assumptions were incorporated into the wastewater and runoff management models as starting points to determine the total rate impacts of the four IRP alternatives. The baseline costs for wastewater and runoff management represent the CIP programs and on-going rehabilitation and O&M costs that were developed prior to the IRP, and were needed regardless of which IRP alternative was selected as the preferred alternative. These costs were stated in 2004 dollars, and then escalated to get future costs. For each of the four alternatives, the IRP-related capital and O&M costs were entered into the rate models to determine rate impacts on the current categories of customer classes for both wastewater and runoff management.

The results of the financial screening for the four IRP alternatives are presented in Appendix A: Technical Memorandum: Financial Impacts of Four Draft IRP Alternatives (April, 2005).

1.3.2.1 Wastewater

Table 1-2 summarizes the baseline and IRP-related capital and O&M costs for the wastewater component associated with each alternative based on costs developed for the *IRP Facilities Plan, Volume 4: Alternatives Development and Analysis*. The baseline and IRP-related projects were reviewed with regards to their capital and O&M costs to prevent counting the projects and their costs twice, once in the baseline CIP and once in the IRP.

Table 1-2
Wastewater Baseline and IRP Related Costs for Four Alternatives

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	(2004 $, Millions)			
Capital Costs				
Baseline Project CIP (2004-2020)	$1,595	$1,595	$1,595	$1,595
Total IRP Capital Costs (2004-2020)[2]	$631	$837	$813	$813
Subtotal - Capital Costs	$2,226	$2,432	$2,408	$2,408
On-Going Rehabilitation Costs (annual, 2009-2020)	$172	$172	$172	$172
Operation and Maintenance Costs				
Baseline O&M (annual, 2004-2020)	$196	$196	$196	$196
IRP O&M (annual, 2020-)	$27	$45	$44	$44
Subtotal – O&M	$223	$241	$240	$240

[1] Alternative descriptions and costs are based on the alternatives as defined in the IRP Facilities Plan: Volume 4 – Alternatives Development and Analysis. Current Alternative 4 and Alternative 1 costs are presented in Section 3.

[2] Capital costs presented were developed to an Engineering News Record (ENR) Construction Cost Index (CCI) of 7414 for Los Angeles for September 2002. Total construction mark-ups included in the estimated capital cost include: overhead at 7 percent, profit at 7 percent, mobilization at 7 percent, bond and insurance at 2 percent, and contingency at 15 percent unless otherwise noted. Total construction mark-ups are cumulative resulting in a total mark-up of 44 percent.

Baseline Cost

Wastewater baseline costs included the data from June 2003: Wastewater System CIP program, rehabilitation program, and ongoing operations and maintenance costs. These costs were provided by the Bureau of Sanitation (BOS), Financial Management Division from publicly available official statements for City of Los Angeles BOS revenue bond offering statements, and direct communications. The pre-IRP projects were identified and separated into eight major project areas: collection systems, earthquake recovery, pumping plants, Hyperion Treatment Plant, LAG Water Reclamation Plant, Tillman Water Reclamation Plant, Terminal Island Treatment Plant, and system-wide improvements. The baseline costs in Table 1-1 represent total construction costs for these project areas plus the cost of professional services (capital labor) for implementing these projects.

IRP-Related Costs

Wastewater IRP components included expanded treatment capacity, new collection systems biosolids, and leadership projects. For simplicity, leadership projects were inclusive of all leadership projects for the IRP whether they were wastewater or runoff management related projects. Costs for the collection system, biosolids, and leadership projects were identical for each of the alternatives. Three separate treatment configurations were estimated for the alternatives based on the defined alternative descriptions.

1.3.2.2 Runoff Management

Table 1-3 summarizes the baseline and IRP-related capital and O&M costs for the runoff management component associated with each alternative developed for the *IRP Facilities Plan, Volume 4: Alternatives Development and Analysis*. The baseline and IRP-related projects were reviewed with regards to their capital and O&M costs to prevent counting the projects and their costs twice, once in the baseline CIP and once in the IRP.

Table 1-3
Runoff Management Baseline and IRP Related Costs for Four Alternatives

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	(2004 $, Millions)			
Capital Costs				
Baseline Project CIP (2004-2020)	$395	$395	$395	$395
Total IRP Capital Costs (2004-2020)[2]	$1,870	$2,190	$1,915	$2,190
Subtotal - Capital Costs	$2,265	$2,585	$2,310	$2,585
Operation and Maintenance Costs				
Baseline O&M (annual, 2004-2020)	$603	$603	$603	$603
IRP O&M (annual, 2020-)	$73	$77	$75	$77
Subtotal – O&M	$676	$680	$668	$680

[1] Alternative descriptions and costs are based on the alternatives as defined in the IRP Facilities Plan: Volume 4 – Alternatives Development and Analysis. Current Alternative 4 and Alternative 1 costs are presented in Section 3.

[2] Capital costs presented were developed to an Engineering News Record (ENR) Construction Cost Index (CCI) of 7414 for Los Angeles for September 2002. Total construction mark-ups included in the estimated capital cost include: overhead at 7 percent, profit at 7 percent, mobilization at 7 percent, bond and insurance at 2 percent, and contingency at 15 percent unless otherwise noted. Total construction mark-ups are cumulative resulting in a total mark-up of 44 percent.

Baseline Cost

Baseline cost assumptions for the runoff management system included both the City's runoff management CIP program and the City's estimates of ongoing operation and maintenance costs for the existing and future program from 2004 to 2020. Depending on the project, the baseline runoff management CIP was spread over multiple years, while the operation and maintenance costs were annual costs. The baseline CIP incorporates capital costs for flood control; Proposition O, inclusive of trash and coastal bacteria for dry weather Total Maximum Daily Loads (TMDLs); and engineering and contract administration costs associated with the CIP projects.

IRP-Related Costs

Runoff management IRP-related costs were composed of dry weather and wet weather diversions, separate treatment facilities, smart irrigation, local and regional groundwater recharge, and cisterns. These costs varied for each alternative based on the defined alternative descriptions.

1.4 Overview of Recommended Alternative

Alternative 4 (expansion at Tillman with high potential for water resources projects) is the Recommended Alternative. Alternative 4 reserves the ability for future needed expansion at Tillman, while recognizing groundwater replenishment potential. Capital and operations and maintenance (O&M) costs for Alternative 4 are presented in Section 3.

Alternative 4 is recommended based on its recycled water benefits. If in the future the use of recycled water from Tillman for groundwater replenishment or other recycled water uses is considered infeasible based on a combination of factors, (including public acceptability, costs, future regulations, and the need for additional treatment capacity) then Alternative 1 would be considered the Recommended Alternative. Alternative 1 focuses its wastewater treatment expansion only at HTP by increasing its current capacity from 450 mgd to 500 mgd as opposed to Alternative 4. Alternative 4 would focus wastewater treatment expansion only at Tillman.

The implementation strategy for the IRP will be directed by certain "triggers" that include policy decisions regarding recycled water and groundwater replenishment, regulatory decisions regarding more restrictive permits for discharge of water into the Los Angeles River, and the need for additional wastewater treatment capacity.

The implementation strategy for the IRP is organized into three categories of projects:

- Go Projects: projects that have been evaluated under the IRP EIR as a site-specific project and are recommended for immediate implementation because their associated triggers have been met.
- Go If Triggered Projects: projects that have been recommended for future implementation if a specific trigger occurs.
- Go-Policy Directions: specific directions to staff on the next studies and evaluations required to provide progress on the programmatic elements in the Recommended Alternative.

Section 2
Baseline Expenditures and Revenues

Financial models are utilized to ensure adequate funds are available to pay for ongoing operations and maintenance, capital improvements, and debt service for the wastewater and runoff management systems. The budget for fiscal year 2006-2007 serves as the baseline year for determining non-IRP revenue requirements for the wastewater and runoff management components of the IRP. This section provides an overview of baseline financial operations that are used to populate the data fields in the wastewater and runoff management financial models. Section 5 will provide a cash flow analysis of the wastewater and runoff management programs with the IRP in 2020. Section 5 will also provide wastewater and runoff management rate impacts for the Recommended Alternative.

2.1 Wastewater

The Sewer Construction and Maintenance (SCM) Fund was established by an ordinance of the City Council on May 11, 1970. It is an enterprise fund and it was established to provide funding for the operation and maintenance (O&M), replacement and capital improvement of the City's sewerage system. As required by the Los Angeles Municipal Code (LAMC), and State and Federal laws and regulations, all receipts from sewer system user fees and charges, as well as all grants and borrowings, must be deposited for the benefit of the fund, and all such monies must be expended only for sewerage system related purposes. This section summarizes the historical and baseline financial operations of the SCM Fund.

Table 2-1 on the following page provides a historical perspective on the starting cash balance, annual revenues and expenditures, and the ending cash balance for each fiscal year for the period between 2002 through 2006. The total receipts from operating fees have increased in 2004 and 2005 to reflect sewer service charge rates increases and a one time increase in receipts from sewage disposal contracts in 2004. These receipts have ranged from a low of about $398 million for the Year 2002 to a high of about $430 million for the Year 2004. Other revenues primarily from grants, disaster reimbursement and revenue bonds have averaged $180 million per year, with a wide variation from year to year. These other revenues ranged from a low of $45 million in 2006 to a high of $361 million for 2003. The total expenditures have averaged about $611 million per year, with a low range of $556 million for 2005 and a high of $662 million for 2003. The cash condition at month ending June 30 has averaged $348 million over the period. The cash condition fluctuates primarily in response to bond revenue sales.

Table 2-1
SCM Fund Statement of Condition – Dollars

	Actual				
	2002	**2003**	**2004**	**2005**	**2006**
Cash Balance at July 1	**$322,107,968**	**$292,272,947**	**$396,433,709**	**$372,260,719**	**$395,723,336**
Revenues:					
Sewer Service Charges:	$358,384,953	$362,453,223	$373,967,299	$381,512,860	$412,096,764
Sewage Disposal Contracts – O&M	$5,261,177	$9,954,183	$19,393,088	$10,934,336	$10,525,189
Litigation Settlements	$0	$0	$0	$0	$0
Industrial Waste App. Insp. & Qual. Charges	$17,584,646	$18,951,992	$17,293,309	$17,127,006	$17,007,869
Sewer Facilities Charges	$5,017,247	$6,998,735	$9,678,196	$9,961,673	$10,590,821
Interest Income – SCMF	$9,198,180	$4,953,346	$7,049,735	$7,108,700	$7,082,075
Miscellaneous Fees	$2,680,645	$1,477,487	$1,611,235	$1,471,654	$1,823,174
Subtotal for Operating Receipts	**$398,126,848**	**$404,788,967**	**$428,992,862**	**$428,116,229**	**$459,125,892**
Other Revenues:					
Grant Reimbursements[1]	$0	$0	$0	$0	$0
Disaster Cost Reimbursements[1]	$8,391,833	$11,158,634	$11,397,597	$7,413,820	$568,173
Interest Income – Bonds	$8,804,702	$7,599,107	$4,589,438	$2,767,943	$6,214,655
Sale of Real and Personal Property	$0	$0	$447,250	$524,640	$0
Proceeds from State Revolving Fund Loan	$0	$0	$129,166,150	$20,833,250	$0
Proceeds of Gen. Long Term Debt	$110,000,000	$307,615,086	$173,090	$100,002,374	$0
Interfund Opr. Trf-Gen Fund	$1,905,594	$1,905,594	$0	$0	$13,575,417
Interfund Opr. Trf-Reserves	$0	$0	$0	$0	$0
Interfund Opr. Trf-Other Fund	$0	$128,000	$0	$0	$0
Sewer Disposal Contracts – Capital	$22,493,526	$18,286,889	$24,992,758	$14,161,061	$17,202,719
Litigation Settlements	$0	$0	$0	$0	$0
REIMB from other Departments	$0	$12,831,471	$5,577,904	$3,901,103	$3,209,604
REIMB from City of Santa Monica	$0	$0	$5,688,889	$0	$0
Miscellaneous	$5,172,274	$1,341,969	$2,570,856	$2,044,729	$4,689,466
Subtotal Other Revenues:	**$156,767,929**	**$360,866,751**	**$184,603,932**	**$151,648,919**	**$45,460,034**

Table 2-1 (Continued)
SCM Fund Statement of Condition – Dollars

	Actual				
	2002	**2003**	**2004**	**2005**	**2006**
Total Revenues	**$554,894,777**	**$765,655,718**	**$613,596,794**	**$579,765,149**	**$504,585,926**
Adjustments	-$42,480,481	$21,122	$88,272	$6,340	$4,399
Total Available	**$872,754,697**	**$1,057,949,787**	**$1,010,118,775**	**$952,032,208**	**$900,313,661**
Expenditures:					
Allocations to Budgetary Depts. - Schedule A[2]	$119,273,219	$127,575,672	$140,430,252	$143,707,068	$137,230,129
WCIP Expenditure - Schedule B[3]	$211,016,994	$275,634,170	$205,939,097	$153,384,529	$154,247,437
Special Purpose - Expense, Equipt. - Schedule [4]	$250,963,539	$256,924,710	$289,910,320	$257,851,067	$321,847,109
Bond Issuance Costs - Schedule D	$784,267	$1,524,986	$1,515,430	$1,546,331	$1,227,761
Advance to other Funds – Current	$0	$0	$0	$0	$0
Total Expenditures	$582,038,018	$661,659,539	$637,795,099	$556,488,995	$614,552,436
Less: Decrease in Receivable (Advance to Prop.	-$1,583,037	-$143,460	$62,957	-$180,123	$0
Add: Decrease in Vouchers/Use Tax Payable	$26,769	$0	$0	$0	-$44,910
Net Cash Expenditures	$580,481,750	$661,516,078	$637,858,056	$556,308,872	$614,552,436
Cash Condition at month ending June 30th	**$292,272,947**	**$396,433,709**	**$372,260,719**	**$395,723,336**	**$285,761,225**

1. Includes both Federal and State Grants
2. Schedule A includes allocation to the City's budgetary departments including City Administrative Officer, City Attorney, Controller, Information Technology Agency, Environmental Affairs, General Services, Personnel, Planning, Public Works and its Bureaus including Bureaus of Engineering and Sanitation, and Department of Transportation
3. Schedule B includes expenditures for WCIP excluding the City's capital labor
4. Schedule C includes all other expenses not covered in Schedules A, B & D including Bond Redemption and Interest

Escalation factors are applied in the wastewater model to determine future costs. Annual increases are reflected in Table 2-2. Total annual increases are the prior year's costs multiplied by the escalation factor plus any known increases.

Table 2-2
Summary of Wastewater Cost Escalation Factors

Escalation Factor	Annual Increase
Capital Labor	3%
Capital Costs	5%
Utility Costs	4%
Labor - Salaries	3%
Workers Compensation	0%
Contractual Services	4%
Equipment	4%
Construction Materials	4%
Office and Administrative	3%
Operating Supplies	4%
Field Equipment	4%
Other Special Purpose Expenses	4%
Special Purpose Equipment	4%
Sanitation Project Related	4%
General Services	3%
Related Costs	3%
DWP Billing/Collection Fee	0%
Sewer Service Charge Refunds	0%
All Other City Departments	3%

Portions of the WCIP are financed with proceeds from debt service to allow for projects included in the WCIP to be paid over time. Debt service includes bonds, commercial paper, and State Revolving Fund loans. The SCM Fund's desired debt service coverage ratio (operating revenue divided by debt service payments) is 1.8 or above with this assumption carried through in the wastewater model. This coverage ratio is required by financial markets to maintain the SCM Fund's bond ratings. Section 4 provides a more in depth discussion of debt service utilized by the SCM Fund.

Commercial paper has a one year term, but it is usually renewed or repaid from longer term bond issues. Bond issuance costs are 1.1% of each revenue bond issue plus $25,000 for each issue of commercial paper notes. The baseline assumes all future revenue bonds in the model are senior lien bonds with assumed terms of 30 years and the fixed interest rate varying based upon the year of issuance. Table 2-3 provides the assumed interest rates.

Table 2-3 Summary of Debt Service Terms	
Debt Type	**Interest Rate**
State Revolving Fund Loans[1]	2.23%
Commercial Paper	5.20%
Revenue Bonds	
Issuance 2007	4.55%
Issuance 2008-2012	5.00%
Issuance 2013-2017	5.50%
Issuance 2018-2020	6.00%

1. Based on equal annual principal and interest payments over a 20 year period with an annual average interest rate.

2.1.1 Baseline Wastewater Capital Improvement Program

Table 2-4 outlines baseline WCIP projects included as part of the wastewater baseline cost assumptions. A total of $3.2 billion in current pre-IRP projects were identified for the period of 2006-2016 and separated into eight major project areas: collection systems, earthquake recovery, pumping plants, Hyperion Treatment Plant, LA-Glendale Water Reclamation Plant, Tillman Water Reclamation Plant, Terminal Island Treatment Plant, and system wide improvements. Capital labor costs are also provided. BOS does not make WCIP projections beyond a ten year period and only loads their financial model with the first five years of capital projects. However, for this analysis BOS used the working 10-year WCIP data with adjustments as outlined below. The period of 2017 to 2020 was forecasted using approximately $200 million per year for the collection systems and $33.5 million per year for the system wide improvements in current 2006 dollars.

Table 2-4 Baseline Wastewater Capital Improvement Program (Millions)										
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Collections Systems	$64	$142	$209	$232	$255	$257	$256	$256	$236	$214
Earthquake Recovery	$15	$4	$0	$0	$0	$0	$0	$0	$0	$0
Pumping Plant	$3	$3	$1	$14	$15	$9	$0	$0	$0	$0
Hyperion Treatment Plant	$28	$27	$53	$72	$44	$18	$3	$3	$3	$3
Los Angeles - Glendale Water Reclamation Plant	$3	$0	$3	$4	$3	$0	$1	$0	$0	$0
Tillman Water Reclamation Plant	$50	$15	$12	$12	$9	$1	$3	$3	$9	$0
Terminal Island Treatment Plant	$7	$7	$17	$12	$1	$7	$9	$7	$9	$12
System Wide Improvements	$30	$37	$21	$16	$9	$9	$14	$22	$18	$29
Total	**$200**	**$234**	**$316**	**$360**	**$335**	**$300**	**$286**	**$290**	**$275**	**$257**

1. Does not include capital labor nor projects that were in both the WCIP and IRP CIP.
2. D-3, Baseline wastewater model; Table 9, Baseline wastewater model.

Capital labor costs are not included in Table 2-4. Capital labor associated with the WCIP for 2007 is approximately $85 million and is escalated at approximately three percent annually in the model.

The major emphasis of the currently planned CIP program is focused on collection systems. Approximately $2.4 billion in collection systems are planned in the 10-year WCIP. Major projects in the collection system CIP include the North East Interceptor Sewer Phase 2 Project, Secondary Sewer Renewal Program, air treatment facilities, Vermont Relief/Rehabilitation, West Los Angeles Interceptor Sewer (WLAIS) Relief/Rehabilitation and North Outfall Sewer Rehabilitation. Adjustments were made to the 10-Year WCIP (fiscal years 2006/07-2015/16) based on concerns from the Bureau of Engineering that the proposed level of effort is not feasible. Therefore, a portion of the projects scheduled for fiscal years 2009 to 2012 were delayed until 2013 through 2016.

Approximately $297 million in projects are planned for HTP over the 10-year WCIP. Major projects at HTP include secondary clarifiers expansion, two primary battery rehabilitations, distributed control system replacement, and a new solids handling facility.

Total estimated capital costs associated with projects at the LA-Glendale Water Reclamation Plant for the 10-year CIP are approximately $16 million. Large projects planned at the Los Angeles facility include tertiary filter replacement and four nitrification/denitrification projects.

Baseline WCIP projects for the 10-year WCIP at the Tillman Water Reclamation Plant total approximately $124 million. Major projects include eight nitrification/dentrification projects, filter replacement, and an additional tertiary filtration plant.

Capital costs for 10-year WCIP projects at the Terminal Island Treatment Plant are approximately $88 million. A major portion of the total cost represents modernization of solids handling facilities and a second phase of water reclamation facilities at the plant.

Systemwide projects for the 10-year CIP total approximately $245 million. This category contains projects that are not readily assigned to the other categories. Example projects in this category include preparation of the IRP, construction services contracts, and other miscellaneous support of the wastewater program.

A few of the project components in the WCIP are also included in the IRP Recommended Alternative in part or whole. Therefore, the following projects, as they are titled in the WCIP, were removed from the baseline model to prevent double counting of projects during modeling efforts for the Recommended Alternative:

- Glendale Burbank Interceptor Sewer (GBIS)
- North East Interceptor Sewer, Phase II (NEIS)
- Tillman Equalization Tanks Concept Report
- Tillman Wet Weather Underground Storage Tank
- Tillman Woodley Field Expansion (moving the cricket fields)
- LAG Equalization Basin
- LAG Recycled Water Storage
- HTP Secondary Clarifier Expansion
- Valley Spring Interceptor Sewer (VSLIS).

Table 2-5 summarizes revenues from operations minus operating expenses to establish net revenues. Annual debt service is subtracted from the net revenues to determine the cash contribution from operating revenues towards the WCIP. The average cash contribution for the period is approximately 29 percent of the total WCIP expenditures.

Table 2-5
Baseline Contributions from Operating Revenues to WCIP (Millions)

	2007	2008	2009	2010	2011
Operating Revenues[1]	$504,232	$533,621	$567,818	$621,199	$681,646
Less: Operating & Maintenance[1]	$250,627	$272,786	$281,725	$290,466	$299,727
Net Revenue	**$253,605**	**$260,835**	**$286,093**	**$330,733**	**$381,919**
Less: Debt Service[1]	$164,476	$176,007	$190,670	$208,276	$219,384
Available for Capital Expenditures	**$89,129**	**$84,828**	**$95,423**	**$122,457**	**$162,535**
Total CIP Expenditure[2]	$284,946	$322,921	$407,202	$454,341	$432,062
CIP Funding from other Sources	$195,817	$238,093	$311,779	$331,884	$269,527
Percent Cash Contribution to CIP	31%	26%	23%	27%	38%

1. Table 12, Baseline wastewater model.
2. Table 9, Baseline wastewater model.

2.1.2 Baseline Wastewater Operations and Maintenance

O&M costs are necessary expenses to maintain the existing wastewater system and planned CIP investments. Table 2-6 provides a summary of the baseline O&M requirements for the operation of the wastewater system. Budgetary departments includes are other departments that are reimbursed for their support of the wastewater system, for example, General Services and City Attorney. Special Purpose Funds are funds dedicated to a specific use such as Department of Water and Power billing and Sewer Service Charge refunds. Escalation factors, as previously discussed,

are used to project future O&M costs. During the time period O&M increases by approximately 5% per year on average.

Table 2-6
Baseline Operations and Maintenance (Millions)

	2007	2008	2009	2010	2011
Budgetary Departments[1]	$8,366,600	$8,617,500	$8,876,000	$9,142,300	$9,416,500
Bureau of Sanitation[2]					
Salaries	$95,612,700	$98,481,000	$101,435,600	$104,478,700	$107,613,000
100 Expenses	$367,300	$378,300	$389,700	$401,300	$413,200
Contractual Services	$42,642,100	$44,347,800	$46,121,600	$47,966,400	$49,884,900
Office and Administrative	$3,398,400	$3,500,500	$3,605,400	$3,713,600	$3,825,100
Operating Supplies	$15,301,100	$16,317,200	$16,850,000	$17,107,100	$17,502,700
Construction Materials	$590,700	$614,300	$638,800	$664,400	$690,900
Field Equipment	$5,996,200	$6,236,100	$6,485,500	$6,744,800	$7,014,500
All Other Expenses	$1,299,700	$14,513,800	$15,094,300	$15,698,000	$16,325,800
Equipment	$922,000	$958,800	$997,200	$1,037,200	$1,078,600
Utilities	$17,439,200	$18,425,400	$19,076,700	$19,541,700	$20,117,000
Special Purpose Funds[1]					
Related Costs	$41,317,800	$42,557,300	$43,834,000	$45,149,000	$46,503,500
General Services	$3,079,100	$3,171,500	$3,266,600	$3,364,600	$3,465,500
Sanitation – Project Related	$9,313,000	$9,685,500	$10,072,900	$10,475,800	$10,894,800
DWP Billing Service	$2,980,800	$2,980,800	$2,980,800	$2,980,800	$2,980,800
SSC Refunds	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Total	$250,626,700	$272,785,800	$281,725,100	$290,465,700	$299,726,800

1. C-40, Baseline Wastewater Model.
2. C-37, Baseline Wastewater Model

2.1.3 Baseline Wastewater Sewer Service Fees and Charges Revenue

The majority of revenues used to fund the SCM Fund are sewer service fees and charges. These charges include:

- Sewer Services Charge (SSC)
- Sewerage Facility Charge (SFC)
- Industrial Waste Quality Surcharge Fee (QSF)
- Industrial Waste Permit Application, Inspection and Control Fees
- Sewage Disposal Contracts (O&M)
- Miscellaneous Fees

A description of these fees and charges is provided below.

Sewer Service Charge (SSC)

The SSC charge is based on an estimate of sewage volume derived from the metered water usage. The existing and historical SSC rates are summarized in Table 2-7. For the purposes of SSC rates, the normal strength sewage is defined as 265 mg/l for BOD and 275 mg/l for suspended solids. An optional rate is provided for low strength sewage. To achieve planned WCIP funding levels, SSC charges are steadily increasing as BOS is the middle of an approved five-year rate increase after a period of no rate increases for eleven years. Normal strength volume charges will increase on July 1, 2007 to $3.05 per hundred cubic feet (HCF) and on July 1, 2008 to $3.27 per hcf. These increases reflect a percentage increase of approximately 7.0% and 7.2%, respectively. Current average monthly SSC rates for single family users are approximately $26.

The SSC is billed by customer classification including single-family residential, small multi-family (2 to 4 units), large multi-family (5 or more units) and commercial/industrial. For the single-family residential and small multi-family, the sewage volume is taken as their lowest winter water usage from the previous year, which is further reduced by dry winter compensation factor (DWCF). The DWCF is adjusted each year to account for rainfall and to maintain revenue neutrality. For all customer classifications, the City provides an option of using actual water consumption data from private sub-meters installed and maintained at the customer expense, as the basis for SSC billing. For the large multi-family and commercial/industrial customers, the sewage volume is taken as 90% of the water usage for the billing period, unless modified based on specific site conditions.

The single family residential includes special discounted rates for "Low Income" customers. The Low Income customers include any customer whose total household income does not exceed the low-income limits as determined by the City each year. The rates for other customers are surcharged to offset the discounts offered to Low Income customers.

Sewerage Facility Charge

The Sewerage Facility Charge is designed to recover the cost of the system capacity required for new sewer connections and increases in capacity required for the current system users. The existing sewage facilities charge rates are as follows:

- Predevelopment Tract Map Fee $4,127.00/acre
- Flow Component $262.00/100 gallons/day
- Wastewater Strength Components
  - Biochemical Oxygen Demand $188.00/pound/day
  - Suspended Solids $171.00/pound/day

Table 2-7
Sewer Service Charges

Description	Charge	
	7/1/2005	7/1/2006
General Service		
Service Charge		
Monthly	$0.00/Bill	$0.00/Bill
Bimonthly	$0.00/Bill	$0.00/Bill
Normal Strength Volume Charge[2]	$2.66/hcf	$2.85/hcf
Optional Low-Strength Volume Charge1		
Flow Component	$1.851/hcf	$1.981/hcf
Wastewater Strength Components		
Biochemical Oxygen Demand	$0.285/pound	$0.305/pound
Suspended Solids	$0.287/pound	$0.307/pound
Low-income Subsidy Surcharge[3]	$0.022/hcf	$0.024/hcf
Lifeline and Low-Income Customers		
Service Charge		
Monthly	$0.00/Bill	$0.00/Bill
Bimonthly	$0.00/Bill	$0.00/Bill
Normal Strength Volume Charge[4]		
First 9 hcf/month	$1.84/hcf	$1.97/hcf
Over 9 hcf/month	$2.66/hcf	$2.85/hcf

1. Update to 06/2005 Wastewater Revenue Program; Table 3a, Baseline wastewater model.
2. Equivalent to normal strength volume charge of $2.66(2005)/2.85(2006)/hcf if wastewater strength is equal to the normal strength values of 265 mg/l for BOD and 275 mg/l for suspended solids. To qualify for this optional volume charge, users must submit analytical data on its discharge demonstrating that the average strengths of its BOD and/or suspended solids discharged over a one-year period are less than one or both of the normal strength values.
3. Equal to 0.840% times the General Service volume charge of all General Service customers.
4. The General Service rate is reduced by 31.0% for the first 18 hcf of each two month billing period or the first 9 hcf for each one-month billing period.

Industrial Waste Quality Surcharge

This surcharge is designed to recover the treatment, disposal, and capital costs for suspended solids (SS) and biochemical oxygen demand (BOD) in excess of the normal domestic strength levels as well as the costs for administering and maintaining the surcharge program. As noted previously, the normal domestic strength levels are 265 mg/l for BOD and 275 mg/l for suspended solids. Table 2-8 summarizes historical and current industrial waste quality surcharge and other fees.

Table 2-8
Industrial Waste Quality Surcharges[1]

Description	Charge	
	7/1/2005	7/1/2006
Quality Surcharge Fee [1, 2]		
Biochemical Oxygen Demand (greater than 265 mg/l)	$0.285/pound	$0.305/pound
Suspended Solids (greater than 275 mg/l)[3]	$0.287/pound	$0.307/pound
Permit Application Fee	$356.00/permit	$356.00/permit
Inspection and Control Fees [1]		
Class 1	$244.00/year	$244.00/year
Class 2	$488.00/year	$488.00/year
Class 3	$732.00/year	$732.00/year
Class 4	$976.00/year	$976.00/year
Class 5	$1,220.00/year	$1,220.00/year
Class 12	$2,928.00/year	$2,928.00/year
Significant Industrial User Fee [1]		
SIU Group I	$4,191.00/year	$4,191.00/year
SIU Group II	$4,054.00/year	$4,054.00/year
SIU Group III	$2,219.00/year	$2,219.00/year
SIU Group IV	$3,466.00/year	$3,466.00/year
SIU Group V	$2,516.00	$2,516.00
SIU Group VI	$2,359.00/year	$2,359.00/year
SIU Group VII	$0.00/year	$0.00/year

1. Draft Wastewater Revenue Program, September 2002.
2. Billed quarterly in arrears.
3. Applied to wastewater having strength characteristics in excess of 265 mg/l for BOD and/or 275 mg/l for suspended solids.

Industrial Waste Permit Application, Inspection and Control Fees

These fees are designed to recover the additional costs required to process permit applications, and provide the necessary inspection and control. As shown in Table 2-8, inspection and control fees are based on industry classification as determined at the time of permitting. Certain industries are subject to EPA categorical pretreatment requirements and are assigned to a Significant Industrial User (SIU) group based on the pretreatment and inspection requirements. These industries are charged a SIU fee based on their group designation (Table 2-8) to recover a portion of additional costs incurred in their monitoring and inspection.

Sewage Disposal Contracts

These fees are associated with Sewage Disposal Contracts that exist between the City of Los Angeles and 29 various sanitary districts, cities, governmental entities and private businesses that are connected into the City's wastewater system, but are located outside the City limits. Sewage Disposal Contract fees have separate capital and operation and maintenance components. Twenty of the agencies have contracts

with the same terms (known as the "Universal Terms") and charging methods. Fees for the remaining nine agencies vary depending upon the individual contract terms.

Miscellaneous Fees

These include septage disposal fees, bonded sewer fees, sewer tapping fees, and other miscellaneous revenues sources. Current septage fees are:

Private Septage Disposal Facility Fees

Inspection and Control Fees	
Average Flow less than 1,000 gpd	$488.00/year
Average Flow greater than 1,000 gpd	$1,220.00/year
Treatment Cost Recover User Fee	$0.022/gallon
Septage Disposal Fees	
Permit Fee	$2,000.00/year vehicle
User Fees	
Septage Generated inside the City	$0.0256/gallon
Septage Generated outside the City	$0.0496/gallon

2.1.4 Baseline Other Wastewater Revenues

Other variable wastewater revenues for the SCM Fund include grants, disaster reimbursements, interest income, and debt proceeds. These wastewater funding sources along with other potential funding sources will be discussed in detail in Section 4. The baseline reflects that there are no existing grant funds that the City is entitled to receive. Interest income is estimated in the baseline model at 3% of the SCM Fund and Debt Service Fund balances and at 3.5% of the O&M reserve, debt service reserve, insurance reserve, liability claims, rebate, and emergency fund balances.

2.2 Runoff Management

Runoff management historical and baseline expenditures and revenues are presented to illustrate the current financial setting without the IRP. The Stormwater Pollution Abatement Fund (SPAF) was established in 1990-91 by the City Council by assessing a Stormwater Pollution Abatement Charge (SPAC) fee on each property tax bill. The fee is determined by the amount of runoff from each property in the City and is based of $23 per equivalent dwelling unit on each parcel. The proceeds from the fund must be expended only for stormwater management related activities. The funding of stormwater abatement activities are accomplished by combining resources from several City departments including the Bureau of Sanitation, Street Services and Engineering, and the General Services Department. Departmental budgets are reimbursed by SPAF in accordance with the level of effort.

Stormwater programs are made up of the following components: administration and financial management, operations and maintenance, regulation and enforcement, engineering and planning, capital investment, public involvement and education, and other miscellaneous activities. For advanced stormwater programs the three biggest cost items tend to be operations and maintenance (O&M), capital investment, and regulatory compliance.

Proposition O authorizes the City to issue a series of general obligation bonds up to $500 million for projects to protect public health by cleaning up pollution, including bacteria and trash, in the City's watercourses and waterbodies inclusive of the ocean and beaches, in response to regulatory requirements of the Federal Clean Water Act. Proposition O was approved by the voters in November 2004. Funds from this program may offset portions of the costs associated with runoff management components of the IRP. These general obligation bonds will be paid off by the City's General Fund from proceeds of *ad valorem taxes* levied on property subject to taxation by the City over a period of approximately twenty years. The City's General Fund will provide funds for servicing the debt. However, O&M expenses associated with the projects funded under Proposition O are proposed to be paid by the SPAF. Currently, a total of $45 million in bonds has been issued specifically for Proposition O with $37 million in 2005 and $8 million in 2006.

Table 2-9 summarizes starting cash balance, annual revenues and appropriations, and the ending cash balance for each fiscal year ending 2002 – 2005, mid-year projections for 2006, and 2007 budget, and 2008-2012 forecast budget. Revenues, inclusive of cash balances and exclusive of Proposition O Bond proceeds, have ranged from a low of approximately $46 million in 2002 to a high of approximately $51 million in 2003. Revenues, exclusive of Proposition O Bond proceeds will remain relatively constant throughout the forecast period, but cash balances will be drawn down to zero in 2008 and become negative starting 2010. SPAC fees remain relatively constant over the actual and forecast period at $28 million. Table 2-9 assumes that Proposition O Bond proceeds will be fully distributed in a seven year timeframe. Expenses have averaged approximately $31 million per year over the period 2002 - 2005. Starting in 2009 expenses will start an upward trend mainly attributed to O&M associated with Proposition O projects coming online.

Runoff management budget projections are undergoing significant changes in the future with Proposition O project O&M expenditures and Total Maximum Daily Load (TMDL) compliance. Therefore, escalation factors are only applied to department and division O&M costs. Annual increases in O&M associated with division and departmental budgets are estimated at approximately 3 percent. Other expenses are estimated based on known data and expected expenditures from City projections.

Table 2-9
Stormwater Pollution Abatement Fund Statement of Condition - Dollars

	Actual				Mid-Year Projection	Budget	Forecast Budget	Forecast Budget	Forecast Budget	Forecast Budget
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Cash Balance, July 1st	$14,753,644	$18,977,238	$18,550,959	$19,707,585	$15,360,654	$6,834,154	$0	$0	-$7,477,172	-$19,614,122
Revenues										
Less: Prior Years Unexpended Approp.	--	--	--	--	--	$3,500,000	$0	--	--	--
Balance Available, July 1st	$14,753,644	$18,977,238	$18,550,959	$19,707,585	$15,360,654	$3,334,154	$0	$0	-$7,477,172	-$19,614,122
Stormwater Pollution Abatement Charge	$28,423,097	$28,608,442	$28,659,708	$28,477,113	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000
General Fund	$500,000	--	--	--	--	--	--	--	--	--
Developer Plan Review	--	--	--	--	--	$300,000	$500,000	$500,000	$500,000	$500,000
Interest	$693,602	$717,463	$475,971	$399,417	$1,072,500	$1,172,600	$1,172,600	$400,000	$400,000	$400,000
Grant Reimbursement	$1,038,126	$2,225,802	$2,223,148	$519,460	$1,248,000	$1,248,000	$1,248,000	$0	$0	$0
Advance to / Reimbursement from Other Funds	$0	$269,453	--	--	--	--	--	--	--	--
Reimbursement from Other Agencies	--	--	$19,993	--	--	--	--	--	--	--
Proposition O Bond Proceeds[1]					$8,000,000	$37,000,000	$91,000,000	$91,000,000	$91,000,000	$91,000,000
Other	$178,459	$11,544	-$5,478	$10,753	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
Total Revenues	**$45,586,928**	**$50,809,942**	**$49,924,301**	**$49,114,328**	**$54,431,154**	**$75,304,754**	**$122,670,600**	**$120,650,000**	**$113,172,828**	**$101,035,878**
Appropriations										
Environmental Affairs	$154,364	$139,962	$175,654	$175,674	$179,000	$236,099	$243,182	$250,477	$257,992	$265,732
General Services	$472,750	$487,921	$410,914	$315,713	$322,000	$322,198	$331,864	$341,820	$352,074	$362,637
Information Technology Agency	$0	$0	$0	$0		$0	$0	$0	$0	$0
Planning	$78,872	$70,207	$73,015	$73,015	$74,000	$75,472	$77,736	$80,068	$82,470	$84,944
Building & Safety	$0	$0	$84,185	$41,758	$155,000	$75,729	$78,001	$80,341	$82,751	$85,234
City Clerk	$0	$0	$0	$2,169,519		$0	$0	$0	$0	$0
Public Works										
Board Office	$61,418	$56,356	$58,610	$184,365	$184,000	$195,447	$201,310	$207,350	$213,570	$219,977
Financial Management and Personnel Services	$111,778	$103,211	$101,991		$0	$0	$0	$0	$0	$0
Accounting								$0	$0	$0
Contract Administration	$239,151	$251,109	$266,048	$142,617	$267,000	$281,900	$290,357	$299,068	$308,040	$317,281
Engineering	$3,303,652	$4,274,231	$3,520,807	$3,776,133	$4,051,000	$4,157,459	$4,282,183	$4,410,648	$4,587,074	$4,770,557
Sanitation	$7,535,595	$7,828,128	$8,590,766	$8,482,741	$12,548,000	$12,802,168	$14,420,000	$14,852,600	$15,298,178	$15,757,123
Street Services	$4,879,818	$5,104,818	$5,104,818	$5,104,818	$5,225,000	$6,219,483	$5,760,000	$5,932,800	$5,932,800	$5,932,800

Table 2-9 (Continued)
Stormwater Pollution Abatement Fund Statement of Condition - Dollars

	Actual	Mid-Year Projection	Budget	Forecast Budget	Forecast Budget	Forecast Budget	Forecast Budget			
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Recreation and Parks								$0	$0	$0
CIEP Physical Plant	$2,065,001	$5,507,929	$2,870,873	$2,743,514	$5,000,000	$3,600,000	$2,215,000	$4,000,000	$4,000,000	$4,000,000
CIEP Municipal Facilities								$0	$0	$0
TMDL Related Expenses								$0	$0	$0
CIEP GASB 34								$0	$0	$0
Proposition O CIP					$8,000,000	$37,000,000	$91,000,000	$91,000,000	$91,000,000	$91,000,000
Clarifier Program								$0	$0	$0
Prop. O Facilities O&M								$2,000,000	$6,000,000	$10,000,000
Special Purpose Fund Appropriations										
Overhead Costs	$6,374,201	$6,374,201	$6,374,201	$4,921,572	$7,331,000	$4,696,799	$1,878,967	$2,000,000	$2,000,000	$2,000,000
Sanitation						$0	$0			
Media Tech Center		$167,962	$219,840	$294,708	$250,000	$100,000	$200,000	$250,000	$250,000	$250,000
Repayment Interest										
Expense and Equipment		$55,000	$0	$2,800,973	$180,000	$150,000	$150,000	$880,000	$880,000	$880,000
Utilities			$0	$0	$0	$0	$0	$0	$0	$0
Relocation Loan Repayment		$0	$500,000	$250,000	$250,000	$250,000	$0			
Trash TMDL		$498,961	$447,880	$304,609	$46,000	$0	$0	$0	$0	$0
Bacteria TMDL		$238,000	$444,659	$396,092	$393,000	$0	$0	$0	$0	$0
Liability Claims		$0	$0		$42,000	$42,000	$42,000	$42,000	$42,000	$42,000
Reserve for Future Capital Projects						$0	$0			
Unallocated NPDES Implementation	$39,772					$0	$0	$0	$0	$0
NPDES Permit Compliance					$500,000	$500,000	$500,000	$500,000	$500,000	$500,000
Emergency Construction Contingency		$0				$0	$0	$0	$0	$0
Pending Capital Projects and Fees		$0				$0	$0	$0	$0	$0
On Call Contractors (Emergency)	$1,293,316	$1,100,987	$972,455	$1,575,853	$2,600,000	$1,100,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Total Appropriations	**$26,609,689**	**$32,258,983**	**$30,216,716**	**$33,753,674**	**$47,597,000**	**$71,804,754**	**$122,670,600**	**$128,127,172**	**$132,786,950**	**$137,468,285**
Cash Balance June 30	**$18,977,238**	**$18,550,959**	**$19,707,585**	**$15,360,654**	**$6,834,154**	**$0**	**$0**	**-$7,477,172**	**-$19,614,122**	**-$36,432,407**

[1.] Assumes Proposition O Bond proceeds distributed over 7 years.

2.2.1 Baseline Runoff Management Capital Improvement Program

The baseline CIP, listed in Table 2-10, incorporates capital costs for flood control and engineering and contract administration costs associated with non-IRP CIP projects. Additionally, the baseline CIP includes Proposition O projects. Proposition O projects will offset the runoff management IRP CIP as discussed in more detail in Section 5. The baseline assumes Proposition O funding will be distributed over a seven year period ending in 2012. At this time only a few projects have been identified and funded, such as catch basin screen covers and Santa Monica Bay low flow diversion upgrades. Over the five-year projection period it is expected that the capital costs will increase from approximately $40.6 million per year to $95 million per year. The baseline CIP, not including Proposition O or the IRP CIP, was escalated after 2012 by three percent per year.

Table 2-10
Stormwater Pollution Abatement Fund Baseline CIP

	Budget	Forecast Budget				
	(Millions)	(Millions)				
	2007	2008	2009	2010	2011	2012
Physical Plant (Flood Control)	$4	$2	$4	$4	$4	$4
Proposition O CIP	$37	$91	$91	$91	$91	$91
Total	$41	$93	$95	$95	$95	$95

1. Does not include IRP related CIP.

2.2.2 Baseline Runoff Management Operations and Maintenance

Ongoing O&M costs in the stormwater baseline include street sweeping, labor associated with the Bureau of Sanitation and various City departments that support the stormwater program, labor associated with Proposition O projects as they come online, on-call contractors for emergency storm drain projects, special purpose fund allocations, and other costs (see Table 2-11). Special purpose fund allocations include such items as overhead costs, NPDES Permit compliance, and other miscellaneous costs.

Projects approved as part of the Proposition O program will begin coming online in the next few years. The baseline model assumes that the $500 million available for the program will be distributed over approximately seven years and that O&M costs for these projects will be approximately five percent of the capital construction costs and will gradually increase over eight years. In the eighth year, 2015 O&M costs are expected to be approximately $25 million. After 2015 O&M costs are escalated at three percent per year. At this time the ultimate O&M costs are not known as Proposition O is at an early stage and many of the projects have not been defined.

Table 2-11
Stormwater Pollution Abatement Fund Baseline O&M

	Budget	Forecast Budget				
	(Millions)	(Millions)				
	2007	2008	2009	2010	2011	2012
Other Departments	$1	$1	$1	$1	$1	$1
Public Works	$24	$25	$26	$26	$27	$28
Proposition O O&M	$0	$0	$2	$6	$10	$14
Special Purpose Fund Appropriations	$7	$4	$5	$5	$5	$5
Total	**$32**	**$29**	**$34**	**$38**	**$43**	**$48**

[1.] Does not include IRP related O&M.

2.2.3 Baseline Revenues

Revenue requirements for the Stormwater Pollution Abatement Fund (SPAF) are defined as the sum of capital and operating costs. Revenues sources for the SPAF are used to fund ongoing O&M expenses and the CIP. In the past, most of the fund expenditures have been used for labor and equipment for operating, maintaining, and implementing best management practices for pollution prevention and flood control. Future fund expenditures will include Proposition O CIP projects paid with Proposition O bond proceeds.

Revenue sources include the stormwater pollution abatement charge (SPAC) and depending upon current conditions the general fund, developer plan reviews, interest on cash balances, grant reimbursements, Proposition O Bond proceeds, and other revenues. After 2012 revenues associated with developer plan reviews and other revenues are escalated at three percent per year based on revenues in 2012. Revenues for the six year period beginning in fiscal year ending 2007 are projected to decline and become negative in 2012 as available cash is drawn down to zero in 2008 resulting in a negative cash balance beginning in 2010. If additional revenues are not identified for the period beginning in 2008, then the SPAF will no longer be financially viable based on the assumptions presented here.

Stormwater Pollution Abatement Charge

SPAC fees are collected on each property tax bill by the County of Los Angeles for locations within City of Los Angeles. The County of Los Angeles transfers these funds to the City once funds are received. The fee is determined by the amount of runoff from each property in the City and is based on $23 per equivalent dwelling unit (EDU) on each parcel. The proceeds from the fund must be expended only for stormwater management related activities.

Table 2-12
Stormwater Pollution Abatement Fund Revenues

	Budget	Forecast Budget				
	(Millions)	(Millions)				
	2007	2008	2009	2010	2011	2012
Cash Balance Available, July 1	$3	$0	$0	-$7	-$20	-$36
SPAC Fees	$29	$29	$29	$29	$29	$29
Developer Plan Reviews	$0	$1	$1	$1	$1	$1
Interest	$1	$1	$0	$0	$0	$1
Grant Reimbursement	$1	$1	$0	$0	$0	$0
Proposition O Bond Proceeds	$37	$91	$91	$91	$91	$91
Other[1]	$0	$0	$0	$0	$0	$0
Total Revenue	**$72**	**$123**	**$121**	**$114**	**$101**	**$85**

The unit of measure for the City of Los Angeles is based on the Basic Assessment Unit (BAU), which is defined as, "[t]he proportionate run-off from the average single-family residential parcel. The average single-family residential parcel has an area of 0.1526 acres (6,650 square feet) and a run-off factor of 0.4176." Hence, the BAU for the City is the product these two numbers, which is 0.0637 acres (2,777 square feet). As such, one average single-family residential parcel equals 1 Equivalent Dwelling Unit (EDU). The number of EDUs associated with non-residential and multi-family parcels is computed as shown below. The parcel runoff factors are defined in Section 64.51.05 of the Los Angeles Municipal Code (LAMC).

$$\text{EDU} = \frac{(\text{parcel area in acres}) \times (\text{parcel runoff factor})}{\text{BAU}}$$

Funds received are relatively constant at approximately $28 million per year as fees are based on parcels and will continue to remain constant in the near future. Insignificant fluctuations are a result of delinquent property tax payments and/or requests for changes in how parcel runoff factors are applied to a particular property.

Simply increasing the SPAC is not necessarily an option because the City needs property owner or voter, per restrictions of Proposition 218. California's Proposition 218 requires either property owner or voter approval for property related fees. Residents have the opportunity to register their approval or protest at a public hearing. Proposition 218 exempts water, sewer and refuse fees from voter approval requirements.

Grants and other potential funding sources for the runoff management program are discussed in more detail in Section 4.

Section 3
IRP Related Capital and Operations and Maintenance Costs

Revised operations and maintenance (O&M) and capital costs were developed for the wastewater and runoff management IRP components to reflect the Recommended Alternative, Alternative 4. *IRP Facilities Plan, Volume 5: Adaptive Capital Improvement Program* documents the capital cost updates and timing changes that have occurred since completion of the preliminary capital cost estimates contained in the *IRP Facilities Plan, Volume 4: Alternatives Analysis and Development*. Updates included minor alternations in projects, revised project implementation schedules, and updates in capital costs to reflect March 2006 dollars.

O&M updates were not developed as part of the *IRP Facilities Plan, Volume 5: Adaptive Capital Improvement Program*, however updates to reflect March 2006 dollars are presented as part of the *IRP Financial Plan*. Original O&M costs presented in the *IRP Facilities Plan, Volume 4: Alternative Analysis and Development* are based on September 2002 dollars. O&M costs were developed to a Consumer Price Index (CPI) of 183.4 for Los Angeles-Riverside-Orange Counties. O&M costs presented here were updated to March 2006 dollars using a CPI of 208.5 for Los Angeles-Riverside-Orange Counties. To reflect the updated CPI a factor of 1.137 was applied to all September 2002 O&M costs. O&M costs in the IRP include labor, equipment replacement, and resource consumption (utility costs).

Capital cost estimates for the Recommended Alternative were updated to reflect March 2006 dollars in the *IRP Facilities Plan, Volume 5: Adaptive Capital Improvement Program*. Cost estimates presented in the *IRP Facilities Plan, Volume 4: Alternative Analysis and Development* are based on September 2002 dollars. These costs were developed to an *Engineering News Record* (ENR) Construction Cost Index (CCI) of 7414 for Los Angeles for September 2002. Capital costs presented in the *IRP Facilities Plan, Volume 5: Adaptive Capital Improvement Program* and in the *IRP Financial Plan* are updated to March 2006 dollars using an ENR CCI of 8552 for Los Angeles. To reflect the updated ENR CCI a factor of 1.153 was applied to all September 2002 capital costs.

IRP related capital cost estimates include construction and non-construction costs. Non-construction costs include program management, engineering studies/design services, construction management, and start-up costs. Total construction mark-ups included in the estimated capital cost include: overhead at 7 percent, profit at 7 percent, mobilization at 7 percent, bond and insurance at 2 percent, and contingency at 15. Total construction mark-ups are cumulative resulting in a total mark-up of 44 percent. Non-construction mark-ups for program management, engineering studies/basin design services, construction management services, and start-up costs totaling 30 percent are also included within the estimated capital costs. Therefore, in order to get the non-construction cost markup a factor of 0.30 should be multiplied by the construction cost estimate (without construction cost markups).

An in depth discussion of the assumptions included in capital costs is provided in *IRP Facilities Plan, Volume 5: Adaptive Capital Improvement Program.*

3.1 Wastewater Component Cost Estimate

Alternative 4 includes expanding the Donald C. Tillman Water Reclamation Plant (Tillman) from its assumed current capacity of 80 million gallons per day (mgd) to 100 mgd, upgrading its treatment processes to advanced treatment, and adding wastewater storage; adding new collection system sewers; adding wastewater and recycled water storage at the Los Angeles-Glendale Water Reclamation Plant (LAG); and adding a truck loading facility, digesters and secondary clarifiers to the HTP. The Recommended Alternative also includes adding advanced treatment to LAG at existing capacity, if regulatory permit requirements result in a need for advanced treatment to discharge to the Los Angeles River or if recycled water requirements result in higher treatment requirements. Implementation of advanced treatment at LAG would require partnership and coordination with the City of Glendale.

Wastewater projects are divided into Go-Projects and Go If Triggered Projects. Go-Projects represent projects from Alternative 4 that have been evaluated at a project-level in the EIR, and are recommended for immediate implementation because the flow or regulatory triggers have already been met. Go If Triggered Projects are projects potential projects that will go if triggered by an action, flow, or regulation. In actuality, these projects may or may not be triggered during the IRP timeframe. However, for purposes of the *IRP Financial Plan* it is assumed that all Go If Triggered Projects will be triggered according to *IRP Facilities Plan, Volume 5: Adaptive Capital Improvement Program*, Section 4.

If in the future the use of recycled water from Tillman for groundwater replenishment or other recycled water uses is considered infeasible based on a combination of factors, (including public acceptability, costs, future regulations, and the need for additional treatment capacity) then Alternative 1 would be considered the Recommended Alternative. Alternative 1 varies from Alternative 4 in that wastewater treatment expansion only occurs at the HTP by increasing its capacity from 450 mgd to 500 mgd as opposed to Alternative 4. Alternative 4 would focus wastewater treatment only at Tillman. O&M and capital cost data is presented for Alternative 1 and Alternative 4 as both scenarios are modeled.

3.1.1 IRP Wastewater Capital Improvement Program

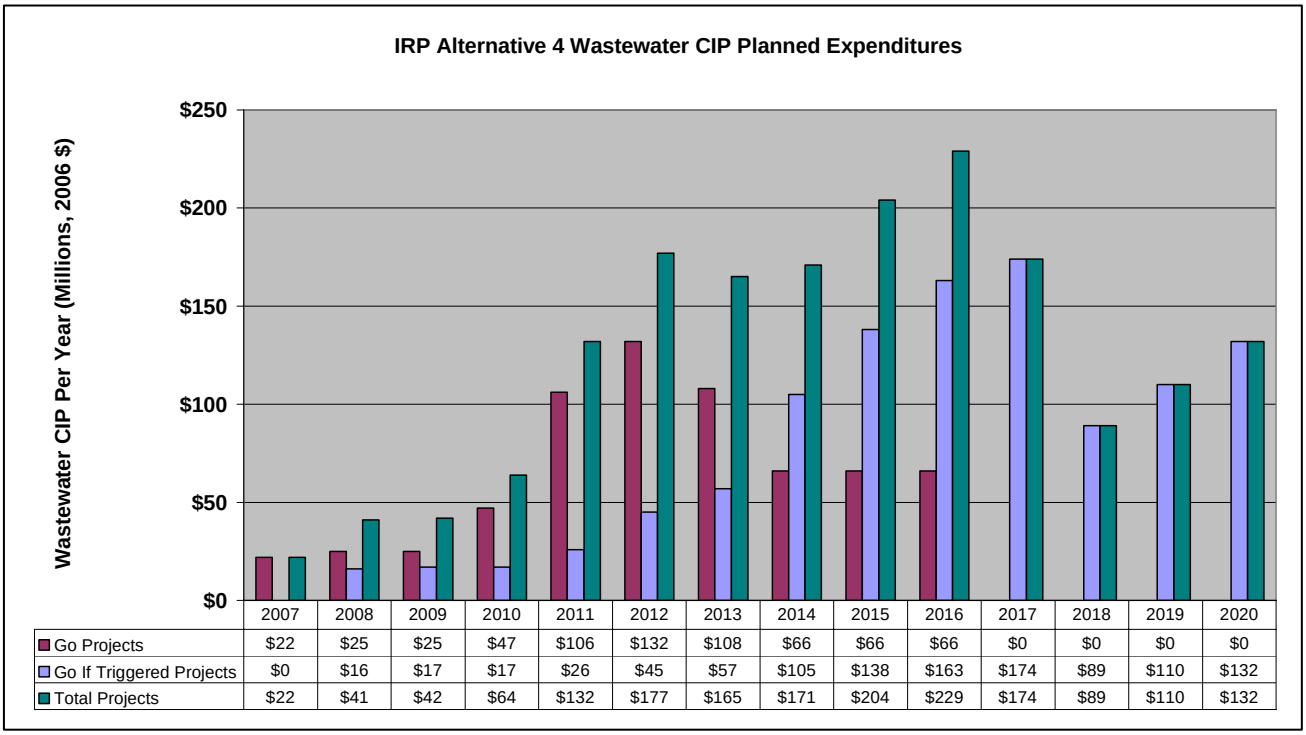
Table 3-1 presents the IRP wastewater CIP for the Recommended Alternative in 2006 dollars. The estimated total CIP is approximately $1,867 million in 2006 dollars. If the Recommended Alternative does not occur and Alternative 1 becomes the Recommended Alternative, then the total CIP would be approximately $1,703 million.

Table 3-1
IRP Wastewater CIP Estimated Capital Costs ($ 2006)

Go-Projects	**Cost (Millions)**	**Assumed Online Date**
Construct Wastewater Storage Facilities at Tillman (60 Million Gallons with Real Time Control)	$120	2013
Construct Wastewater Storage Facilities at LAG (5 Million Gallons with Real Time Control)	$19	2013
Recycled Water Storage at LAG (5 Million Gallons with Real Time Control)	$8	2013
HTP Solids Handling/Truck Loading Facility	$89	2013
Glendale Burbank Interceptor Sewer (GBIS) (inclusive of air treatment)	$196	2017
North East Interceptor Sewer, Phase II (NEIS) (inclusive of air treatment)	$230	2017
Subtotal Go-Projects (Alternative 4)	**$662**	
Go If Triggered Projects	**Cost (Millions)**	**Assumed Online Date**
Potential Upgrade of Tillman to Advanced Treatment, Phase 1 (MF/RO, current capacity 80 mgd)	$308	2018
Potential Upgrade of Tillman to UV Disinfection, Phase 1(current capacity 80 mgd)	$31	2018
Potential Upgrade of Tillman to 100mgd; Primary and Secondary Clarifiers, Aeration Basins (add 20 mgd)[1]	$125	2023
Potential Upgrade of Tillman to 100mgd; Advanced Treatment (add 20 mgd)[1]	$77	2023
Potential Upgrade of Tillman to 100mgd; UV Disinfection (add 20 mgd)[1]	$8	2023
Potential Upgrade of LAG Upgrade to Advanced Treatment (MF/RO, current capacity)	$97	2016
Potential Upgrade of LAG Upgrade to UV Disinfection (current capacity)	$8	2016
Potential HTP Secondary Clarifiers (add 100 mgd to obtain capacity of 450 mgd)	$92	2015
Potential HTP Digester (up to 12)[2]	$303	2021
Valley Spring Interceptor Sewer (VSLIS) (inclusive of air treatment)[2]	$156	2021
Subtotal Go If Triggered Projects (Alternative 4)	**$1,205**	
Potential Upgrade of Tillman to 100mgd; Primary and Secondary Clarifiers, Aeration Basins (add 20 mgd)[1]	($125)	
Potential Upgrade of Tillman to 100mgd; Advanced Treatment (add 20 mgd)[1]	($77)	
Potential Upgrade of Tillman to 100mgd; UV Disinfection (add 20 mgd)[1]	($8)	
Potential Expansion of HTP to 500 mgd (add 50 mgd)	$46	2022
Subtotal Go If Triggered Projects (Alternative 1)	**$1,041**	
Grand Total (Alternative 4)	**$1,867**	
Grand Total (Alternative 1)	**$1,703**	

[1] If Alternative 4 does not occur and Alternative 1 becomes the preferred alternative then these projects will not occur. Instead, HTP will be expanded from 450 mgd to 500 mgd adding the overall capital cost for the IRP by approximately $164 million.

Figure 3-1 depicts the IRP CIP expenditures based on the timing of the Go and Go If Triggered projects as described in the *IRP Facilities Plan, Volume 5: Adaptive Capital Improvement Program* for Alternative 4. Go Project CIP expenditures will reach a peak in 2012 at approximately $132 million. Go If Triggered Projects will reach a peak in 2017 at approximately $ 174 million if the triggers occur as forecast. Combined, the Go and Go If Triggered Projects would reach a peak in 2016 at approximately $ 229 million. CIP costs beyond 2020 are not depicted in the figure as they extend beyond the timeframe of the *IRP Financial Plan.* After 2020 there are approximately $118 million in outstanding CIP costs with approximately $66 million planned in 2021 and $52 million in 2023.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Go Projects	$22	$25	$25	$47	$106	$132	$108	$66	$66	$66	$0	$0	$0	$0
Go If Triggered Projects	$0	$16	$17	$17	$26	$45	$57	$105	$138	$163	$174	$89	$110	$132
Total Projects	$22	$41	$42	$64	$132	$177	$165	$171	$204	$229	$174	$89	$110	$132

Figure 3-1
IRP Alternative 4 Wastewater CIP Expenditures

3.1.2 IRP Wastewater Operations and Maintenance Program

Table 3-2 presents the IRP wastewater O&M costs for the Recommended Alternative and expected online year (year O&M would begin) for each of the proposed projects in the CIP projected to be online in 2020. Figure 3-2 illustrates the expected yearly O&M costs of the IRP CIP from 2013, when the first project is online, until 2020 the end of the financial planning period. After 2018 IRP O&M costs remain constant for the remainder of the financial planning period at approximately $35 million in 2020 in 2006 dollars.

Table 3-2
IRP Wastewater Estimated O&M Costs for 2020 ($ 2006)

Go Projects	Annual Costs	Assumed Online Date
Construct Wastewater Storage Facilities at Tillman (60 Million Gallons with Real Time Control)	$284,250	2013
Construct Wastewater Storage Facilities at LAG (5 Million Gallons with Real Time Control)	$3,411	2013
Recycled Water Storage at LAG (5 Million Gallons with Real Time Control)	$3,411	2013
HTP Solids Handling/Truck Loading Facility	$179,968	2013
Glendale Burbank Interceptor Sewer (GBIS) (inclusive of air treatment)	$960,215	2017
North East Interceptor Sewer, Phase II (NEIS) (inclusive of air treatment)	$1,897,407	2017
Subtotal (Go Projects)	**$3,328,662**	
Go If Triggered Projects	**Annual Costs**	**Assumed Online Date**
Potential Upgrade of Tillman to Advanced Treatment, Phase 1 (MF/RO, current capacity 80 mgd)	$23,920,206	2018
Potential Upgrade of Tillman to UV Disinfection, Phase 1(current capacity 80 mgd)	$1,595,211	2018
Potential Upgrade of LAG Upgrade to Advanced Treatment (MF/RO, current capacity)	$5,980,620	2016
Potential Upgrade of LAG Upgrade to UV Disinfection (current capacity)	$397,950	2016
Potential HTP Secondary Clarifiers (add 100 mgd to obtain capacity of 450 mgd)	$81,068	2015
Subtotal (Go If Triggered Projects)	**$31,975,055**	
Grand Total	**$35,303,717**	

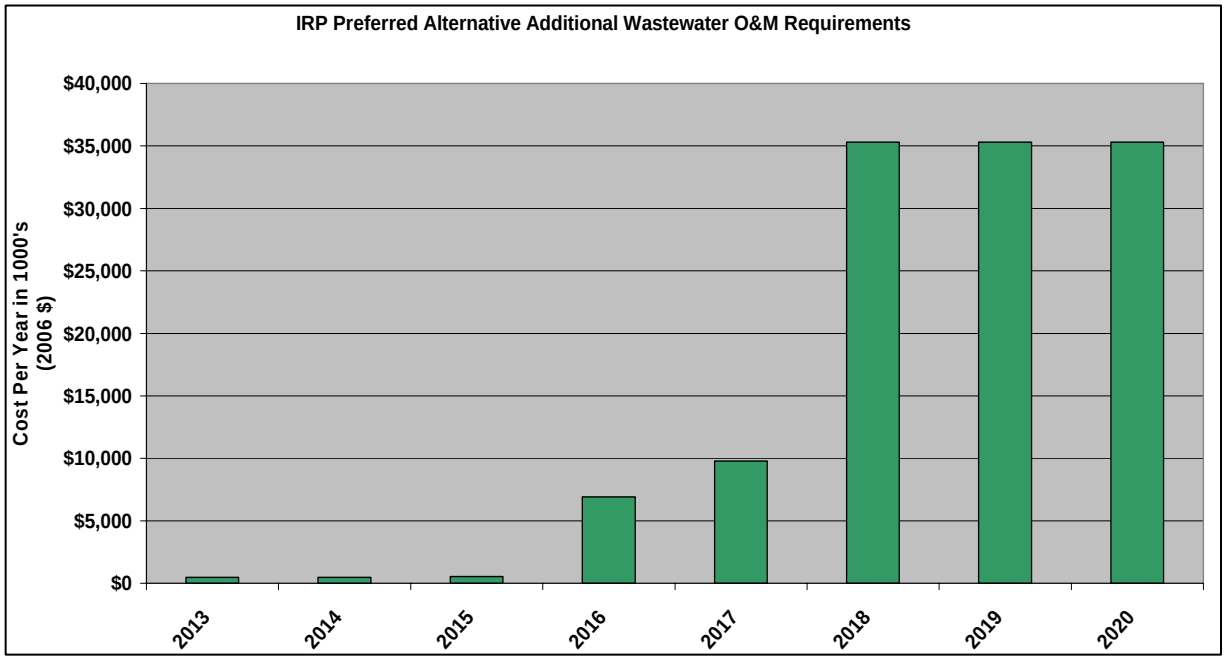


Figure 3-2
IRP Alternative 4 Additional Wastewater O&M Requirements

Leadership projects are reflected in the detailed rate analysis, but are not reflected in Table 3-2, as the leadership projects are scheduled for modeling purposes to end in 2017. Leadership projects are categorized as demonstration projects, pilot projects, and studies that are lump summed together and added to the wastewater O&M component. Details regarding proposed leadership projects are presented in *IRP Facilities Plan, Volume 4: Alternative Development and Analysis.* Those projects directly related to water conservation are not included in the rate analysis as the wastewater model does not incorporate an analysis of potable water projects. Wastewater related leadership projects contribute approximately $14 million in O&M costs over 10 years with an annual cost of approximately $1.4 million starting in 2007 and ending in 2017. If the Recommended Alternative does not occur and instead expansion occurs at HTP there would be no change in 2020 O&M costs. Both the Tillman upgrades to 100 mgd and the HTP expansion to 500 mgd would become operational outside of the *IRP Financial Plan* timeframe.

O&M costs for Go If Triggered Projects with online dates after 2020 are presented in Table 3-3. This table is presented for informational purposes only as the wastewater modeling efforts end in 2020. The additional total O&M costs, in addition to the costs presented in Table 3-2, are approximately $104 million in 2006 dollars.

Table 3-3
Estimated Additional IRP Wastewater O&M Costs Post 2020 ($ 2006)

Go If Triggered Projects	Annual Costs	Assumed Online Date
Potential Upgrade of Tillman to 100mgd; Primary and Secondary Clarifiers, Aeration Basins (add 20 mgd)[1]	$8,554,788	2023
Potential Upgrade of Tillman to 100mgd; Advanced Treatment (add 20 mgd)[1]	$5,980,620	2023
Potential Upgrade of Tillman to 100mgd; UV Disinfection (add 20 mgd)[1]	$1,595,211	2023
Potential HTP Digester (up to 12)	$88,298,146	2021
Valley Spring Interceptor Sewer (VSLIS) (inclusive of air treatment)	$25,359	2021
Total Additional O&M Costs	**$104,454,124**	

[1] If Alternative 4 does not occur and Alternative 1becomes the preferred alternative then these projects will not occur resulting in a reduction in O&M of approximately $16 million in annual O&M starting in 2023. Instead, HTP will be expanded from 450 mgd to 500 mgd adding an O&M cost of $40,534 in 2022 for a net reduction of O&M of approximately $16 million for Alternative 1.

3.2 Runoff Management Component Cost Estimate

Capital costs in the runoff management component are based on requirements for adopted and future Total Maximum Daily Loads (TMDL) and will vary based upon water quality results after projects identified in the approved and future TMDL Implementation Plans are implemented. If water quality results indicate compliance is occurring with adopted TMDLs, then more intensive capital improvement projects may not be required. Therefore, a rate impact analysis will not be conducted for the runoff management component of the IRP as it is not known at this time when capital costs will occur.

The CIP and O&M costs presented here are based on a broad scope of projects that require future refinement and are subject to change as TMDL Implementations Plans are implemented. The costs are presented merely for informational purpose to illustrate potential CIP and O&M costs if the runoff management component were to be implemented as originally developed.

Projects are segregated into the two main categories of runoff management projects: dry weather runoff and wet weather runoff projects. More detailed information regarding these projects is presented in the *IRP Facilities Plan, Volume 5: Adaptive Capital Improvement Program.*

3.2.1 IRP Runoff Management Capital Improvement Program

Table 3-4 presents the IRP runoff management CIP for the Recommended Alternative in 2006 dollars. The estimated total CIP is approximately $2,452 million. As previously stated, the costs presented here may not reflect actual TMDL Implementation Plan costs as capital requirements are dependent on multiple variables that cannot be readily modeled. The data is presented merely for informational purposes.

Table 3-4
IRP Runoff Management CIP Estimated Capital Costs ($ 2006)

Dry Weather Runoff Projects	Cost (Millions)
Smart irrigation (reduce runoff by ~10 mgd)	$119
Divert runoff from Compton Creek to URP (~2 mgd)	$19
Divert runoff from Ballona Creek to URP (~3 mgd)	$27
Divert runoff from Inland Creeks to URPs and Wetlands (15.9 mgd)	$393
Subtotal Dry Weather Runoff	**$558**
Wet Weather Runoff Projects	
Treat and beneficially use/discharge (coastal area - 160 mgd)	$1,039
Neighborhood recharge in vacant lots (east valley)	$389
Neighborhood recharge in parks/open space	$124
Neighborhood recharge in abandoned alleys	$18
Onsite percolation - Schools	$52
Onsite percolation - Government	$17
Non-urban regional recharge (east valley)	$87
Cisterns (onsite storage use) - Schools	$71
Cisterns (onsite storage use) - Government	$45
Onsite percolation - Schools	$52
New/Redevelopment Areas - Onsite treat/discharge[1]	$0
Subtotal Wet Weather Runoff	**$1,894**
Total	**$2,452**

[1]. No costs are associated with new/redevelopment areas as onsite treatment and discharge would be included in the SUSMP requirements. SUSMP compliance is the responsibility of the property owner.

3.2.2 IRP Runoff Management Operations and Maintenance

Table 3-5 presents the IRP runoff management O&M costs for the Recommended Alternative for each of the proposed projects in the CIP. Based on the assumption that the entire CIP will occur and be implemented by 2020, O&M is expected to be approximately $85 million in 2020 in 2006 dollars. Not all projects would be expected to commence operations in the same year. O&M costs presented here are for informational purposes and may not reflect actual TMDL Implementation Plan costs.

Table 3-5
IRP Runoff Management Estimated O&M Costs ($ 2006)

Dry Weather Runoff Projects	Annual Costs
Smart irrigation (reduce runoff by ~10 mgd)	$30,699,000
Divert runoff from Compton Creek to URP (~2 mgd)	$183,973
Divert runoff from Ballona Creek to URP (~3 mgd)	$438,410
Divert runoff from Inland Creeks to URPs and Wetlands (15.9 mgd)	$5,127,870
Subtotal Dry Weather Runoff	**$36,449,253**
Wet Weather Runoff Projects	
Treat and beneficially use/discharge (coastal area - 160 mgd)	$42,785,310
Neighborhood recharge in vacant lots (east valley)	$0
Neighborhood recharge in parks/open space	$5,571,300
Neighborhood recharge in abandoned alleys	$0
Onsite percolation - Schools	$0
Onsite percolation - Government	$0
Non-urban regional recharge (east valley)	$0
Cisterns (onsite storage use) - Schools	$181,920
Cisterns (onsite storage use) - Government	$113,700
Onsite percolation - Schools	$0
New/Redevelopment Areas - Onsite treat/discharge	$0
Subtotal Wet Weather Runoff	**$48,652,230**
Grand Total	**$85,101,483**

[1] No costs are associated with new/redevelopment areas as onsite treatment and discharge would be included in the SUSMP requirements. SUSMP compliance is the responsibility of the property owner.

IRP runoff management leadership projects are not reflected in Table 3-5, as the leadership projects would end in 2017. Leadership projects are demonstration projects, pilot projects, and studies that are lump summed together and added to the runoff management O&M component. Runoff management related leadership projects contribute approximately $12 million in O&M costs over 10 years with an annual cost of approximately $1.2 million starting in 2007 and ending in 2017.

Section 4
Funding Sources

Existing funding programs at their current levels of funding for the wastewater and runoff management capital improvement programs (CIP) in combination with the IRP CIP are inadequate to fully fund the programs. While both programs have multiple unknowns at this time, it is known that the CIPs for both programs will substantially increase regardless of the unknowns requiring additional multiple funding sources. Existing and potential new funding sources for the programs are reviewed in this Section.

4.1 Wastewater Funding Sources

The wastewater program has historically relied on multiple sources of funding to sustain the wastewater capital improvement program (WCIP). Information and data on the Sewer Construction and Maintenance (SCM) Fund Statement of Condition including annual revenues and expenditures, and the ending and starting cash balance for each fiscal year for the 5-year period 2001 through 2005 has been previously summarized in Section Two. Table 4-1 provides a historical snapshot of the actual sources of funding for the wastewater capital improvement program (WCIP) expenditure for the 5-year period 2001 through 2005. Net cash contributions include the operating receipts plus interest income on the cash balance in the SCM fund less operation and maintenance (O&M) and debt service. The majority of historical WCIP funding has been provided by bonds and commercial paper followed by net cash contributions.

Table 4-1
WCIP Funding by Source, Total 5-Year (2001-2005)

Source	Expenditure (millions)	Percent
Net Cash Contributions	$461	34%
Bonds and Commercial Paper	$548	40%
State Revolving Fund Loans	$150	11%
Interfund Transfers and Reimbursements	$36	3%
Miscellaneous	$15	1%
Sale of Real and Personal Property	$1	0.1%
Grants/FEMA	$54	4%
Contract Agencies Payments	$99	7%
Total	$1,364	100%

Sources:
Draft Wastewater Revenue Program, July, 2006, Historical and Budgeted O&M, Sheet C-2
Draft Wastewater Revenue Program, July, 2006, Historical Debit Service, Sheet E-3
Draft Wastewater Revenue Program, July, 2006, Capital Labor History, Sheet D-4
Table 2-1, SCM Statement of Condition

4.1.1 Existing Wastewater Sewer Service Fees and Charges

Sources of the majority of operating receipts to fund O&M and net cash contributions to the WCIP include:

- Sewer Services Charge (SSC) – inclusive of industrial waste quality surcharge fee (QSF) and sewage disposal contracts
- Sewerage Facility Charge (SFC)
- Industrial Waste Permit Application, Inspection and Control Fees
- Miscellaneous Fees.

Table 4-2 provides the current wastewater service fees and charges. Current receipts are approximately $422 million, not including interest on cash. Interest on the cash balance in the SCM Fund adds an additional $7 million to total revenues for a total of $429 million in revenues. Interest on cash was not included. Current receipts reflect additional revenues associated with a five-year SSC rate increase program, inclusive of the QSF, that is currently at its midpoint. A rate increase program was implemented in 2005 to account for changing operating conditions in the collection system and to ensure customers pay for their proportional use of the system.

Table 4-2
Current Wastewater Service Fees and Charges, (2005)

Revenue Source	Receipts (millions)
Sewer Service Charges	$382
Sewerage Facilities Charge	$11
Industrial Waste Applications, Inspections, and QSF	$17
Miscellaneous Fees	$1
Sewage Disposal Contracts (O&M)	$11
Total	$422

[1] Does not include interest on cash balance.
Source:
Table 2-1, SCM Statement of Condition

Rate Setting Guidelines

Legal mandates for the City's sewer service charges (SSC) and sewer facilities charge (SFC) fee structures come from both State and Federal levels.

The basic guidelines for SSC are put forth by the State Water Resources Control Board (SWRCB) Division of Clean Water Programs. This is supported by Section 204(b)(1) of the Clean Water Act as well as the Code of Federal Regulations, 40 CFR 35.2140. The SWRCB has Revenue Program Guidelines that the City is required to follow. The City must seek approval for program compliance if there are substantial changes to the sewer rates.

In addition to the State and Federal guidelines, there are several generally-accepted industry guidelines used by public and private utilities to establish wastewater rates. These State and Federal guidelines have been manifested in manuals issued by trade associations. The prominent wastewater and water guidance documents are as follows:

- Water Pollution Control Federation (WPCF) manual, "Financing and Charges for Wastewater Systems"
- American Water Works Association (AWWA) manual, "Rates and Charges" (Super-manual) M-1

The focus of this discussion centers on the WPCF (now known as Water Environment Federation [WEF]) guidelines for wastewater ratemaking and rate structure development. The guidelines presented in this manual can be viewed as having two primary components:

- Operation and maintenance cost recovery
- Capital cost recovery

Both of these rate making components are discussed below along with the pertinent rationale for the guidelines as they apply to the City's SSC.

Most current cost recovery methods were developed to be in conformance with the requirements of the Water Pollution Control Act (Public Law 92-500) as amended in 1972. This law is now part of the Code of Federal Regulations (40 CFR 35). That law states that:

"(b) (1) Notwithstanding any other provision of this title, the Administrator shall not approve any grant for any treatment works under section 201 (g) (1) after March 1, 1973, unless he shall first have determined that the applicant (A) has adopted or will adopt a system of charges to assure that each recipient of waste treatment services within the applicant's jurisdiction, as determined by the Administrator, will pay its proportionate share (except as otherwise provided in this paragraph) of the costs of operation and maintenance (including replacement) of any waste treatment services provided by the applicant."

In addition to the requirements set forth by the Water Pollution Control Act, the publication by the WPCF, "Financing and Charges for Wastewater Systems," 1984, provides guidance as to the formulation of wastewater rates and charges. One of the guiding principles for rate making in this publication is the concept of use and benefits for allocating costs. It is this sharing of costs proportionate to use that is consistent with the Water Pollution Control Act. Not all charges must be based entirely on volume, but there must be a causative relationship between the charges and the use by the customer. For example, wastewater may differ not only in quantity but also by quality between customers, with industrial or commercial customers at times contributing wastewater of greater strength than residential wastewater. These differences are addressed in the WPCF publication, and recommendations are made regarding various means of allocating costs.

The Federal law pertaining to grant conditions is silent in regard to the subject of capital costs. The WPCF publication, however, gives guidance regarding the inclusion of capital costs. The capital costs are included in the determination of revenue requirements and the allocation of operation, maintenance and replacement costs according to one of two methodologies:

- Functional cost allocation: The functional cost allocation method distributes costs according to customer costs, costs of biochemical oxygen demand (BOD) and total suspended solids (TSS) removal, and flow management costs.

- Fixed-variable cost allocation: The fixed-variable cost method identifies peak usage requirements and distinguishes between fixed and variable in distributing costs.

Other ancillary financing mechanisms and charges for capital cost recovery include impact fees and system development charges like the Sewerage Facilities Charge used to fund growth-related capital additions. A common standard for assessing the legality of SFCs is the "Rational Nexus", or reasonable relationship test, that relates the charge to the customer's existing and/or future demand on the wastewater system. The SFC is also regulated by several State laws and regulations including the State of California Government Code (section 66001 of Chapter 5 and Section 54999 of Chapter 13).

The SWRCB requires wastewater systems to recover all O&M and rehabilitation/replacement costs from system users as a condition for receiving Federal and State Funds. These charges need to be documented in the form of a revenue program prepared according to the generally accepted Revenue Program Guidelines for Wastewater Agencies. The City submitted its Revenue Program to the SWRCB in July 1987. The program documented the City's rate system and showed that it was in compliance with the EPA's "fair and equitable" guidelines.

Current and adopted future rates for the wastewater fees are provided in Section 2.

Sewer Service Charge

Sewer service charges (SSC) are established to recover the cost of system operation, maintenance, and rehabilitation/replacement upgrades. This fee is charged to customers located within the City limits. A similar fee, described under sewage disposal contracts, is charged to the 29 contract agencies and entities that are connected into the City's system and have sewage disposal contracts with the City.

The SSC is based on an estimate of sewage volume derived from the metered water usage. For the purposes of SSC rates, the normal strength sewage is defined as 265 milligrams per liter (mg/l) for BOD and 275 mg/l for TSS. The SSC is billed by customer classification including single-family residential, small multi-family (2 to 4 units), large multi-family (5 or more units) and commercial/industrial. For the single-family residential and small multi-family, the sewage volume is taken as their lowest winter water usage from the previous year, which is further reduced by a dry winter compensation factor (DWCF). For the large multi-family and commercial/industrial customers, the sewage volume is taken as 90 percent of the water usage for the billing period, unless modified based on specific site conditions. The single family residential includes special discounted rates for "Lifeline" and "Low Income" customers.

The City's QSF is based on charging industrial users the cost of treating wastewater that contains concentrations of BOD and TSS above normal strength and for administering and maintaining the surcharge program. QSF fees were adjusted as part of the SSC five-year rate program with a reduction in SS fees and an increase in BOD fees as most of the additional costs are related to BOD with operation of full secondary treatment.

The City has worked towards the goal of replacing pre-1987 contracts with revised contracts that conform to the EPA and SWRCB guidelines. The City presently has revised contracts with most of the agencies. The contracts address the concerns raised in the 1987 Revenue Program regarding discharge quality related costs and the fair and equitable recovery of the O & M and capital recovery costs. As part of this process, the City has developed a fixed asset record system for the wastewater facilities to determine cost of the system. Also, the City and contract agencies have implemented monitoring programs to better determine the quality of wastewater discharged to the City's wastewater system by these agencies.

As outlined in the *Funding Source for Los Angeles Integrated Resources Plan Technical Memorandum* (April 20, 2004), the rate structure for wastewater systems typically reflects the following elements:

- A customer charge, assessed per water bill.;
- A volume charge based on water meter readings;
- An extra-strength pollutant surcharge on large commercial and industrial customer discharges of BOD and TSS; and
- A lifeline/low income discount for qualifying customers.

The City's current rate structure reflects all of these elements except for the customer charge component. The advantage of the customer charge is that it provides a base amount of fixed revenues that do not vary based on customer use; this factor improves the utility's cash flow.

The future WCIP and IRP CIP will be funded through multiple mechanisms including SSC fees. Factors impacting future rate increases to the SSC include affordability and potentially political acceptance. There is limited opportunity to increase fees from sewage disposal contracts as the contract negotiations process is lengthy and the majority of pre-1987 contracts have been revised. QSF fees were adjusted as part of the five-year rate program to reflect system operations with changes allocated based on proportionate shares of operating the system. Therefore, there is limited opportunity for a significant increase in revenues related to SSC fees. Average 2020 single-family household costs without the IRP and with the IRP are presented in Section 5.

Sewerage Facilities Charge

The sewerage facilities charge is designed to recover the cost of the system capacity required for new sewer connections and increases in capacity required for the current system users. The City's SFC has evolved over the years from a value of service-based charge to incremental cost-pricing to the current system buy-in method. Over the five-year period between 2001 and 2005 the SFC has averaged approximately $8 million per year with a high of $10 million in 2005 and a low of $5 million in 2002.

In 1996, the City adopted the current system buy-in method. This method generated the charge of $325 per 100 gallons of average normal strength sewage flow. The cost-of-service rationale was that by 1996, the City had available capacity due to water conservation and completed expansion projects at the Hyperion Treatment Plant. Under the system buy-in method, the SFCs are based on the historical costs of the system assets inflated to reflect the current costs of replacing the assets and then depreciated to reflect the remaining useful economic life of the assets, plus the applicable portions of the system reserve funds, minus the outstanding debt of the wastewater system.

To implement the SFC, the City maintains a list of about 172 residential and commercial categories with sewage generation factors (SGFs) in gpd, and sewage strength parameter of BOD and TSS for each category. A separate list of about 134 industrial categories with SGFs in gallons per day (GPD) and sewage strength parameters of BOD and TSS is used for industrial customers. Many of the residential and commercial categories share the same SFG factors. For industrial customers, the SFC calculations are based on the flow information provided on the Bureau of Sanitation (BOS) Industrial Discharge Permit, while the strength components of BOD and TSS are taken from the City's SGFs table for the industrial category. In lieu of the City's factors, an industrial user has the option of submitting strength data verified by a credited independent testing laboratory as a basis for paying SFC.

As a way to assist in the economic recovery of the City, in October 1994, the City Council adopted an installment payment plan available to applicants with SFCs over $17,000. The basic elements of this plan allow payment of these SFCs over a five-year period and include interest charges on the outstanding balance of SFCs.

The SFC fees are generally considered to be fair because they reflect the cost of providing the services. The recovery of such costs can be structured in various ways depending upon the economic environment and other considerations including the available system capacity and desires of the elected leadership. In the last 15 years, the City has determined cost of service reasons for changing the SFC fee from system buy-in to incremental costs pricing and back to system buy-in. System buy-in SFCs from new customers are not sufficient to pay the entire cost of future increments of capacity, requiring the existing customers to pay the remaining costs. However, through their service charges, the new customers will also pay the costs of replacing facilities providing the older capacity they bought into.

Both the system buy-in and incremental costs-pricing are commonly used in the wastewater industry and are considered equitable methods of recovering costs over a period of time. The incremental cost-pricing method uses current period values for capital improvements which is traditionally higher in cost than the original (embedded) cost of facilities used in the system buy-in approach. The system buy-in approach recovers a portion of the installed capacity costs up front, and the remaining costs are recovered through facility replacement.

Changes in the SFC methodology can create their own inequities for the generation of customers who pay much higher SFC for the new capacity under the incremental cost-pricing method because the new customers (who pay much higher SFCs for new capacity under the incremental cost-pricing method) also pay for rehabilitation, replacement, and upgrade costs for the existing capacity as part of the SSC fees.

For a mature wastewater system like the City of Los Angeles, the system buy-in method is more practical because the system presents many opportunities to increase capacity through replacement/retrofit of components of the existing system. Under the incremental cost-pricing method, the city would be required to estimate the expansion portions of the project costs, which can be very subjective and controversial. The City's early 1990s litigation with some of the contract agencies arose partly from disagreements on expansion costs. Such estimations are not necessary with the system buy-in method. The other reasons for continuing with the system buy-in approach are as follow:

- In addition to creating inequities among different generation of new customers, changes create concerns whether the SFC fees are really driven by the cost of service rationale.

- It is not necessary to implement the incremental cost-pricing method for "growth to pay its own way." Customers paying system buy-in SFCs pay for existing capacity needing rehabilitation, replacements, or upgrades through their SSC fees. Therefore, over the life cycle of the assets, these customers pay the full cost of capacity.

- The SFC fees based on incremental cost-pricing may fluctuate considerably based on the fluctuation in the capacity related costs of the capital improvement program, and per unit cost of incremental capacity, which may vary considerably depending upon whether the expansion is achieved through construction of the new facility or retrofit of the existing facility. System buy-in SFCs are very stable since the value of fixed assets used in calculating the charges does not change much, on a percentage basis, from year to year from changes as part of the SSC. Therefore, the system buy-in approach is more business-friendly and may be considered as favoring economic growth.

- The contracts governing the provision of wastewater service to agencies located outside the City specify that the buy-in method is to be used in calculating their SFCs. Changing the method for calculating the agencies' SFCs to be consistent with internal SFCs based on the incremental method would require contract amendments with approximately twenty agencies. Some of these agencies would pay more with the incremental cost method and so may not be willing to amend their contracts. The existing agreements forbid such amendments for the next six years.

The City's current SFC base fee of $262 for 100 gallons per day of normal strength sewage (265 mg/l from BOD and 275 mg/l from TSS) is low compared to the historic range of $521 to $1,032 per 100 gallons of average flow charged by the City during the late 1980s and early 1990s. However, the current SFC fee structure was based on calculations made in the mid-1990s. There have been many new investments in the wastewater system infrastructure since that time. The City should consider performing a new SFC rate study to update the figures used to calculate SFC fees.

Industrial Waste Permit Application, Inspection, Control, and Miscellaneous Fees
Industrial waste permit application, inspection, and control fees are designed to recover the additional costs associated with processing permits and providing the necessary inspections and control. Miscellaneous fees include septage disposal fees, bonded sewer fees, sewer tapping fees, and other miscellaneous sources of revenue. These fees are all relatively minor as compare to the SSC and SFC fees and thus any fee increases would have a minor impact overall on the total receipts collected.

4.1.2 Wastewater Revenue Bonds and Long-Term Debt

BOS currently uses commercial paper, revenue bonds, and State revolving fund loans to finance the wastewater system. Additionally, there are several other types of bonding powers available to the City for its wastewater program.

4.1.2.1 Revenue Bonds and Commercial Paper

Voters have authorized the City to issue revenue bonds and notes for the WCIP without a cap or further authorization required by the voters. Although, the voters' approval is no longer needed for issuing bonds, a referendum of support by voters within the City of Los Angeles can result in a more favorable bond rating. A substantial amount of borrowing occurred for the wastewater program in early 1990s to support the WCIP expenditure. During the five-years, 2001 -2005, the receipts from bonds and interest were $548 million to support the WCIP. Revenue bonds and commercial paper have accounted for about 40 percent of the WCIP expenditure for the five-year period 2001-2005. The SCM Fund's desired debt service coverage ratio (operating revenue divided by debt service payments) is 1.8 or above. This coverage ratio is required by financial markets to maintain the SCM Fund's bond ratings.

The tax-exempt revenue bonds are backed by the sewer service fees and charges paid by the system customers, and the bond investors are paid from revenues from these service fees and charges. Bonds are issued (sold) through an investment banking company or through private placement with large financial institutions.

4.1.2.2 State Revolving Fund Loan Program

In comparison with traditional revenue bonds, loans are available from a variety of sources, but in the past the City has only actively pursued loan applications with the California Clean Water State Revolving Fund (CWSRF). These loans are administered by the SWRCB and are intended to fund a variety of projects within the WCIP. Funding for the program is provided by Federal grants and State bond funds. The intent of the program is to provide financial assistance for constructing facilities or implementing measures to reduce water quality problems and prevent pollution of State waters with the goal of achieving compliance with the Clean Water Act and State laws. SRF programs offer low or sometimes zero interest loans, guarantees of repayment, bond insurance, and refinancing of existing debt under certain conditions. The program was temporarily suspended in 2003 as all available funds had been committed. As of 2005 the program has resumed operation with an additional $300 million available. The City has applied for additional funding for the 2006/2007 funding cycle for the wastewater program. Within the last two years, the City has received approximately $150 million for projects approved prior to the 2003 suspension of the program.

Another State Revolving Fund Program is the Infrastructure State Revolving Fund Program administered by the California Commerce and Economic Development Program. This program is designed to assist local governments with a variety of projects including sewage collection and treatment. Funding for each approved application ranges from $250,000 to $10 million under a 30-year term with interest rates set monthly.

4.1.2.3 Other Long-Term Debt

Bonds have been the primary method that service utilities (e.g., regional sewer authorities) have used to fund capital-intensive construction projects. Bonds enable issuers to spread out payment for a capital-intensive project over a project's useful life. There are many different types of bonds. In addition to the revenue bonds described above, the following bonds are also available:

- ***General Obligation Bonds:*** General obligation (GO) bonds are bonds that can be issued by a municipal or county government to fund capital projects of the jurisdiction. GO bonds are secured by the general taxing power of the local jurisdiction. If planned revenues, usually property taxes but in some jurisdictions, income and sales taxes, fall short of the amount needed to meet bond payments, the jurisdiction may raise taxes to generate needed revenue.

- ***Moral Obligation Bonds:*** A moral obligation bond is a revenue bond with an additional non-binding pledge from the community to cover bond payments in the event of revenue shortfalls. Normally, revenue shortfalls are reported to local elected officials who then appropriate the requested amount to repay the bondholder, although there is no legally binding requirement forcing them to do so.

- ***Double Barreled Bonds:*** A double-barreled bond is a revenue bond that is backed by the "full faith and credit" of the issuing jurisdiction. Unlike the moral obligation pledge, the full faith and credit backing is a legally binding commitment of the issuing government.

Long-term debt financing will be one of many sources of funding the WCIP and IRP CIP. Debt financing is not unlimited and is constrained by unique situations dependent upon the source of financing. Revenue bonds require regular revenue enhancements or cost containment to maintain debt coverage ratios and credit ratings. Additionally, interest rates are subject to fluctuate dependent upon market conditions at issuance. State revolving funds require an application process in which projects are rated and loans issued based on project ratings. Additionally, there is a cap of $25 million in disbursements per year to a single agency, but project disbursements can be exceeded in a particular year if the agency ultimately receives the same funding amount if they remained under the cap. General obligation bonds would likely require voter approval and the City already has a substantial sum of outstanding general obligation bonds that may limit the ability to obtain additional funds for the wastewater program. Moral obligation bonds require approval by elected officials prior to issuance. Double barreled bonds require repayment even if there are revenue shortfalls unlike a moral obligation bond. Additionally, bonds would count against debt-coverage requirements. While this ratio could potentially be decreased if further studies warrant, there is the potential that the City could over extend itself with a lower debt coverage ratio decreasing credit ratings.

4.1.3 Wastewater Grant Reimbursements

Grant reimbursements are a variable source of revenue dependent upon grant offerings and whether wastewater system projects qualify for funding. Grants reimbursements typically require a match in local funds as defined in grant applications. The City has had extensive experience with existing wastewater construction grants, including funding from Federal grants such as EPA Water Quality Cooperative Agreements and Program Grants, Department of Commerce Grants for Public Works, and Federal Emergency Management Agency (FEMA) Flood and Hazard Mitigation, and earthquake damage repair grants for damage caused by the 1994 Northridge earthquake. Historically, the new facility construction grants have included projects such as LA-Glendale and Tillman Water Reclamation Plants, and Hyperion Energy Recovery and Full Secondary Program. Grant funding sources are continually evaluated by the City. During the period 2001-2005, the City received $54 million in grant revenues accounting for approximately 4% of WCIP expenditures.

4.1.3.1 Federal Grants

Recently, the Federal wastewater construction grants have mostly been replaced with the SRF loans and other local funding options, although FEMA grants are still available for disaster assistance and hazard mitigation. The limited funding that is available from the Federal grant programs is increasingly targeted at aid to low income or rural communities. Wastewater agencies that have received Federal orders to take actions relating to pollution are also provided access to Federal emergency funding. As mentioned above, the City has had success in obtaining grants from these programs.

In addition to FEMA grants, grants are available through the U.S. Housing and Urban Development Community Development Block Grant (CDBG) Program – Entitlement Grants. The CDBG Entitlement Grants Program seeks to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities. The program supports activities that benefit low- to moderate income citizens in cities in Metropolitan Statistical Areas (MSAs) designated by the Federal Office of Management and Budget as a central city of the MSA and other cities over 50,000 in MSAs and qualified urban counties of at least 200,000. Federal formula grants based on population, income, housing, and growth lag are awarded to eligible entities. Specific activities that can be carried out include acquisition of real property, relocation and demolition, rehabilitation of residential and nonresidential structures, and the provision of public facilities and improvements, such as water and wastewater treatment facilities.

Grantees must certify that at least 70 percent of grant funds received are spent for activities that principally benefit low- and moderate-income persons. Water and wastewater treatment facilities and brownfields-related activities are among the types of eligible projects that have been funded by these important grants.

4.1.3.2 California State Grants

California leads all other states in terms of the size and volume of statewide wastewater funding programs, including grants from statewide general obligation bond issues which have large portions dedicated to environmental projects. The City of Los Angeles has been designated as one of the recipients of funds from several of these statewide bond issues.

The allocation of funds from these statewide voter-approved general obligation bond issues is often on a grant basis, and the ballot language often broadly describes the various intended uses of the bond proceeds. If not exactly specified, specific funding may be subsequently determined through the legislative appropriation process. Unallocated funds are continuously prioritized by the SWRCB and other State agencies such as the Department of Water Resources. The City has been actively involved in trying to secure wastewater capital grants from State bond issues with wastewater funding portions. These include bonds related to Proposition 40 (California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection

Act)/Clean Beach Initiative, Proposition 50 (Water Security, Clean Drinking Water, Coastal and Beach Protection Act) bonds, and Proposition 84 (Water Quality, Safety and Supply, Flood Control, Natural Resource Protection, and Park Improvements) bonds.

Some California wastewater utilities appear to have lobbied successfully for inclusion of specific funding requests from bond proceeds from the large California statewide general obligation bond issues. Seeking legislative appropriations of initially unallocated proceeds from these statewide bond issues is a priority for many agencies. The City's efforts are planned and prioritized through the Mayor's Office and its legislative analyst.

Additional State grant programs include:

- ***Integrated Waste Management Board Grants:*** The California Integrated Waste Management Board has offered funding opportunities authorized by legislation to assist public and private entities in the safe and effective management of the waste stream. Examples of grant programs include Reuse Assistance Grants which provide incentives for local public agencies to promote and apply the concept of reuse to their business communities Sustainable Building Grants for projects that advance the use of green building design and construction practices.

- ***California Energy Commission Grants:*** The California Energy Commission has in the past implemented energy efficiency grant programs available for wastewater treatment facilities.

City staff should continue to evaluate potential Federal and State grant opportunities to offset portions of the WCIP and IRP CIP.

4.1.4 Wastewater Appropriations

Direct State and Federal appropriations are an option for funding projects within the WCIP and IRP CIP. Appropriations do not require repayment, but require significant time for lobbying and positioning projects for funding. The City of Los Angeles has been able to obtain appropriations through its lobbying efforts in the past. The following describes the State and Federal appropriations programs:

- ***Direct State Appropriations:*** Direct State appropriations represent specific, legislated funding for specific projects and programs. These appropriations can be specific to a recipient or project, or to fund an agency's ongoing programs. It is important that large agencies, such as the Bureau, maintain an active presence, either directly or through respected lobbyists and trade associations, with State legislators and key State lending agencies to promote its funding requirements and allocations, and new funding initiatives. This usually requires a large commitment of planning resources and follow-through.

- ***Direct Federal Appropriations*:** Federal funding of wastewater projects is significantly lower than two decades ago. There has been an increased interest in substantially increasing funding from the Federal government through the EPA and other Federal agencies. In addition, many cities and agencies employ lobbyists in Washington to help to ensure passage of "line item" funding of specific projects within Federal agency budgets, such as the EPA, rather than rely on availability of funding though general programmatic Federal funding of wastewater-related programs. Specific requests for capital funding are common to the congressional funding process each year. Despite significant costs of lobbying efforts, this source of funding has been routine and occasionally significant for many cities, including the City of Los Angeles, in the past. Success in securing direct Federal appropriations often requires a combination of strong congressional representation and the ability to make the case that there are distinguishing characteristics of a community's situation that merit special consideration. Distinguishing characteristics might include project-specific characteristics (e.g., the requirement to treat beyond normal standards, or the possibility of testing a new and innovative technology) and community-specific characteristics (e.g., low-income communities faced with substantial capital programs, or the opportunity to support an important economic development project). Where there is a combination of strong congressional representation and important distinguishing characteristics, there remain strategic opportunities for funding that merit the costs of the required campaign to secure funds. It is very important that large agencies, such as the Bureau, maintain an active presence, either directly or through respected lobbyists and trade associations, with its congressional delegation and Federal agencies to promote its funding requirements and allocations, as well as potential new funding initiatives. This is a significant planning effort and requires constant follow-through.

4.2 Runoff Management Funding Service

Since the inception of the Stormwater Pollution Abatement Fund in 1991, the runoff management CIP has relied on multiple sources of funding to sustain its limited CIP. For the period 2001-2005 the CIP expenditures averaged $1.7 million per year. In the forthcoming years, the CIP will increase in response to the requirements for adopted and future Total Maximum Daily Loads (TMDLs) and will vary based upon water quality projects identified in the approved and future TMDL Implementation Plans. CIP requirements will exceed current financial resources for the Fund. If water quality results indicate compliance is occurring with adopted TMDLs, then more intensive capital improvement projects may not be required. As a result, the City has formed a Financial Strategic Planning Task Force to study the options available for funding the runoff management program commitment to satisfy TMDL regulations.

Information and data on the Stormwater Pollution Abatement Fund Statement of Condition, including annual revenues and expenditures, and the ending and starting cash balance for each fiscal year for the five-year period 2001-2005 have been previously summarized in Section Two. Almost all of the revenues for the period, except for the cash balance and grant reimbursements, were derived from the SPAC fee. The actual revenues from the fee have averaged about $28 million for the five-year period 2001-2005. Most of the fund expenditures have been used for labor and equipment for operating, maintaining, and implementing best management practices for pollution prevention and flood control.

Other revenues include interest payments on cash balances, Proposition O bond proceeds, general fund payments, grant reimbursements, reimbursements from other funds, and other minor sources of revenues. Other revenues fluctuate based on current conditions, such as obtaining grants and the current cash balance.

Interest income, while a source of revenue, is not discussed as a potential funding source as it varies based on cash balances and current interest rates.

4.2.1 Runoff Management Utility Fees

Stormwater Pollution Abatement Fund was established in 1990-91 by the City Council by assessing a Pollution Abatement Charge fee on each property tax bill. The fee is determined by the amount of runoff from each property in the City and is based on $23 per equivalent dwelling unit on each parcel. Detailed information regarding the calculation of the fees is provided in Section Two. The proceeds from the fund must be expended only for stormwater management related activities.

Funds received are relatively fixed at approximately $28 million per year as fees are based on parcels and thus will continue to remain constant. Insignificant fluctuations are a result of delinquent property tax payments and/or requests for changes in how parcel runoff factors are applied to a particular property.

Simply increasing the SPAC is not necessarily an option because the City needs property owner or voter, per restrictions of Proposition 218. California's Proposition 218 requires either property owner or voter approval for property related fees. Residents have the opportunity to register their approval or protest at a public hearing. Voter approval is not required for water, sewer or refuse fees.

As a result, the City has formed a Financial Strategic Planning Task Force to study the options available for funding the stormwater program commitment to satisfy TMDL regulations.

An important development in California was the litigation between the City of Salinas and the Howard Jarvis Taxpayers Association (HJTA) that was decided June 3, 2002. It blocked the imposition of a stormwater fee on owners of improved or undeveloped graded properties due to its status as a "property related" fee subject to Proposition 218 balloting. Unless the case is successfully appealed or reviewed by the California Supreme Court, it will serve as a significant roadblock to funding NPDES compliance through user fees. The City should consider revisiting this issue at some future date once legal precedents related to the Salinas case have been established in this matter.

Additionally, the City may want to partner with other cities and organizations, such as the California League of Cities, to pursue a State legislative change in the Proposition 218 requirements for voter approval of runoff management utility fee increases. The intent of this change would be to modify the language to not require voter approval for runoff management utility fee increases similar to water, sewer, or refuse fees.

4.2.2 Runoff Management Bonds and Long Term Debt

Until the passage of Proposition O, the runoff management program did not utilize debt financing as a funding option. As described in detail in Section 4.1.2 for the wastewater program there are numerous types of bond programs available including:

- Revenue Bonds
- State Revolving Fund Loans
- General Obligation Bonds
- Moral Obligation Bonds
- Double Barreled Bonds
- State Bond Banks and Pooled Bond Issues.

Revenue bonds, SRF loans, and Proposition O are described in detail below. Descriptions of the other bond types listed are provided in Section 4.1.2.

4.2.2.1 Stormwater Revenue Bonds

Generally, stormwater revenue bonds provide the funding for building infrastructure, the assets of a stormwater system. In most cases, a stormwater utility is identified as the dedicated revenue stream to demonstrate ability to repay back the bonds. Revenue bond credit agencies, such as Moody's or Standard & Poor's, review the utility's ability and willingness to repay the debt.

Revenue bonds are reviewed according to four guidelines:

- Current and future debt position,
- Experience of financial performance,
- Economic strength of the service area, and
- Management's abilities to operate the system and conduct payback of the debt.

In most cases, the local government has established an enterprise fund financed through stormwater utility fees. To successfully secure stormwater revenue bonds, the utility should have a stormwater master plan, a capital improvement plan, and a history of reliable revenue collection. These three factors will demonstrate the calculated need and identify the net revenues required to repay the acquired debt. This debt service usually is structured to be paid back over a period of 10-20 years.

4.2.2.2 State Revolving Fund (SRF) Loans

SRF programs include the Clean Water SRF (CWSRF) and the California Infrastructure SRF (ISRF) which are both administered by the SWRCB. The CWSRF provides low or zero interest loans to public agencies for stormwater treatment and other point source projects, as well as other wastewater, non-point source, and conservation management projects. The ISRF provides low-cost financing to public agencies for a wide variety of infrastructure projects including drainage, flood control, and environmental mitigation projects.

4.2.2.3 General Obligation Bonds - Proposition O

Proposition O authorizes the City to issue a series of general obligation bonds up to $500 million for projects to protect public health by cleaning up pollution, including bacteria and trash, in the City's watercourses and waterbodies inclusive of the ocean and beaches, in response to regulatory requirements of the Federal Clean Water Act. Proposition O was approved by the voters in November 2004. Funds from this program will offset portions of the costs associated with runoff management components of the IRP. These obligation bonds will be funded by the City's General Fund from proceeds of *ad valorem taxes* levied on property subject to taxation by the City over a period of approximately twenty years. The City's General Fund will provide funds for servicing the debt. However, O&M expenses associated with the projects funded under Proposition O are proposed to be paid by the SPAC Fund. Currently, a total of $45 million in bonds has been issued specifically for Proposition O with $37 million in 2005 and $8 million in 2006. General obligation bond issuances for Proposition O are grouped with other voter approved bonds. Debt service terms for the issued bonds require non-level repayment over a twenty year period. Interest rates on the latest issuance in 2006 vary over the life of the bond between four percent and five percent.

4.2.3 Runoff Management Grant Reimbursement

Grant reimbursements are a variable source of funding used to offset CIP expenditures. Reimbursements are dependent upon grant offerings and whether a project qualifies for funding. Typically, these funds require a match in local funds of a percentage specified in the grant agreement. The runoff management program has been successful in the past in obtaining grant reimbursements. During the period 2001-2005, the City received $5.5 million in grant revenues accounting for approximately 27% of CIP expenditures.

4.2.3.1 Nonpoint-Source Implementation Grants

This option is based on formulated grants provided to the States to implement nonpoint-source mitigation projects and programs in accordance with Section 319 of the Clean Water Act. Examples of projects that 319(h) grants cover are implementation of best management practices (BMPs) in agricultural settings; implementation of BMP systems for lake, estuary, or stream watersheds; and basin wide education programs. These grants are funded federally for 60 percent of the cost of the project, with a local match of 40 percent.

4.2.3.2 Stream Restoration Mitigation Bank

This relatively new financial tool will gain wider acceptance as watershed management and development continue to occur. The bank can be either a public or public/private relationship tool. To qualify, communities must assess their streams for restoration, preservation, and enhancement, and then submit a plan to the United States Army Corps of Engineers for approval and the establishment of the bank. If local governments develop the bank on their own, they can sell the credits for the restoration of the stream segments. If a partnership is established, a bank is created and credits sold for development of the stream bank program. There are also other sundry ways to develop this type of program funding tool.

4.2.3.3 Army Corps of Engineers Civil Works Projects

The United States Army Corps of Engineers' Civil Works Directorate has numerous environmental responsibilities. Now among the Corps' responsibilities is management of the Formerly Used Sites Remedial Action Program (FUSRAP), which was transferred from the Department of Energy in 1997. Major projects require congressional approval. The Corps' Continuing Authority Projects, which must cost under $5 million, can take care of emergency repairs to stream banks and shorelines, small beach erosion control projects, Section 107 Small Navigation Projects, projects to mitigate shore damage at Federal navigation projects, small flood control projects, and snagging and clearing for flood control.

The Corps spends about $500 million a year on environmental activities. Depending on the type of project, cost sharing may be 50 percent Federal, 80 percent Federal, or potentially more complicated arrangement. For most assistance, pre-application consultation and coordination is essential, and the application is simply a letter to the District Engineer indicating clear intent to provide all required local participation. State and local governments can work with the Corps' District Engineer to define environmentally-sensitive project objectives and identify realistic sources of the non-Federal share of costs.

4.2.3.4 Proposition 50

Proposition 50, known as the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, passed in the November 2002 elections. Proposition 50 provides for a $3.4 billion State general obligation bond measure. Proceeds from the sales of the bonds will fund a variety of water related projects, including runoff management projects. Funding cycles for applications vary and the City should closely monitor calls for applications. A rough calculation based on the population of the City versus the rest of California and specific geographic area allocations indicates that the City could expect to potentially receive between $97 and $193 million in Proposition 50 grants for runoff management related projects. Table 4-3 indicates potential funding by category that the City could receive.

Table 4-3
Potential Proposition 50 Funding

Category	Potential Funding Range Available for Los Angeles (millions)	
	Low	High
Clean Water and Water Quality	$15	$29
Integrated Regional Water Management	$7	$14
Coastal Protection	$75	$150
Total	$97	$193

4.2.3.5 Clean Beach Initiative

The Clean Beaches Initiative (CBI) grant program was established with the major goal of reducing health risks and thereby increasing the public's access to clean beaches. Propositions 13, 40, and 50 have appropriated funds towards CBI. Eligible projects include those designed to implement stormwater and runoff pollution reduction and prevention programs that directly affect coastal waters, estuaries, bays, and near shore waters with priority given to those projects that reduce beach closure postings caused by bacterial contamination. However, it is unlikely that the City will receive funding from CBI since grants have been disbursed or accounted for by other programs.

4.2.3.6 Proposition 84

Proposition 84, known as the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006, was recently passed by the voters in the November 2006 elections. The proposition authorizes the issuance of $5.4 billion in general obligation bonds to fund projects. Portions of the funds are directly allocated to the Los Angeles region. City staff should monitor the allocation process for the funds to be prepared for future calls for applications. A rough calculation based on the population of the City versus the rest of California and specific geographic area allocations indicates that the City could expect to potentially receive between $117 and $234 million in Proposition 84 grants for runoff management related projects. Table 4-4 indicates potential funding by category that the City could receive.

Table 4-4
Potential Proposition 84 Funding

Category	Potential Funding Range Available for Los Angeles (millions)	
	Low	High
Water Quality Projects	$51	$102
Flood Control	$6	$11
Water Planning and Design	$1	$3
Protection of Rivers, Lakes, and Streams	$22	$44
Protection of Beaches, Bays, and Coastal Waters	$35	$70
Sustainable Communities and Climate Change Reduction	$2	$4
Total	$117	$234

4.2.4 Runoff Management Appropriations

Similar to the wastewater program direct State and Federal appropriations are an option for funding CIP projects. Appropriations do not require repayment, but require significant time for lobbying and positioning projects for funding. The City of Los Angeles has been able to obtain appropriations through its lobbying efforts in the past for other projects. A detailed description of State and Federal appropriations is provided in Section 4.1.3.

Section 5
Financial Impacts

Data from the baseline and Recommended Alternative for the wastewater system and runoff management system was loaded into models to perform a cash flow analysis and determine rate impacts. The City's existing wastewater system model was used to model the Sewer Construction and Maintenance Fund. For the runoff management system a more simplified financial model was developed to illustrate general revenue requirements and rate impacts. A detailed financial model was not developed for the runoff management system as it is acknowledged that the system is undergoing significant changes with regards to Proposition O and Total Maximum Daily Load (TMDL) requirements. Capital costs in the Recommended Alternative for the runoff management system will ultimately vary based on actual TMDL Implementation Plans.

5.1 Wastewater

To evaluate the future impacts of the Recommended Alternative on the financial operations of the Sewer Construction and Maintenance Fund (SCM Fund), the Bureau of Sanitation's (BOS) wastewater model was modified by City staff to project results to 2020. Baseline data presented in Section 2 and data regarding the Recommended Alternative presented in Section 3 were loaded into the wastewater model. Three scenarios were modeled to perform the cash flow analysis and rate impacts of the IRP:

- Baseline: Wastewater capital improvement program (WCIP) without IRP capital improvement program (CIP)
- Recommended Alternative: Recommended Alternative CIP assuming no expansion of HTP (Alternative 4) with baseline WCIP
- Recommended Alternative with HTP Expansion: Recommended Alternative CIP assuming expansion of HTP (Alternative 1) with baseline WCIP.

5.1.1 Assumptions

Numerous assumptions were required to project financial operations to 2020. Baseline assumptions are described in Section 2 while assumptions regarding the cost and timing of the Recommended Alternative are described in Section 3. Under all three scenarios, modeling efforts sought to maintain the minimum desired debt service coverage ratio of 1.8 and maintain a cash balance of a minimum of $30 million in the O&M fund and $100 million in the capital fund. Additional assumptions associated with the modeling of Scenarios A and B are provided here.

Additional assumptions were required to load the CIP and O&M data for the Recommended Alternative and the Recommended Alternative with HTP expansion in the wastewater model:

- Construction payments for Scenarios A and B have a three month lag beyond the timeframes stated in Section 3 and the IRP Facilities Plan, Volume 5: *Adaptive Capital Improvement Program.*
- Capital labor cost for the Recommended Alternative components are split 60% City and 40% consultant
- Capital labor is assumed to begin with the beginning of the design period and ends three months after the construction period to include any early closeout activities
- Construction and consultant costs were escalated at five percent per year
- City staff costs were escalated at three percent per year
- Recommended Alternative O&M costs were escalated at three percent per year, until they were entered into the model. After the year they were entered into the model, the model escalated the cost at four percent per year.
- Growth in wastewater customer accounts was estimated at 7,000 per year for single-family residential (approximately 0.3% per year), 100 per year for multi-family residential (approximately 0.03% per year), and 1,000 per year for commercial/industrial (approximately 0.14% per year). Percentage increases are based on the number of accounts in fiscal year 2010/2011, but will slightly decrease overtime as the number of accounts increases.
- There is no assumed increase in wastewater discharged per account.

5.1.2 Baseline Alternative: Cash Flow Analysis and Rate Impacts

Table 5-1 presents revenue requirements and revenues for fiscal year 2020 in the Baseline scenario. Total revenue requirements are approximately $1,042 million in 2020 as compared to approximately $496 million in fiscal year 2007. The largest revenue source is the service charge revenue at approximately $876 million. Total revenue sources are approximately $1,033 million dollars, inclusive of bond proceeds. In 2020 total required revenues exceed total revenue sources with the difference between the two paid from fund balances that are above their target levels.

Table 5-1 Baseline Revenue Requirements ($ 2020)	
	Year 2020 (Millions)
Revenue Requirements	
Operations and Maintenance	$421
CIP	$234
Debt Service	$260
Bond Issuance Costs	$1
Capital Support Costs	$126
Total	**$1,042**
Revenue Sources	
Service Charge Revenue[1]	$876
Quality Surcharge and Waste Hauler Fees	$18
Industrial Waste Fees	$7
Sewerage Facilities Charge	$7
Contract O&M Payments	$22
Interest Income	$13
Miscellaneous Revenue	$4
Bond Proceeds	$75
Contract Capital Payments	$11
Total	**$1,033**
1. Sum of service charge revenue and revenue from increased rates.	

Revenues sources in 2020 assume almost yearly sewer service charge rate increases in prior years. Table 5-2 presents single-family residential rate per hundred cubic feet (hcf) of normal strength sewage, approximate average monthly bills, and approximate average annual bills for the entire study period. The 2007 and 2008 rate increases of seven percent each are a part of a previously approved rate increase schedule discussed in detail in Section 2. All other rate increases are designed to maintain the debt service coverage ratio above 1.8 and maintain a yearly capital cash balance of $100 million and an O&M cash balance of $30 million. Rate increases are the highest at ten percent in fiscal years 2010 through 2012. In 2020 sewer service charge rates required to sustain revenue requirements are projected to be $5.40 per hcf of normal strength sewage or approximately $51 per month for a single-family residential customer.

Table 5-2 Baseline Single-Family Residential Sewer Service Charge Rates				
	2007	2010	2015	2020
Rate per HCF Normal Strength	$3	$4	$5	$6
Average Monthly Bill	$27	$35	$46	$52
Average Annual Bill	$315	$411	$548	$616

5.1.3 Recommended Alternative: Cash Flow Analysis and Rate Impacts

Recommended Alternative revenue requirements and revenues for the study period ending in 2020 are presented in Table 5-3. Total revenue requirements increase from approximately $706 million in fiscal year 2007 to approximately $1,272 million in 2020. Total revenue sources increase from $885 million in 2007 to $1,249 million in 2020. In 2020 total required revenues exceed total revenue sources with the difference between the two paid from the capital fund balances that was above its target level.

Table 5-3 Recommended Alternative Revenue Requirements ($ Millions)				
Revenue Requirements	**2007**	**2010**	**2015**	**2020**
Operations and Maintenance	$251	$293	$346	$422
CIP	$200	$247	$498	$392
Debt Service	$165	$210	$278	$325
Bond Issuance Costs	$5	$3	$2	$0
Capital Support Costs	$85	$111	$125	$133
Total	**$706**	**$864**	**$1,249**	**$1,272**
Revenue Sources				
Service Charge Revenue[2]	$452	$607	$1,013	$1,129
Quality Surcharge and Wastehauler Fees	$11	$11	$19	$25
Industrial Waste Fees	$7	$7	$7	$7
Sewerage Facilities Charge	$9	$7	$7	$7
Contract O&M Payments	$15	$17	$19	$22
Interest Income	$6	$8	$11	$13
Miscellaneous Revenue	$5	$4	$4	$4
Bond Proceeds	$140	$261	$155	$0
Commercial Paper	$65	$65	$0	$25
State Revolving Fund Loans	$42	$0	$0	$0
Grants/FEMA Reimbursements	$115	$0	$0	$0
Contract Capital Payments	$18	$23	$20	$17
Total	**$885**	**$1,010**	**$1,255**	**$1,249**
Percent of CIP Debt Financed	77%	64%	24%	5%

[1]. Dollars are inflated in model to years presented.
[2]. Sum of service charge revenue and revenue from increased rates.

Wastewater sewer service charge rates increase throughout the study period for the Recommended Alternative. Table 5-4 presents single-family residential rate per hundred cubic feet (hcf) of normal strength sewage, approximate average monthly bills, and approximate average annual bills for the entire study period. The 2007 and 2008 rate increases of seven percent each are a part of a previously approved rate increase schedule discussed in detail in Section 2. All other rate increases are designed to attempt to maintain the debt service coverage ratio above 1.8 and maintain a yearly capital cash balance of $100 million and an O&M cash balance of $30 million. Even with the rate adjustments the debt service coverage ratio in fiscal years 2008 and 2009 falls temporarily below 1.8 but should not negatively impact the bond rating. In fiscal year 2009, the end of capital cash balance slightly drops below the target of $100 million to $99.7 million. Rate increases are above ten percent in fiscal years 2010 through 2013, reaching a high of 18% in 2010. Under this scenario in 2018 the rates increased by approximately 244% over 2007. Between 2019 and 2020 rates are held constant at the 2018 rate.

Table 5-4
Recommended Alternative
Single-Family Residential Sewer Service Charge Rates

	2007	2010	2015	2020
Rate Per HCF normal Strength	$3	$4	$7	$7
Average Monthly Bill	$26	$37	$60	$66
Average Annual Bill	$314	$440	$720	$794

5.1.4 Recommended Alternative with Hyperion Treatment Plant Expansion: Cash Flow Analysis and Rate Impacts

Revenue requirements and revenues for the study period ending in 2020 are presented in Table 5-5 for the Recommended Alternative with HTP expansion. With rounding, these results are identical to the Recommended Alternative for the years 2007, 2010, and 2015. Total revenue requirements increase from approximately $706 million in fiscal year 2007 to approximately $1,240 million in 2020. Total revenue sources increase from $885 million in 2007 to $1,245 million in 2020.

Wastewater sewer service charge rates for the Recommended Alternative with HTP expansion are essentially identical as the Recommended Alternative (see Table 5-6).

Table 5-5
Recommended Alternative with HTP Expansion Revenue Requirements
(Millions)[1]

Revenue Requirements	2007	2010	2015	2020
Operations and Maintenance	$251	$293	$346	$422
CIP	$200	$247	$498	$360
Debt Service	$165	$210	$278	$325
Bond Issuance Costs	$5	$3	$2	$0
Capital Support Costs	$85	$111	$125	$133
Total	**$706**	**$864**	**$1,249**	**$1,240**
Revenue Sources				
Service Charge Revenue[2]	$452	$607	$1,013	$1,129
Quality Surcharge and Wastehauler Fees	$11	$11	$19	$25
Industrial Waste Fees	$7	$7	$7	$7
Sewerage Facilities Charge	$9	$7	$7	$7
Contract O&M Payments	$15	$17	$19	$22
Interest Income	$6	$8	$11	$13
Miscellaneous Revenue	$5	$4	$4	$4
Bond Proceeds	$140	$261	$155	$0
Commercial Paper	$65	$65	$0	$25
State Revolving Fund Loans	$42	$0	$0	$0
Grants/FEMA Reimbursements	$115	$0	$0	$0
Contract Capital Payments	$18	$23	$20	$13
Total	**$885**	**$1,010**	**$1,255**	**$1,245**
Percent of CIP Debt Financed	77%	64%	24%	5%

[1]. Dollars are inflated in model to years presented.
[2]. Sum of service charge revenue and revenue from increased rates.

Table 5-6
Recommended Alternative with HTP Expansion
Single-Family Residential Sewer Service Charge Rates

	2007	2010	2015	2020
Rate per HCF Normal Strength	$3	$4	$7	$7
Average Monthly Bill	$36	$37	$60	$66
Average Annual Bill	$314	$440	$720	$794

5.1.5 Wastewater Financial Results Summary

Figure 5-1 illustrates the projected annual average wastewater bill for a single-family residential customer in 2020 for the baseline, Recommended Alternative and the Recommended Alternative with HTP Expansion. Baseline average monthly costs for single-family residential customers are $51. Both the Recommended Alternative and Recommended Alternative with HTP Expansion add an additional $15 per month to the Baseline costs—bringing the total monthly cost in year 2020 to approximately $178.

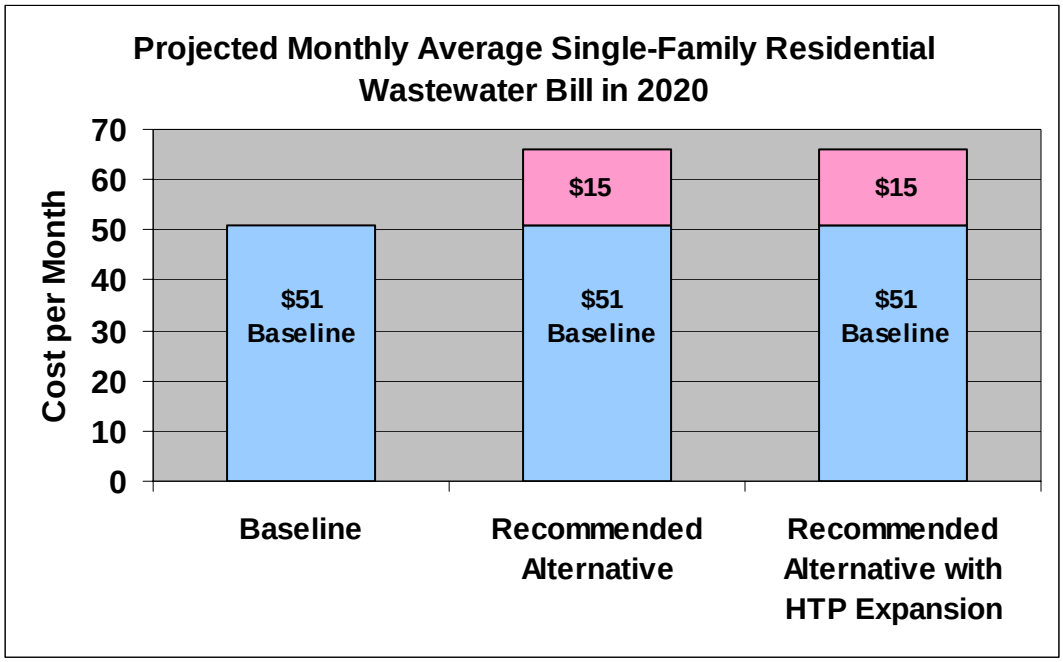


Figure 5-1
Projected Monthly Single-Family Residential Water Bills in 2020 for Each Scenario

5.2 Runoff Management

To examine the cash flow and rate impacts for the Stormwater Pollution Abatement Fund (SPAF) under the baseline and with the Recommended Alternative numerous scenarios were developed:

- No Grant Scenario: Recommended Alternative with CIP paid for with proceeds from revenue bonds, assuming no additional grants.
- Low Grant Scenario: Same as base scenario with the assumption that $213.5 million in grants will be received from Propositions 50 and 84.
- High Grant Scenario: Same as base scenario with the assumption that $427 million in grants will be received from Propositions 50 and 84.

5.2.1 Assumptions

Baseline data discussed in Section 2 and the CIP and O&M associated with the Recommended Alternative were loaded into a simplistic model. Data up to 2011 was loaded into the model based on City projections. To project required revenues and revenue sources to 2020 numerous assumptions were required beyond those stated in Sections 2 and 3:

- Recommended Alternative CIP was leveled and applied over the period 2010 to 2020 with all capital escalated at three percent per year
- O&M associated with the IRP lags construction by one year and is escalated at three percent per year
- Assumed grant funding for Proposition 50 was applied equally between 2010 and 2014
- Assumed grant funding for Proposition 84 was applied equally between 2011 and 2015
- Baseline expenditures were lumped together and the 2011 value was escalated by three percent per year through the remainder of the study period. Baseline expenditures include non-IRP CIP, non-IRP O&M, and special purpose fund appropriations.

Projects in the runoff management component of the Recommended Alternative are based on requirements for adopted and future Total Maximum Daily Loads (TMDL). The capital cost of these projects will vary based upon water quality results after projects identified in the approved and future TMDL Implementation Plans are implemented. The CIP and O&M costs presented here are based on a broad scope of projects that require future refinement and are subject to change as TMDL Implementation Plans are implemented. The costs are presented merely for informational purpose to illustrate potential CIP and O&M costs if the runoff management component were to be implemented as originally developed.

To determine rate impacts it was assumed from a prior analysis conducted for *Technical Memorandum: Financial Impacts of Four Draft IRP Alternatives* (2005) that residential SPAC fees are approximately 69% of the SPAC fees collected. Table 5-7 provides the SPAC billing units for each customer class and number of customers. Fee payers rate impact based on an equivalent dwelling unit (EDU), as defined in Section 2, were determined by dividing the total negative cash balance by the total number of EDUs and then dividing the result by twelve to determine the monthly cost.

Table 5-7
Stormwater Billing Unit Projections by Customer Class

Customer Class	Equivalent Billing Units
Residential	837,050
Commercial	185,366
Industrial	145,790
Farm	9,088
Institutional	44,502
Utility Companies	435
Utility	9,825
Total	1,232,056

5.2.2 No Grant Scenario: Cash Flow Analysis and Rate Impacts

No Grant Scenario revenue requirements and revenues for the study period ending in 2020 are presented in Table 5-8. As time progress the total revenue requirements dramatically increase from 2007, approximately $72 million, to 2020, approximately $760 million. Total revenues increase during the time period, but at a pace lower than that of revenue requirements resulting in a negative cash balance in 2010 of approximately $30 million increasing to approximately $384 million in 2020. Cumulative new revenues required by 2020 to maintain a cumulative neutral cash balance are approximately $2.2 billion dollars.

Current EDU fees for fee payers are approximately $2 per month. If the Baseline Scenario were to occur as it is projected then rates would need to dramatically increase during the study period to approximately $28 per month in 2020 or approximately 15 times the current rate (see Table 5-9).

Table 5-8
No Grant Scenario Revenue Requirements

	2007	2010	2015	2020
Revenue Requirements				
Baseline Expenditures	$34,804,754	$35,786,950	$41,045,376	$47,582,840
Proposition O Expenditures				
Capital	$37,000,000	$91,000,000	$0	$0
O&M	$0	$6,000,000	$25,000,000	$28,981,852
Recommended Alternative Costs				
Capital + Debt Service	$0	$293,927,314	$419,032,893	$566,597,281
O&M	$0		$50,471,879	$117,021,481
Total	**$71,804,754**	**$426,714,264**	**$535,550,147**	**$760,183,455**
Revenue Sources				
SPAC	$28,600,000	$28,600,000	$28,600,000	$28,600,000
Other SPAF Revenues	$1,698,000	$650,000	$761,390	$882,660
Revenue Bond Proceeds	$0	$275,974,760	$306,221,200	$346,461,181
Unused SPAF balance (Prior Year)	$6,834,154	$0	$0	$0
Interest on Unused Balance	$1,172,600	$400,000	$0	$0
Proposition O Bond Proceeds	$37,000,000	$91,000,000	$0	$0
Proposition 50 Grants	$0	$0	$0	$0
Proposition 84 Grants	$0	$0	$0	$0
Total	**$75,304,754**	**$396,624,760**	**$335,582,591**	**$375,943,841**
Cash Balance	$3,500,000	-$30,089,504	-$199,967,557	-$384,239,614

[1] Dollars are inflated in model to years presented.

Table 5-9
No Grant Scenario Monthly Fee Payer EDU Rate Impacts

	Current Rate	2007	2010	2015	2020
Average Monthly Rate	$2	$2	$4	$16	$28
Average Annual Rate	$23	$23	$48	$188	$340

5.2.3 Low Grant Scenario: Cash Flow Analysis and Rate Impacts

Model results indicate that with approximately $213.5 million in outside funding, in the form of Proposition 50 and 84 grants, the projected difference between revenue requirements and revenue sources is less than that for the No Grant Scenario. Low Grant Scenario revenue requirements and revenues for the study period ending in 2020 are presented in Table 5-10. However, after the assumed funding stops in 2015 the revenue sources and revenue requirements are identical to the No Grant Scenario. Cumulative new revenues required by 2020 to maintain a cumulative neutral cash balance are approximately $2 billion dollars.

Rate increases for the monthly EDU under the Low Grant Scenario are required, but are not projected to increase as rapidly as under the Baseline Scenario as illustrated in Table 5-11. Grants begin to offset increased revenue requirements in 2010. However,

after 2015, grant disbursement are assumed to end and the rate increases match the rate increase for the Baseline Scenario.

Table 5-10
Low Grant Scenario Revenue Requirements

	2007	2010	2015	2020
Revenue Requirements				
Baseline Expenditures	$34,804,754	$35,786,950	$41,045,376	$47,582,840
Proposition O Expenditures				
Capital	$37,000,000	$91,000,000	$0	$0
O&M	$0	$6,000,000	$25,000,000	$28,981,852
Recommended Alternative Costs				
Capital + Debt Service	$0	$293,927,314	$419,032,893	$566,597,281
O&M	$0	$0	$50,471,879	$117,021,481
Total	**$71,804,754**	**$426,714,264**	**$535,550,147**	**$760,183,455**
Revenue Sources				
SPAC	$28,600,000	$28,600,000	$28,600,000	$28,600,000
Other SPAF Revenues	$1,698,000	$650,000	$761,390	$882,660
Revenue Bond Proceeds	$0	$275,974,760	$306,221,200	$346,461,181
Unused SPAF balance (Prior Year)	$6,834,154	$0	$0	$0
Interest on Unused Balance	$1,172,600	$400,000	$0	$0
Proposition O Bond Proceeds	$37,000,000	$91,000,000	$0	$0
Proposition 50 Grants	$0	$19,300,000	$0	$0
Proposition 84 Grants	$0	$0	$23,400,000	$0
Total	**$75,304,754**	**$415,924,760**	**$358,982,591**	**$375,943,841**
Cash Balance	$3,500,000	-$10,789,504	-$176,567,557	-$384,239,614

Table 5-11
Low Grant Scenario Monthly Fee Payer EDU Rate Impacts

	Current Rate	2007	2010	2015	2020
Average Monthly Rate	$2	$2	$3	$14	$28
Average Annual Rate	$23	$23	$32	$169	$340

5.2.4 High Grant Scenario: Cash Flow Analysis and Rate Impacts

Revenue requirements for the High Grant Scenario are the same as for the No Grant and Low Grant Scenarios as illustrated in Table 5-12. The difference in revenue sources between the Low Grant Scenario and the High Grant Scenario is attributed to an additional $213.5 million in assumed Proposition 50 and 84 grants for a total of $427 million. Similar to the Low Grant Scenario, after the assumed funding stops in 2015 the revenue sources and revenue requirements are identical to the Baseline Scenario. Cumulative new revenues required by 2020 to maintain a cumulative neutral cash balance are approximately $1.7 billion dollars, the least of all three scenarios.

Monthly rates for fee payers are the lowest for all scenarios between 2010 and 2015 as a result of higher amount of grant funding (see Table 5-13). Similar to the Low Grant Scenario after 2015 grant disbursements are assumed to end and the rate increases match the rate increase for the Baseline Scenario.

Table 5-12
High Grant Scenario Revenue Requirements

	2007	2010	2015	2020
Revenue Requirements				
Baseline Expenditures	$34,804,754	$35,786,950	$41,045,376	$47,582,840
Proposition O Expenditures				
Capital	$37,000,000	$91,000,000	$0	$0
O&M	$0	$6,000,000	$25,000,000	$28,981,852
Recommended Alternative Costs				
Capital + Debt Service	$0	$293,927,314	$419,032,893	$566,597,281
O&M	$0	$0	$50,471,879	$117,021,481
Total	**$71,804,754**	**$426,714,264**	**$535,550,147**	**$760,183,455**
Revenue Sources				
SPAC	$28,600,000	$28,600,000	$28,600,000	$28,600,000
Other SPAF Revenues	$1,698,000	$650,000	$761,390	$882,660
Revenue Bond Proceeds	$0	$275,974,760	$306,221,200	$346,461,181
Unused SPAF balance (Prior Year)	$6,834,154	$0	$0	$0
Interest on Unused Balance	$1,172,600	$400,000	$0	$0
Proposition O Bond Proceeds	$37,000,000	$91,000,000	$0	$0
Proposition 50 Grants	$0	$38,600,000	$0	$0
Proposition 84 Grants	$0	$0	$46,800,000	$0
Total	**$75,304,754**	**$435,224,760**	**$382,382,591**	**$375,943,841**
Cash Balance	$3,500,000	$8,510,496	-$153,167,557	-$384,239,614

[1]. Dollars are inflated in model to years presented.

Table 5-13
High Grant Scenario Monthly Fee Payer EDU Rate Impacts

	Current Rate	2007	2010	2015	2020
Average Monthly Rate	$2	$2	$2	$12	$28
Average Annual Rate	$23	$23	$23	$149	$340

5.2.5 Runoff Management Financial Results Summary

All scenarios are projected to require increased revenue to maintain the viability of the SPAF under the modeled assumptions. Average residential monthly rates for each scenario are summarized in Figure 5-2. The No Grant Scenario will require SPAC rate increases earlier than the other scenarios as it does not account for any grant funding from Propositions 50 and 84 and will have the greatest impact on fee payers.

Rate increases are slower for the High Grant Scenario as additional grants offset the revenue requirements. By 2020 all rates are equal for each scenario. Any additional revenue sources that are not accounted for in these modeling efforts will reduce any rate increases.

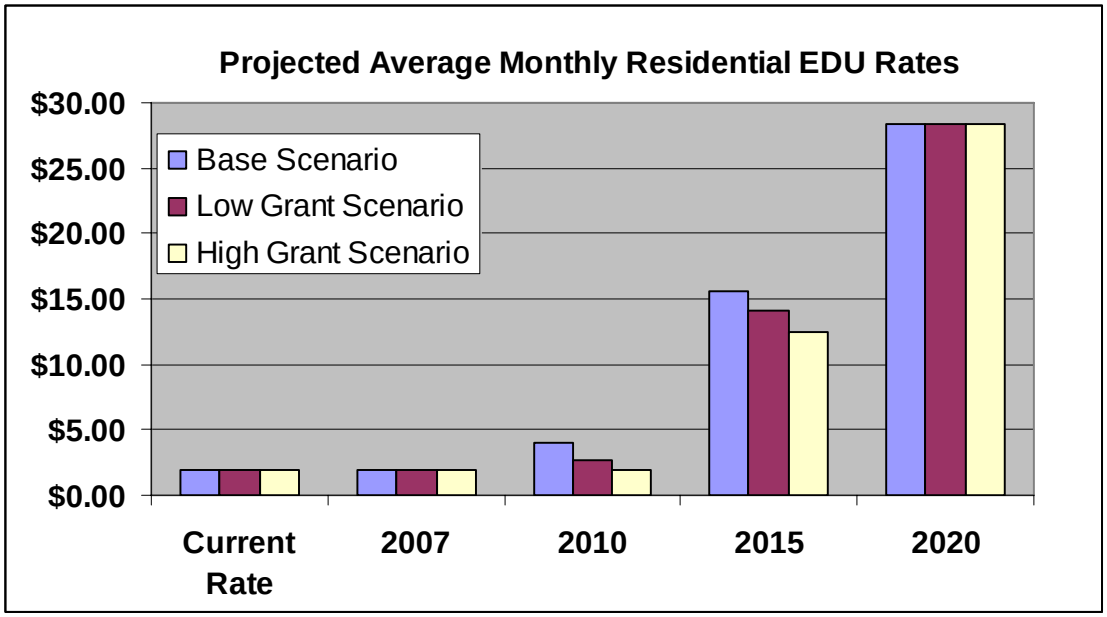


Figure 5-2
Projected Monthly Fee Payer EDU Rates Monthly Scenario

Modeling efforts performed for the runoff management Recommended Alternative assumed that revenue bonds will be used to pay for capital costs. To issue revenue bonds, the City must illustrate that historical and projected future annual revenues are sufficient to pay O&M and annual debt service on the bonds. City must demonstrate to bond rating agencies and bond buyers, that the City has the ability to raise SPAC rates or other revenues so that there will be sufficient revenues to pay the debt service. City will likely need to complete a bond feasibility study to determine the bond financing option. A bond feasibility study is performed by an independent engineer and provides a form of assurance that projects are feasible, the costs are reasonable, and revenues are projected to be sufficient to pay the debt service. Typically, this type of study is included in the Official Statement for the sale of bonds. As a result of Proposition 218, discussed in detail in Section 4, the City currently does not have the ability to increase SPAC rates without voter approval.

City has two options available to increase its ability to fund capital projects included in the Recommended Alternative:

- Develop a general obligation bond authorization for voter approval similar to Proposition O, but much larger.

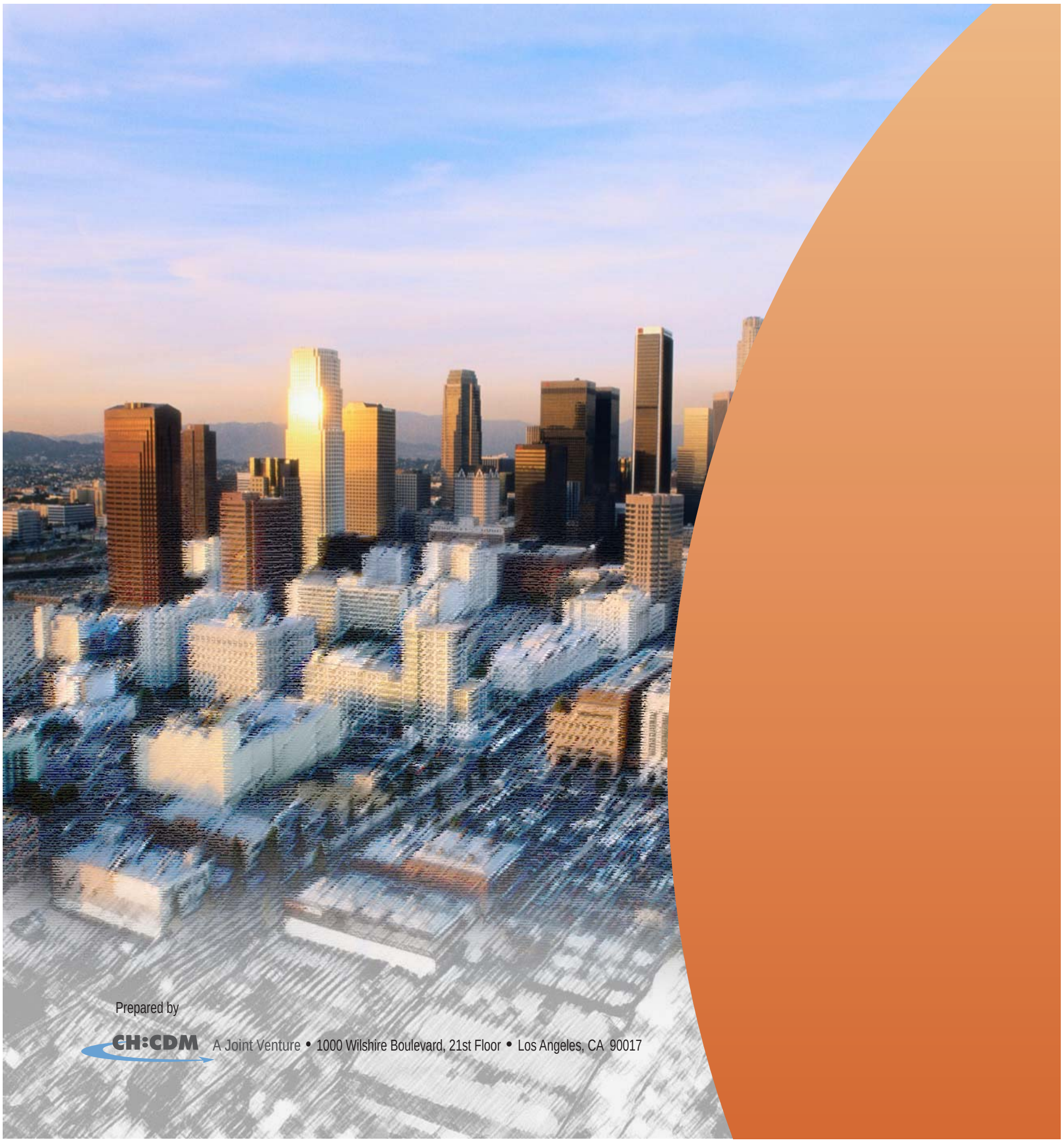
- Prepare a SPAC rate increase combined with a revenue bond authorization for voter approval.

Increasing the SPAC will require voter approval. It is suggested that City prepares a five year rate increase schedule for approval by the voters rather than attempt to gain voter approval for each yearly rate increase.

A general obligation bond similar to Proposition O would allow City to fund capital projects under the Recommended Alternative. Debt service associated with general obligation bonds are paid by General Fund revenue and therefore do not require the ability to demonstrate that SPAC rates can be increased. This bond approach would be similar to Proposition O, but would be much larger.

Preparing a SPAC rate increase combined with a revenue bond authorization for voter approval would provide funding for capital projects as part of the Recommended Alternative. Additionally, this would allow City to issue revenue bonds in the future by demonstrating that that City can increase rates to pay debt service.

Additionally, if cities in California are successful in changing the exemption in Proposition 218 to also include stormwater utilities, then City would be able to raise the SPAC fee without voter approval. The City should continue to monitor and potentially seek to lead developments in this area.



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