ATTACHMENT "D"

City of San Fernando
California

Final Draft Report
Sewer Rate Analysis

October 28, 2011

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November 3, 2011

Mr. Ron Ruiz
Public Works Director
City of San Fernando
117 Macneil Street
San Fernando, CA 91340

Dear Mr. Ruiz,

Willdan Financial Services (Willdan) is pleased to present this draft report on the Sewer Rate Analysis conducted for the City of San Fernando (City).

This report was undertaken as the City is facing several challenges to continuing its operations and financial stability. The focus of this study is to ensure that the utility has sufficient revenues to meet its operational and capital expenses and that rates are set proportionate to the costs of providing utility service to each customer class. Our report outlines the approach, methodology, findings, and conclusions of this study.

This report has been prepared using generally accepted rate setting techniques. The City's utility accounting, budgeting, and billing records were the primary sources for the data contained within the report. Furthermore, Willdan has worked closely with City staff over the course of this project to confirm the data validity and prudence of assumptions. The conclusions contained within this report present the City with a set of recommendations which provide stable, reasonable, and technically defensible funding for continued operations.

It was a pleasure working with you and other staff members at the City for your support and cooperation extended throughout the study.

Sincerely,

Willdan Financial Services

Gregg Tobler
Senior Project Analyst

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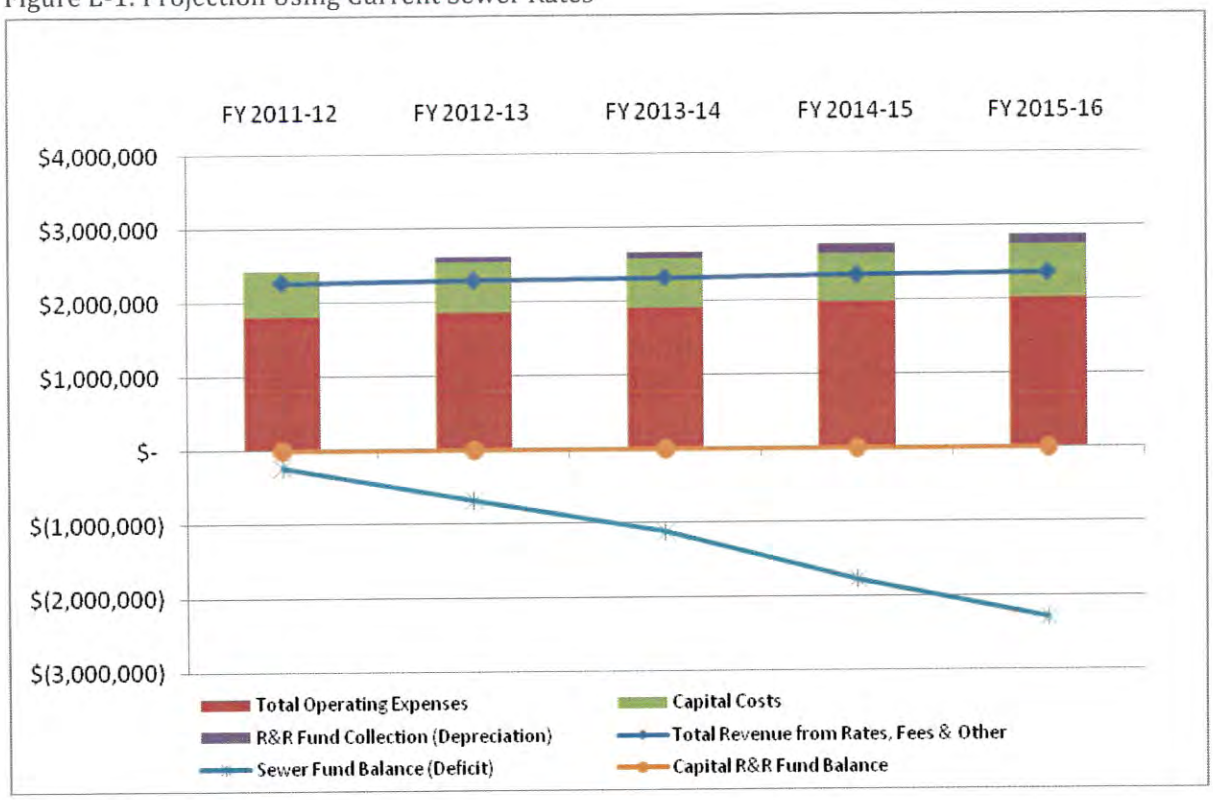
Executive Summary

The City retained Willdan Financial Services (Willdan) to prepare a sewer rate analysis update to ensure the utility continues to have sufficient revenues to meet their operational and capital obligations. In addition, confirm those rates are set proportionate to the costs of providing utility service to each customer class. This report documents the findings, analyses and recommendations of the sewer rate study effort.

The City desires rates that fully fund operations, maintenance, and present and future capital costs. Therefore, the purpose of the sewer rate study is to provide recommendations on changes to the current utility rate structure. Additionally, to confirm that rates are set proportionate to the costs of providing utility service to each customer class in compliance with Proposition 218. Therefore, the intent of the proposed tiered rate study is to provide recommendations on changes to the current utility rate structure to meet these challenges within the appropriate legal confines. As part of this rate study, Willdan facilitated dialogue with City staff during several conference calls. As every City encompasses unique complexities and traits, during these discussions, the City provided suitable recommendations to incorporate into the study. This report documents the findings, analyses and recommendations of the comprehensive rate study effort.

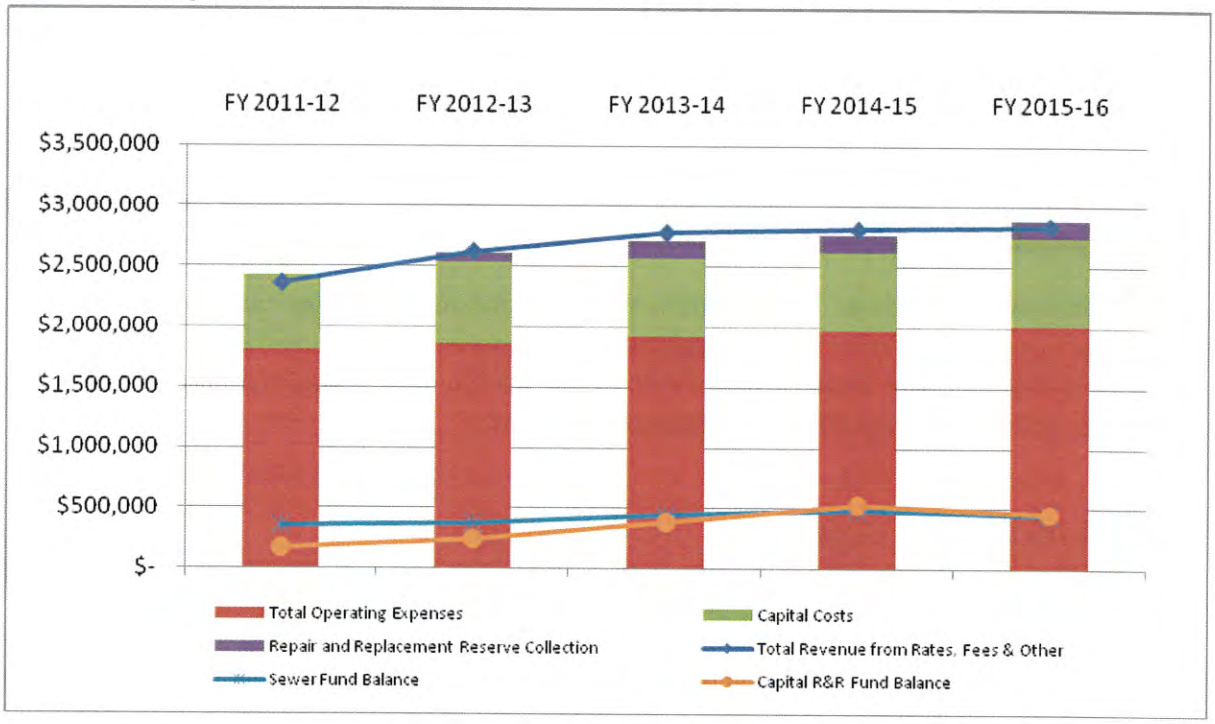
The graph (Figure E-1) below demonstrates the current and projected financial conditions of the sewer system **assuming no rate increases** over the next 5 years. As the figure illustrates, holding rates constant will result in depleted reserve funds, potential General Fund subsidy or borrowing, reduced quality of operations or services, and deferred capital projects that are urgently needed due to aging infrastructure.

Figure E-1: Projection Using Current Sewer Rates



The graph (Figure E-2) below demonstrates the projected financial condition of the sewer system assuming adoption of a recommended rate increases over the next 5 years. As the figures illustrate, the proposed rate structure and rate increases will enable the City to continue its operations, establish prudent reserve fund levels, and fund capital projects.

Figure E-2: Proposed Sewer Rate Structure



Project Background

Due to the economic climate and continued cost pressures, the City is facing several challenges to continuing its sewer utility operations as customer account growth has slowed to a 1.0% annual rate and utility infrastructure is aging and must be replaced. Additionally, utility rate revenues are not keeping pace with increasing operational and capital renewal and rehabilitation costs.

Due to the existing sewer rate schedule (rate structure) and recent market conditions, the current model does not accurately reflect current realities or the revenue stream required for services provided. As the rates have not been updated since FY2005-2006, the City needs rates that fully reflect today's operations, maintenance, and existing and future capital costs.

Key Financial Plan Objectives

Several objectives were identified during the study to guide decisions regarding the proposed financial plans and rate structures. The major objectives of the study were:

- Utility rates and fees should generate sufficient revenues to meet operating costs, capital program requirements, debt service obligations, and maintain adequate reserves consistent with sound financial management practices.
- Utility rates should be set proportionate to the cost of providing utility service to each customer to promote fairness and equity and compliance with Proposition 218.
- A financial plan that shifts a majority of future capital funding to a debt financing to mitigate the impact on rates that the City's customers pay.
- A financial plan that minimizes the need to continually update the sewer rate structure, do to short-term impacts.
- Utility rate structures should be supported by a financial model that is easy to update should costs and assumptions change in the future beyond what was projected at the time of this report.

In reviewing the above objectives, it should be noted that the City has limited control over external forces such as growth, consumer behavior, and system usage. Recognizing these factors, we believe that the recommendations in this study provide a fair, reasonable, and balanced set of proposed rates and fees for the City that, to the extent possible, meets these key objectives.

Overview of the Rate Study Process

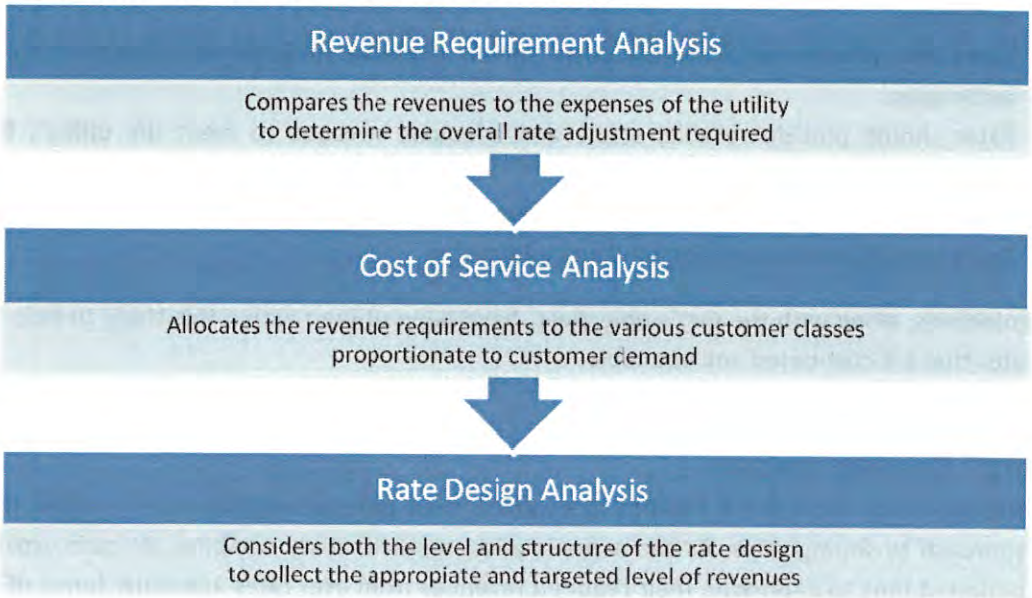
The rate study efforts were conducted in coordination with City staff. During the course of the project, Willdan facilitated discussions with City staff to review, explore and analyze rate setting principles and utility financial, operational and capital issues. The discussions consisted of reviewing information and data related to the City's utility revenue needs, capital improvement plans, current rate structures, and other relevant rate and financial issues. This process enabled City staff and Willdan to develop a multi-

faceted understanding of financing planning issues, and to develop a broad consensus on a number of policy items and rate recommendations.

The scope of the study resulted in the development of cost-based sewer user charges through a comprehensive cost of service and rate design analysis process. Utility rates must be set at a level where a utility's operating and capital expenses meet the revenues received from customers. This is a significant point, as failure to achieve this level may lead to insufficient funds being available to appropriately maintain the system. To evaluate the adequacy of the City's existing rates, a comprehensive rate study was completed. A comprehensive rate study typically consists of following three interrelated analyses to develop the accurate funding levels (**Figure 1-1** provides an overview of these processes):

- Financial Planning/Revenue Requirement Analysis: Create a five-year plan to support an orderly, efficient program of on-going maintenance and operating costs, capital improvement and replacement activities, and suitable leveraging of financial resources (debt load). In addition, the long-term plan should fund and maintain reserve balances to adequate levels based on industry standards and City fiscal policies.
- Cost of Service Analysis: Identifies and apportions annual revenue requirements to the different customer classes based on their demand on each utility system.
- Rate Design: Develops a fixed/variable schedule of rates for each customer class to proportionately recover the costs attributable to them. This is also, where other policy objectives can be achieved. The policy objectives are balanced with the cost of service objectives to maintain the delicate balance between customer equity, financial stability and resource conservation goals.

Figure 1-1: Comprehensive Rate Study Interrelated Analysis



Rate Setting Principles

The primary objective of conducting a comprehensive rate study is to 1) determine the adequacy of the existing rates (pricing and structure) and 2) provide the basis for any necessary adjustments to meet the City's operating and capital needs as well as policy objectives. The City intends for rate structures to fully fund operations, maintenance, and present and future capital costs.

Over the past years, many generally accepted principles or guidelines have been established to assist in developing utility rates. The purpose of this section of the report is to provide a general background of the methodology and guidelines used for setting cost-based utility rates. This will provide the reader with a higher-level understanding of the general process detailed later in this report.

Established Principles & Guidelines

As a practical matter, there should be a general set of principles to develop rates. The American Water Works Association (AWWA) establishes these principles in the M1 Manual – *Principles of Water Rates, Fees and Charges.* These guiding principles help to ensure there is a consistent global approach that is employed by all utilities in the development of their rates (water and water-related utilities including sewer).

Provided below is a short summary listing the established guidelines around which public utilities should consider when setting their rates. These closely reflect the City's specified objectives.

- Rates should be cost-based and equitable, and set at a level such that they provide revenue sufficiency.
- Rates and process of allocating costs should conform to generally accepted rate setting techniques.
- Rates should provide reliable, stable and adequate revenue to meet the utility's financial, operation, and regulatory requirements.
- Rate levels should be stable from year to year (limit "rate shocks").
- Rates should be easy to understand and administer.

These guidelines, along with the City's objectives, have been utilized within this study to help develop utility rates that are cost-based and equitable.

Revenue Requirements

The method used by most public utilities to establish their revenue requirements is called the "cash basis" approach to setting rates. As the name implies, a public utility combines its cash expenditures over a period of time to determine their required revenues from user rates and other forms of income. The figure below presents the "cash basis" methodology.

Figure 2-1: Overview of the "Cash Basis" Design

+ Operation and Maintenance Expenses
+ Capital Additions Financed with Rate Revenue
+ Debt Service (Principal and Interest)
= Total Revenue Requirements

To ensure existing ratepayers are not paying for growth-related capital projects, Willdan reviewed the Capital Improvement Projects (CIPs). Additionally, capital replacement expense was included to stabilize annual required revenue requirements by spreading the replacement costs of a depreciated asset over the expected life of the asset.

Based on the revenue requirement analysis, the utility can determine the aggregate level of rate adjustment needed in order for the utility to meet its overall expenditure needs.

Financial Planning

In the development of the revenue requirements, many assumptions are utilized to project future expenditures, customer and consumption growth, and required revenue adjustments. The City's budget documents are used as the starting point; however, assumptions play a necessary role in projecting future required revenue.

Conservative growth assumptions and prudent financial planning are fundamental to ensuring adequate rate revenue and to promote financial stability. The financial model developed appropriately by Willdan considers the City's existing operating reserve balances.

Assumptions

To project future revenues and expenditures, numerous discharge assumptions are estimated, in an attempt to reasonably project the overall demands and therefore needs and costs of the sewer system. As sewer flow is not directly tied to water usage, **Figure 2-2** outlines generally accepted discharge characteristics to project future sewer flow.

Figure 2-2: Discharge Assumptions

Commercial, as a % of Water Usage	90%
Residential, as a % of Water Usage	80%
Primary and Secondary Schools (per ADA)	10.0
Junior college, college, and university (per ADA)	11.0

Projected Growth

1. The assumed customer growth rate is one percent (1%) throughout the study period.
2. An inflation factor of three percent (3%) was used to project future expenses in fiscal years FY 2011/2012 through FY 2013/2014. The inflation factor was determined by reviewing historical growth in expenses and discussions with City staff.
3. An inflation factor of four percent (4%) was used to project future expenses in FY 2014/2015 and FY 2015/2016. The inflation factor was determined by reviewing historical growth in expenses and discussions with City staff.
4. An inflation factor of three percent (3%) was used to project future personnel costs.

Financial Factors

The adopted budget for fiscal year ending (FYE) June 30, 2012 was used as the base year.

1. The operating reserve covers or is equal to 3 months (or 90 days) of expenditures.
2. The ending operating fund balance for FY 2009/2010 is roughly $220 thousand (including reserves) was used to estimate the beginning operating cash fund balance for FY 2011/2012.

Findings

This section presents the findings of the sewer rate analysis.

1. Existing rates do not adequately fund system replacement costs.
2. Existing rates do not adequately fund reserve fund balances.
3. The enterprise's operating fund balance is projected to become negative without a rate increase.

Rate Design

The final element, the rate design process, applies the results from the revenue requirements to develop rates that achieve the general guidelines and objectives of the City. While these objectives must abide by the cost of service principles of Prop 218, the Agency may consider items such as ability to pay, continuity of past rate philosophy, conservation, encouragement of economic development, ease of administration, and legal requirements. While cost-based rates are an important objective, all objectives should be balanced appropriately.

While the general description of the utility rate setting process discussed in this section of the report is simplified and condensed, it does address the underlying fundamentals. One of the key principles for a

comprehensive rate study is found in economic theory, which suggests the price of a commodity must roughly equal its cost if equity among customers is to be maintained.

The above fundamentals have considerable foundation in economic literature. They also serve as primary guidelines for Proposition 218 compliance and rate design by most utility regulators and administrative agencies. This "price-equals-cost" theory provides the basis for much of the subsequent analysis and comment.

Rate Setting Principles Summary

This section of the report provides a brief introduction to the general principles, techniques, and economic theory used to set utility rates. These principles, techniques, and economic theory were the starting point for this rate study and the groundwork used to meet the City's key objectives in analyzing and adjusting their utility rates.

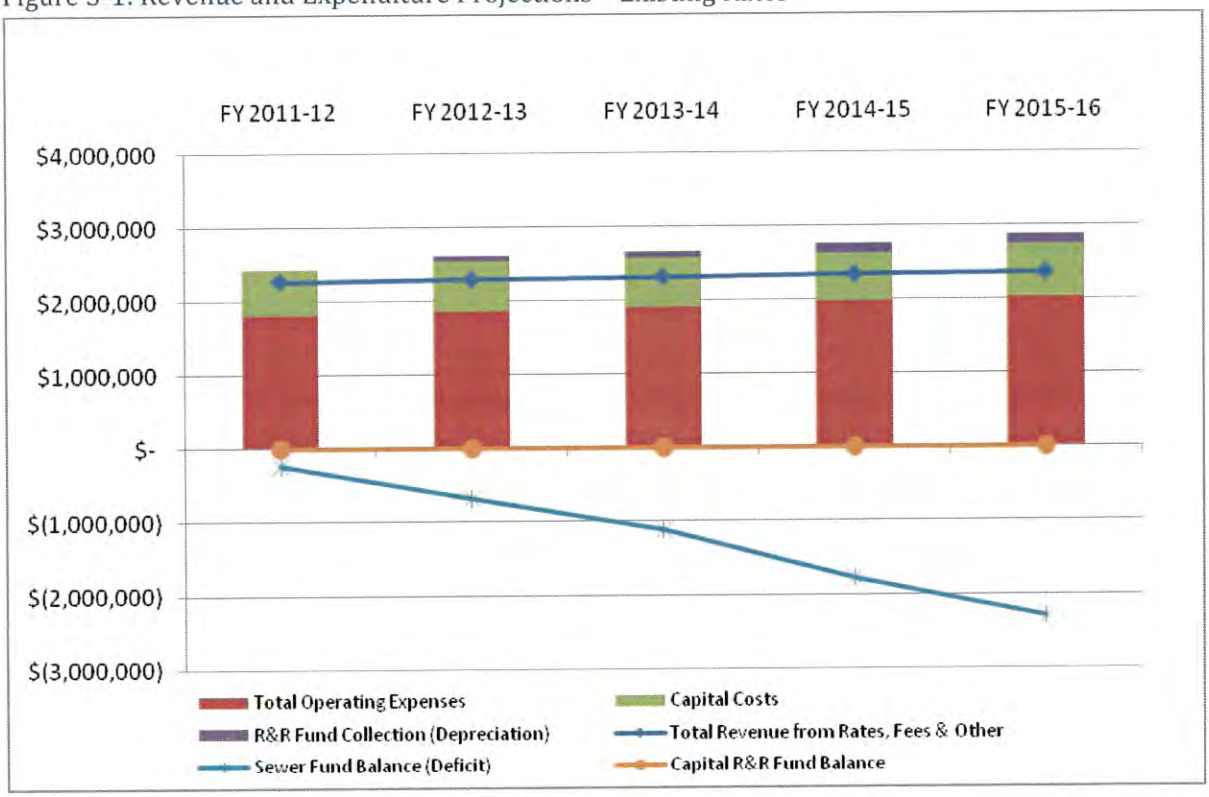
The total cost of serving each customer class is determined by distributing each of the utility cost components among the user classes based upon the respective service requirements of each customer class. Therefore, a true cost of service rate study enables a sewer utility to adopt rates based on the true costs to each user class. The purposes of this sewer utility cost of service study include:

- Proportional allocation of the costs of service to users.
- Derivation of unit costs to support the development of sewer rates.

Sewer Rate Analysis

The sewer utility is in need to a revenue increase to remain financially sound as indicated in the figure below. **Figure 3-1**, below, projects the adequacy of existing rate revenue.

Figure 3-1: Revenue and Expenditure Projections – Existing Rates



As the above figure indicates, rate revenue (blue line) is below the bars (cost). Ideally, with cost-based rates, the blue line would set directly on top of the cost bars. However, due to the utility's rate funded capital projects, this goal may not always be achievable. The light blue line, the utility's operating fund balance, increases or decreases by the distance between the blue line and the top of the bars.

Details of the process, data, and methodology utilized in the rate study are presented in this section of the report. Summary figures, outlining much of the analysis are included in this section of the report as well, while technical figures, which provide a greater level of detail and breadth, are provided in the Technical Appendix.

Customer Statistics

During the Fiscal Year 2009, the City provided sewer service to an estimated 4,638 accounts, discharging over 683 thousand hundred cubic feet annually. A projection of accounts, discharge, and loading

strengths is necessary in the evaluation of the revenue requirements. This projection is critical for the determination of revenues from rates, escalation of treatment-related costs, and design of the rates. Given the current economic climate and review of potential growth, City staff used a conservative growth rate of 1%. In terms of accounts, the City is projected to see 47 new accounts annually over the next five years.

Revenue Requirements Analysis

Revenue from Existing Rates

The first step in developing the revenue requirements is to develop a projection of revenues from existing rates. The City expects to receive approximately $2.267 million in sewer related charges in Fiscal Year 2011/12. By Fiscal Year 2015/16, assuming the growth discussed above, sewer charges are projected to increase roughly 4.1% to $2.359 million.

Projections of Operation, Maintenance, and Debt Service Expenses

To project Operating and Maintenance (O&M) expenses over the ten-year planning horizon, three escalation factors were developed. The operations cost escalator, set at 3% in fiscal years 2011/2012 through 2013/14 and set at 4% in fiscal years 2014/15 and 2015/2016, is applied to basic expenditures that the Department incurs: materials, utilities, etc. A personnel cost escalator of 3% accounts for labor and benefit expenditures. Additionally, the City, as part of its financial policies, has established a reserve policy to maintain 25% (90 days) of its annual operating and maintenance expenses.

Capital Replacement Costs

The Department's capital replacement costs, which represent an increasing percentage up to 100% of the sewer utility's annual depreciation, are summarized in **Figure 3-2**. The capital replacement costs are collected to maintain, repair, and replace existing system components.

Figure 3-2: Sewer Capital Replacements Costs

Description	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Capital Replacement (Depreciation)	$ -	$ 70,626	$ 84,751	$ 141,252	$ 141,252

Sources: City of San Fernando; Willdan Financial Services.

Capital Improvement Projects

The Department's Capital Improvement Program (CIP) needs for the sewer utility are summarized in Figure 3-3. Individually, each project was identified by City staff as growth-related, existing needs (O&M) or a percentage of both to determine the appropriate funding mechanism (bi-monthly rates or connection fee). The capital projects are required to meet the Utility's projected growth and to maintain the existing quality of the system.

Figure 3-3: Sewer Capital Projects

Description	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Payment to L.A. City for construction of Wastewater Treatment Facilities	$ 502,610	$ 502,610	$ 502,610	$ 502,610	$ 502,610
CIP PAYGO Projects	124,439	175,766	153,887	147,091	-
Total Capital Projects Funded by Rates	**$ 627,049**	**$ 678,376**	**$ 656,497**	**$ 649,701**	**$ 502,610**

Sources: City of San Fernando; Willdan Financial Services.

CIP Project No.	Project Category	PROJECT	FY 2011-2012	FY 2012-2013	FY 2013-2014	FY 2014-2015	FY 2015-2016	Total
1	Other Projects	Capital projects and equipment deferred pending plan preparation	$ -	$ -	$ -	$ -	$ -	$ -
2	Other Projects	Sewer management plan with citywide video survey inspection	124,439	-	-	-	-	124,439
3	Sewer Main Replacement	120 Macneil, east side at Court parking lot	-	39,895	-	-	-	39,895
4	Sewer Main Replacement	1111 Hollister to Carlisle, currently lined due to 1994 earthqk repairs	-	135,870	-	-	-	135,870
5	New Sewer Main	117 Macneil, alley to First	-	-	53,526	-	-	53,526
6	Other Projects	Capital Equipment Replacement - Backhoe and attachments	-	-	100,361	-	-	100,361
7	New Sewer Main	First, alley to Brand	-	-	-	147,091	-	147,091
8	Other Projects	Capital Equipment Replacement - Utility Truck	-	-	-	-	35,974	-
9	Water Main Replacement	Additional sites to be determined after survey and plan preparation	-	-	-	-	179,872	-
		Total	$ 124,439	$ 175,766	$ 153,887	$ 147,091	$ 215,847	$ 601,183

Notes:

Construction cost estimates were escalated annually by a factor of 3.7%, based on the average annual increase between 2004 and 2009 in the Producer Price Indices for steel and plastic construction materials.

Source: City of San Fernando; Bureau of Labor Statistics; Willdan Financial Services.

Summary of Revenue Requirements Analysis

The preceding components comprise the foundation of the revenue requirement analysis. Given the current economic climate, Willdan facilitated discussions with City staff to assure the accuracy of financial and growth variables in developing the revenue requirement analysis. Particular emphasis was placed on attempting to minimize rates, yet still generating adequate funds to support the operational activities and capital projects throughout the study period.

The revenue requirements analysis figure, presented in the following figure, provides a basis for evaluating the timing and level of sewer revenue adjustments needed to meet the projected required revenue for the study period. The percentages shown at the bottom of the figure identify the recommended revenue adjustments.

We are recommending the formation of a Capital Repair and Replacement Fund, which will be funded with the annual amount of depreciation, plus any excess funds from the operating reserve. The Capital Repair and Replacement reserve will provide the necessary capital to pay for future repair and replacement capital improvement projects.

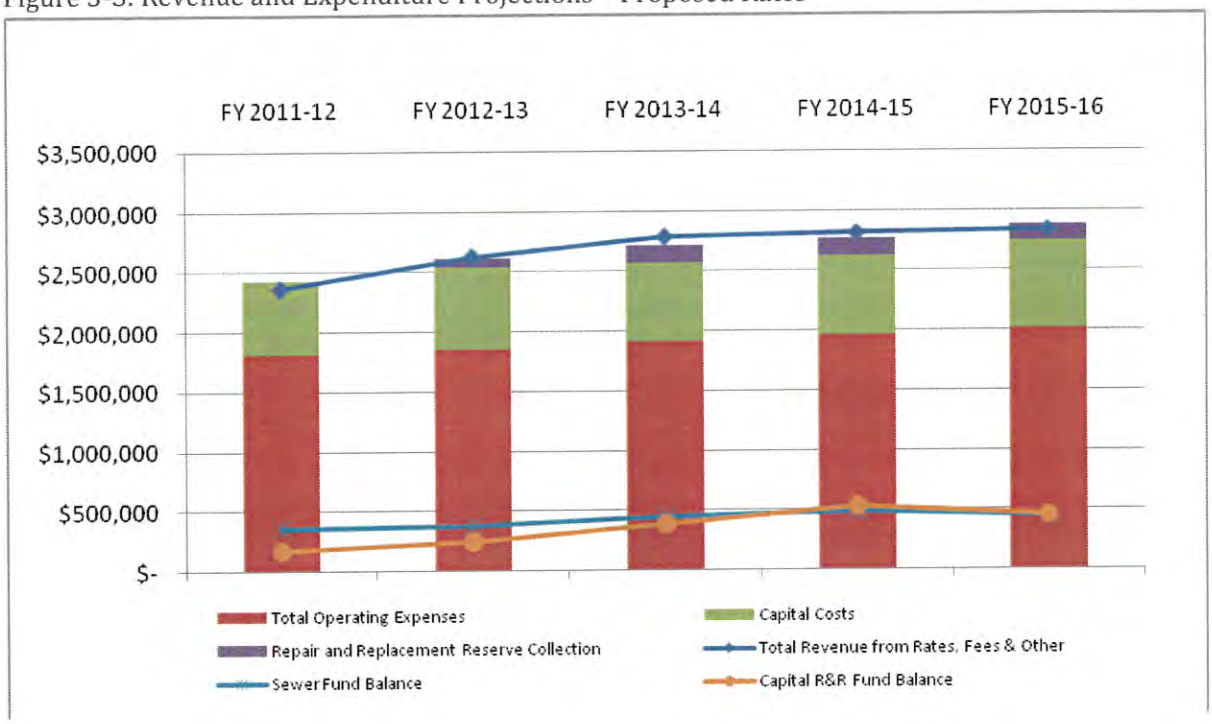
Figure 3-4: Summary of Sewer Revenue Requirements

	Description	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	**Projected Customer Growth Rate**	1.00%	1.00%	1.00%	1.00%	1.00%
2	**Estimated Existing Operating Revenue**	2,267,000	2,289,670	2,312,567	2,335,692	2,359,049
3	Additional Revenue Required	92,569	331,773	467,474	472,149	476,870
4	Total Operating Revenues **(Required Revenue)**	**2,359,569**	**2,621,443**	**2,780,040**	**2,807,841**	**2,835,919**
	Revenue Increase	7.00%	7.00%	5.00%	0.00%	0.00%
5	**Operating Expenses**					
6	Personnel Services	612,552	630,929	649,857	669,352	669,352
7	Utilities - 25% of 120 Macneil Street	4,846	4,992	5,142	5,296	5,296
8	Telephone	1,030	1,060	1,092	1,125	1,170
9	Rents and Leases	884	911	938	966	1,005
10	Contractual Services	736,233	758,320	781,069	804,501	836,681
11	Professional Services	8,788	9,052	9,323	9,603	9,987
12	Department Supplies	9,880	10,176	10,482	10,796	11,228
13	Equipment and Supplies	5,855	6,031	6,212	6,398	6,654
14	Department Equipment Maintenance	3,640	3,749	3,862	3,978	4,137
15	Small Tools	520	536	552	568	591
16	Personnel Training	2,340	2,410	2,483	2,557	2,659
17	Activities & Programs	45,240	46,597	47,995	49,435	51,412
18	Vehicle O&M and Fuel	7,540	7,766	7,999	8,239	8,569
19	Cost Allocation	298,212	307,158	316,373	325,864	338,899
20	Transfer Out	62,400	64,272	66,200	68,186	70,914
21	**Total Operating Expenses**	**1,803,080**	**1,857,172**	**1,912,887**	**1,970,274**	**2,022,099**
22	Net Operating Income	556,489	764,271	867,153	837,567	813,820
23	**Non-Operating Revenue**					
24	Investment Earnings	3,300	8,963	7,905	9,193	6,953
25	Operating Transfer In	-	-	-	-	-
26	**Total Non-Operating Revenue**	**3,300**	**8,963**	**7,905**	**9,193**	**6,953**
27	**Capital Projects Funded by Rates**					
28	Repair & Replacement Reserve Collection	-	70,626	141,252	141,252	141,252
29	Payment to L.A. City for construction of	502,610	502,610	502,610	502,610	502,610
30	CIP PAYGO Projects	124,439	175,766	153,887	147,091	215,847
31	**Total Capital Projects Funded by Rates**	**627,049**	**749,002**	**797,749**	**790,953**	**859,709**
32	**Net Income (Loss)**	(70,559)	15,269	69,404	46,614	(45,888)
33	**Sewer Enterprise Fund**					
34	Beginning Operating Fund Balance	426,112	355,553	370,822	440,226	486,840
35	**Subtotal**	**355,553**	**370,822**	**440,226**	**486,840**	**440,952**
36	Fund Balance Days of O&M	90	90	90	90	90
37	Desired Fund Balance	444,595	457,933	471,671	485,821	498,600
	Maximum Fund Balance (90 days)[1]	444,595	457,933	471,671	485,821	498,600
38	Excess (Deficit) O&M / Excess to R&R Fund	-	-	-	1,019	-
39	**Ending Operating Fund Balance**	**$ 355,553**	**$ 370,822**	**$ 440,226**	**$ 485,821**	**$ 440,952**
40	**Capital Repair and Replacement Fund**					
41	Beginning Capital R&R Fund Balance	171,440	171,440	242,066	383,318	525,589
42	Deposit	-	70,626	141,252	141,252	141,252
43	Capital Projects - Repair & Maintenance Costs	-				215,847
44	Excess from O&M Fund	-	-	-	1,019	-
45	**Ending Capital R&R Fund Balance**	**$ 171,440**	**$ 242,066**	**$ 383,318**	**$ 525,589**	**$ 450,995**

Sources: City of San Fernando; Willdan Financial Services.

Based upon the revenue requirement analysis, the City will need to adjust the rate revenue by 7% January 1, 2012, followed by a subsequent 7% increase in fiscal year 2012/2013, followed by a 5% increase in fiscal year 2013/2014. **Figure 3-5** expands upon the earlier figure (**Figure 3-1**), to illustrate the impact of the proposed revenue increase on the utility's financial condition.

Figure 3-5: Revenue and Expenditure Projections – Proposed Rates



Cost of Service Analysis

This section of the report discusses the allocation of operating and capital costs to the Base, Flow, Suspended Solids (SS) and Biochemical Oxygen Demand (BOD) parameters, the determination of unit rates, and the calculation of user class cost responsibility.

Cost Allocation by Function

The cost of service allocation conducted in this study is established on the flow and strength characteristics method, which is endorsed by the Water Environmental Federation (WEF). Under this method, revenue requirements are allocated to the different user classes proportionate to their use of the sewer system. Allocations are based on flow volume, SS, BOD, and customer accounts. Use of this methodology results in a generally accepted cost distribution among customer classes and a means of calculating and designing rates to proportionately recover those costs.

Cost Allocation Procedure

The cost of service study for the City of San Fernando is performed in three basic steps.

1. The first step is called functionalization, which categorizes cost data in terms of functions performed by a sewer utility system. The functions identified in this study include operating costs, capital projects to be funded by rates, debt service, and reserve requirements.
2. The second step classifies operating and non-operating expenses of the utility to the cost components of base cost and flow and strength of sewer effluent. The cost components are defined as follows:
   - Base Costs: Base costs represent the fixed expenditures of a Utility, such a personnel costs and overhead costs. A certain base level of most costs of a Utility, can be classified as fixed.
   - Flow Costs: Volume or flow related costs vary with the discharge of sewer by users over a specified period of time, typically a year.
   - Strength Costs: Strength costs vary with the quality of sewer discharged as measured by the biochemical oxygen demand (BOD) and suspended solids (SS) content of the discharged sewage.
3. The final step in this analysis allocates costs of service to each customer class. This step is accomplished through the development of volume and strength related allocation factors for each customer class.

For compliance with State and Proposition 218 guidelines, a sewer utility is required to utilize a cost allocation approach that fairly allocates costs among customers. This is accomplished by allocating costs into the treatment parameters of flow and strength. These costs are to be allocated in proportion to the percentage that each cost component represents.

When divided by the sewer loadings of each user class, unit costs of service are obtained. All costs incurred by a sewer utility system can be allocated to one or more cost components. The allocation of each cost item between flow, BOD, and SS is based on industry standards of treatment parameter data.

Figure 3-6 and Figure 3-7 present the classification of sewer expenses and loading calculations used to determine the allocation factors (shown in **Figure 3-8**). The allocation factors are computed by multiplying the functionalization factors (39.1% for Base, 19.3% for Flow, 17.5% for BOD, and 24.1% for SS, shown at the bottom of **Figure 3-6**) by the loading percentages of each customer class. For example, the Residential Class has a Flow Allocation Factor of 10.2%, which is the product of the Residential Flow Loading Factor of 53.0% and the Flow Functionalization Factor of 19.3%. This means that the flow generated by the Residential Class contributes to 8.4% of the total revenue requirements. When coupled with their Base, Flow, BOD and SS allocation factors (33.3%, 10.2%, 6.0% and 8.4%, respectively), 57.9% of the total revenue requirements can be allocated to the Residential Class based on their flow and strength characteristics. The required revenue allocations for each customer class are shown below in **Figure 3-9**.

Figure 3-6: Classification of Sewer Expenses by Function

Description	Classification Base	Flow	BOD	SS	Total	FYE 2010 to 2015 Average Base	Flow	BOD	SS	Total
Operating Expenses										
Personnel Services	100%	0%	0%	0%	100.0%	$ 629,215	$ -	$ -	$ -	$ 629,215
Utilities - 25% of 120 Macneil Street	0%	50%	25%	25%	100.0%	-	2,494	1,247	1,247	4,987
Telephone	25%	50%	0%	25%	100.0%	265	530	-	265	1,059
Rents and Leases	10%	80%	0%	10%	100.0%	91	728	-	91	910
Contractual Services	0%	0%	40%	60%	100.0%	-	-	303,043	454,565	757,608
Professional Services	25%	50%	0%	25%	100.0%	2,261	4,522	-	2,261	9,043
Department Supplies	25%	50%	0%	25%	100.0%	2,542	5,083	-	2,542	10,167
Equipment and Supplies	25%	50%	0%	25%	100.0%	1,506	3,013	-	1,506	6,025
Department Equipment Maintenance	25%	50%	0%	25%	100.0%	936	1,873	-	936	3,746
Small Tools	25%	50%	0%	25%	100.0%	134	268	-	134	535
Personnel Training	25%	50%	0%	25%	100.0%	602	1,204	-	602	2,408
Activities & Programs	0%	50%	25%	25%	100.0%	-	23,277	11,638	11,638	46,553
Vehicle O&M and Fuel	25%	50%	0%	25%	100.0%	1,940	3,879	-	1,940	7,759
Cost Allocation	100%	0%	0%	0%	100.0%	306,870	-	-	-	306,870
Capital Expenses	0%	50%	25%	25%	100.0%	-	1,605	803	803	3,211
Capital Projects	0%	50%	25%	25%	100.0%	-	32,106	16,053	16,053	64,212
Depreciation Expense	10%	80%	0%	10%	100.0%	38,205	305,641	-	38,205	382,051
Transfer Out	10%	80%	0%	10%	100.0%	-	-	-	-	-
Total Operating Expenses						$ 984,566	$ 386,221	$ 332,784	$ 532,787	$ 2,236,358
Non-Operating Expenses										
CIP Projects	25%	25%	25%	25%	100.0%	194,407	194,407	194,407	194,407	777,630
Total Non-Operating Expenses						$ 194,407	$ 194,407	$ 194,407	$ 194,407	$ 777,630
Total Expenses						**$ 1,178,973**	**$ 580,628**	**$ 527,191**	**$ 727,194**	**$ 3,013,987**
Classification Factor						**39.12%**	**19.26%**	**17.49%**	**24.13%**	**100.00%**

Sources: City of San Fernando; Willdan Financial Services.

Figure 3-7: Loading and Unit Rate Calculations

Customer Class	Number of Accounts	Base Account Factor	Projected Discharges to the Sewer System	Flow Factor	Concentration BOD (mg/l)	Concentration SS (mg/l)	Calculated Loading BOD (lb/yr)	BOD Factor	SS (lb/yr)	SS Factor
Residential	4,022	85.3%	503,204	53.0%	175	175	549,351	34.2%	549,351	34.8%
Commercial	469	9.9%	230,171	24.3%	500	600	717,942	44.6%	861,530	54.5%
City Property	72	1.5%	28,722	3.0%	200	200	35,835	2.2%	35,835	2.3%
Industrial	148	3.1%	136,981	14.4%	310	120	264,905	16.5%	102,544	6.5%
Schools	5	0.1%	33,545	3.5%	130	100	27,205	1.7%	20,927	1.3%
Higher Education	1	0.0%	16,426	1.7%	130	100	13,321	0.8%	10,247	0.6%
Total	4,718	100.0%	949,049	100.0%			1,608,558	100.0%	1,580,433	100.0%

Sources: City of San Fernando; Willdan Financial Services.

Figure 3-8: Flow and Allocation Factors

Customer Class	Factors			
	Base Factor	Flow Factor	BOD Factor	SS Factor
	1	2	3	4
Residential	85.3%	53.0%	34.2%	34.8%
Commercial	9.9%	24.3%	44.6%	54.5%
City Property	1.5%	3.0%	2.2%	2.3%
Industrial	3.1%	14.4%	16.5%	6.5%
Schools	0.1%	3.5%	1.7%	1.3%
Higher Education	0.0%	1.7%	0.8%	0.6%

	Base Factor	Flow Factor	BOD Factor	SS Factor
Functionalization Factors	39.1%	19.3%	17.5%	24.1%

Customer Class	Allocation Factors			
	Base Factor	Flow Factor	BOD Factor	SS Factor
	1	2	3	4
Residential	33.3%	10.2%	6.0%	8.4%
Commercial	3.9%	4.7%	7.8%	13.2%
City Property	0.6%	0.6%	0.4%	0.5%
Industrial	1.2%	2.8%	2.9%	1.6%
Schools	0.0%	0.7%	0.3%	0.3%
Higher Education	0.0%	0.3%	0.1%	0.2%

Sources: City of San Fernando; Willdan Financial Services.

Figure 3-9: Allocation of Revenue Requirements

	1 Base Factor	2 Flow Factor	3 BOD Factor	4 SS Factor	5 Total
Residential	786,883	241,015	140,952	197,886	1,366,737
Commercial	91,800	110,243	184,209	310,339	696,591
City Property	14,169	13,757	9,195	12,909	50,029
Industrial	28,937	65,609	67,969	36,938	199,453
Schools	998	16,067	6,980	7,538	31,583
Higher Education	200	7,867	3,418	3,691	15,176
Total	$ 922,986	$ 454,558	$ 412,724	$ 569,301	$ 2,359,569

Sources: City of San Fernando; Willdan Financial Services.

Rate Design Analysis

The final step of the rate study is the design of the sewer rates to collect the necessary level of revenue determined in the revenue requirement analysis. During this analysis, consideration is given to both the level of rates and the structure of the rates. This section reviews the proposed sewer rate design for the City.

Criteria and Considerations

In conjunction with City staff, Willdan analyzed various generated financial scenarios concerning the proposed adjustments and the resulting implications to the Utility's financial and operational health attributed to those decisions..

Listed below is a simplified list of the design considerations that were reviewed:

- Clear and understandable rates
- Easily administered
- Outdoor water usage
- Revenue stability (month to month and year to year)
- Efficient allocation of resources
- Fair and equitable (cost-based) rates

When developing the City's proposed rates all of the aforementioned criteria were taken into consideration. Determining the appropriate balance is crucial, as certain criteria can conflict with one another, i.e. the customer's ability to pay and cost-based rates or charges. In designing rates, there will always be concessions between the various objectives; however, the proposed rates meet all leading objectives of the City.

As sewer discharge is not calculated separately from total water demand, in developing sewer rates for residential customers a distinction must be made between water discharged to the sewer system versu that for irrigation needs. It is assumed, that sewer discharge has a direct relationship to indoor water use for a residential account. Consisentant with industry standards of the State Water Resource Control Board, indoor consumption is assumped to to be 75 gallons per capita per day. Provided the residential population density of 4.05 from the U.S. Census Bureau, sewer discharge is assumed as 9 units per month per residential account.

As indoor water demand is consistent throughout the year, a residential account's peak usage does not directly affect sewer discharge. When consideration is given to these unique characteristics, developing a flat sewer rate for the residential customers is the the most appropriate rate structure.

Alternatively, the majority of non-residential water use is for business needs and has a direct relationship to the amount of sewer discharge. It is assumed that only 10% of a commercial accounts water demand is for irrigable needs. As such non-residential customers' peak usage impacts sewer discharge. Additionally, the commercial strength chararcterstics vary dramatically by type of business operation (ie., restaurant versus business office). When consideration is given to these unique characteristics, developing a fixed base charge plus variable charge per unit of water use is an appropriate rate structure for the non-residential customers.

Overview of Existing Rate Structure

The City's existing bi-monthly sewer rate structure has flat rate for residential and a base plus variable for the remaining customer classes, based on the amount of metered water less irrigation deduction. **Figure 3-10** shows the City's existing rate structure and rates.

Figure 3-10: Existing Sewer Discharge Rates by Customer Class

Use Charges per Premise	Base Fee FY2004-2005	Base Fee FY2005-2006	Unit Cost for ($/CCF) Water Used FY2004-2005	Unit Cost for ($/CCF) Water Used FY2005-2006
Single Family	$ 41.40	$ 43.14	Flat Rate	Flat Rate
Multiple-family	41.40 x units	43.14 x units	1.58/2	1.65/2
Other Residential	41.40 x units	43.14 x units	1.58/2	1.65/2
Group II Commercial	34.50	35.95	1.58	1.65
Group III Commercial	34.50	35.95	2.52	2.63
Group IV Commercial	34.50	35.95	3.91	4.07
Group V Institutional Schools*	34.50	35.95	1.58	1.65
a. Elementary, $/ADA	0.81	0.84		
b. Other, $/ADA	1.23	1.28		

Source: City of San Fernando.

Proposed Rate Adjustments

Figure 3-11 recaps the proposed variable rates by customer class as designed in this study.

Figure 3-11: Proposed Monthly Sewer Discharge Rates by Customer Class

Base Fee	**Base Fee**				
Customer Class	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16
Residential	$ 28.32	$ 31.15	$ 32.70	$ 32.70	$ 32.70
Group II Commercial	16.30	17.93	18.83	18.83	18.83
Group III Commercial	16.30	17.93	18.83	18.83	18.83
Group IV Commercial	16.30	17.93	18.83	18.83	18.83
City Property	16.30	17.93	18.83	18.83	18.83
Industrial	16.30	17.93	18.83	18.83	18.83
Schools	16.30	17.93	18.83	18.83	18.83
Higher Education	16.30	17.93	18.83	18.83	18.83
	Unit Cost for ($/CCF) Water Used				
Customer Class	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16
Group II Commercial	$ 1.63	$ 1.80	$ 1.89	$ 1.89	$ 1.89
Group III Commercial	2.63	2.90	3.04	3.04	3.04
Group IV Commercial	3.94	4.35	4.57	4.57	4.57
City Property	1.25	1.37	1.44	1.44	1.44
Industrial	1.25	1.37	1.44	1.44	1.44
Schools [1]	1.11	1.22	1.28	1.28	1.28
Higher Education[1]	1.11	1.22	1.28	1.28	1.28

[1] Charge per student (ADA).

Sources: City of San Fernando; Willdan Financial Services.

Impact of Revenue Reduction

In Fiscal Year 2012, the proposed 7% increase in required revenue does not directly correlate to a 7% increase in rates. The cost of service analysis redistributes the required revenue proportionate to each customer class' demand on the system. Thus, the proposed rate adjustments may vary between customer classes.

Figure 3-12 details a comparison of the City's existing rates with the proposed residential rates (rate increase effective January 2012). Figure 3-13 details a comparison of the City's existing rates with the proposed non-residential rates (rate increase effective January 2012).

Figure 3-12: Proposed Comparative Sewer Bills - Residential

Fiscal Year 2011/12

Current Monthly Sewer Rates	Proposed Monthly Sewer Charge	Increase/ (Decrease)
$ 21.57	$ 28.32	$ 6.75

Sources: City of San Fernando; Willdan Financial Services.

Fiscal Year 2012/13

Current Monthly Sewer Rates	Proposed Monthly Sewer Charge	Increase/ (Decrease)
$ 21.57	$ 31.15	$ 9.58

Sources: City of San Fernando; Willdan Financial Services.

Fiscal Year 2013/14

Current Monthly Sewer Rates	Proposed Monthly Sewer Charge	Increase/ (Decrease)
$ 21.57	$ 32.70	$ 11.13

Sources: City of San Fernando; Willdan Financial Services.

Figure 3-13: Proposed Comparative Sewer Bills – Non-Residential

FY 2011/12

Customer Class	Monthly Discharge	Current Monthly Base Rates	Current Rates Volume Charge	Total Current Charge	Proposed Monthly Base Charge	Proposed Volume Charge	Total Proposed Charge	Increase/ (Decrease)
Group II	10	$ 35.95	-	$ 35.95	$ 16.30	$ 16.28	$ 32.59	$ (3.36)
Group II	20	35.95	-	35.95	16.30	32.57	48.87	12.92
Group II	50	35.95	42.90	78.85	16.30	81.42	97.73	18.88
Group III	10	35.95	-	35.95	16.30	26.28	42.58	6.63
Group III	20	35.95	10.52	46.47	16.30	52.55	68.85	22.38
Group III	50	35.95	89.42	125.37	16.30	131.38	147.68	22.31
Group IV	10	35.95	-	35.95	16.30	39.41	55.72	19.77
Group IV	20	35.95	40.70	76.65	16.30	78.83	95.13	18.48
Group IV	50	35.95	162.80	198.75	16.30	197.07	213.37	14.62

Sources: City of San Fernando; Willdan Financial Services.

FY 2012/13

Customer Class	Monthly Discharge	Current Monthly Base Rates	Current Rates Volume Charge	Total Current Charge	Proposed Monthly Base Charge	Proposed Volume Charge	Total Proposed Charge	Increase/ (Decrease)
Group II	10	$ 35.95	-	$ 35.95	$ 17.93	$ 17.97	$ 35.90	$ (0.05)
Group II	20	35.95	-	35.95	17.93	35.93	53.86	17.91
Group II	50	35.95	42.90	78.85	17.93	89.83	107.76	28.91
Group III	10	35.95	-	35.95	17.93	28.99	46.92	10.97
Group III	20	35.95	10.52	46.47	17.93	57.97	75.91	29.44
Group III	50	35.95	89.42	125.37	17.93	144.94	162.87	37.50
Group IV	10	35.95	-	35.95	17.93	43.48	61.41	25.46
Group IV	20	35.95	40.70	76.65	17.93	86.96	104.89	28.24
Group IV	50	35.95	162.80	198.75	17.93	217.40	235.34	36.59

Sources: City of San Fernando; Willdan Financial Services.

Figure 3-13: Proposed Comparative Sewer Bills – Non-Residential Continued

FY 2013/14

Customer Class	Monthly Discharge	Current Monthly Base Rates	Current Rates Volume Charge	Total Current Charge	Proposed Monthly Base Charge	Proposed Volume Charge	Total Proposed Charge	Increase/ (Decrease)
Group II	10	$ 35.95	-	$ 35.95	$ 18.83	$ 18.86	$ 37.69	$ 1.74
Group II	20	35.95	-	35.95	18.83	37.73	56.56	20.61
Group II	50	35.95	42.90	78.85	18.83	94.32	113.15	34.30
Group III	10	35.95	-	35.95	18.83	30.44	49.27	13.32
Group III	20	35.95	10.52	46.47	18.83	60.87	79.70	33.23
Group III	50	35.95	89.42	125.37	18.83	152.18	171.01	45.64
Group IV	10	35.95	-	35.95	18.83	45.65	64.48	28.53
Group IV	20	35.95	40.70	76.65	18.83	91.31	110.14	33.49
Group IV	50	35.95	162.80	198.75	18.83	228.27	247.10	48.35

Sources: City of San Fernando; Willdan Financial Services.

ATTACHMENT "C"

City of San Fernando
California

Final Draft Report
Tiered Water Rate Study

November 3, 2011

WILLDAN
Financial Services
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November 3, 2011

Mr. Ron Ruiz
Public Works Director
City of San Fernando
117 Macneil Street
San Fernando, CA 91340

Dear Mr. Ruiz,

Willdan Financial Services (Willdan) is pleased to present this report on the tiered water rate study conducted for the City of San Fernando (City).

This report was undertaken as the City is facing several challenges to continuing its operations and financial stability. The focus of this study is to ensure that the utility has sufficient revenues to meet its operational, capital and debt service obligations and that rates are set proportionate to the costs of providing utility service to each customer class. Our report outlines the approach, methodology, findings, and conclusions of this study.

This report has been prepared using generally accepted rate setting techniques. The City's utility accounting, budgeting, and billing records were the primary sources for the data contained within the report. Furthermore, Willdan has worked closely with City staff over the course of this project to confirm the data validity and prudence of assumptions. The conclusions contained within this report present the City with a set of recommendations, which provide stable, reasonable, and technically defensible funding for continued operations.

It was a pleasure working with you, and we wish to express our thanks for your support and cooperation extended throughout the study.

Sincerely,

Willdan Financial Services

Gregg Tobler
Senior Project Analyst

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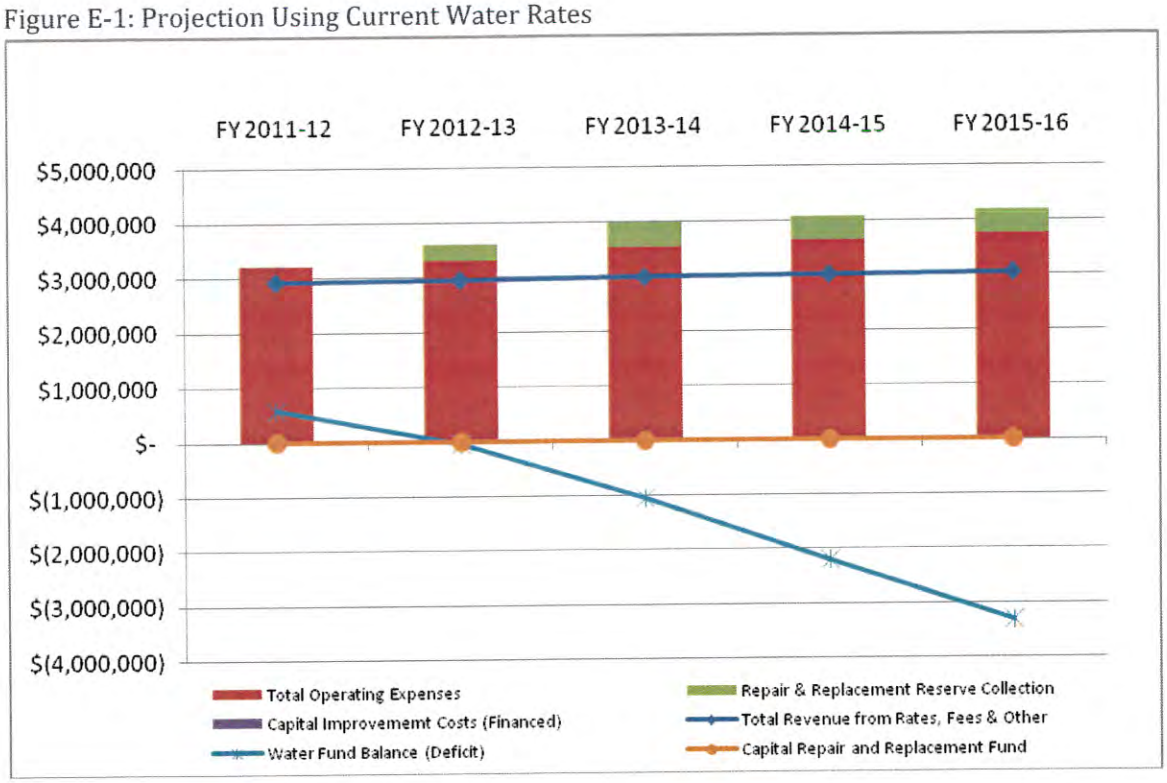
Executive Summary

The City desires rates that fully fund operations, maintenance, and present and future capital costs for, infrastructure rehabilitation and enhancements. The City is facing several challenges to continuing its water utility operations, including inadequate annual water rate revenues to keep pace with increasing operational and capital costs; the implementation of an automated meter reading system to more accurately bill customers and identify potential leaks; reduction in anticipated customer account growth; and the need to meet water conservation objectives while maintaining a self funding water utility enterprise fund.

The City retained Willdan Financial Services (Willdan) to prepare a tiered rate study for the water utility to ensure the utility has sufficient revenues to meet their operational, capital and debt service obligations. Additionally, to confirm that rates are set proportionate to the costs of providing utility service to each customer class in compliance with Proposition 218. Therefore, the intent of the proposed tiered rate study is to provide recommendations on changes to the current utility rate structure to meet these challenges within the appropriate legal confines. As part of this rate study, Willdan facilitated dialogue with City staff during several conference calls. As every City encompasses unique complexities and traits, during these discussions, the City provided suitable recommendations to incorporate into the study. This report documents the findings, analyses and recommendations of the comprehensive rate study effort.

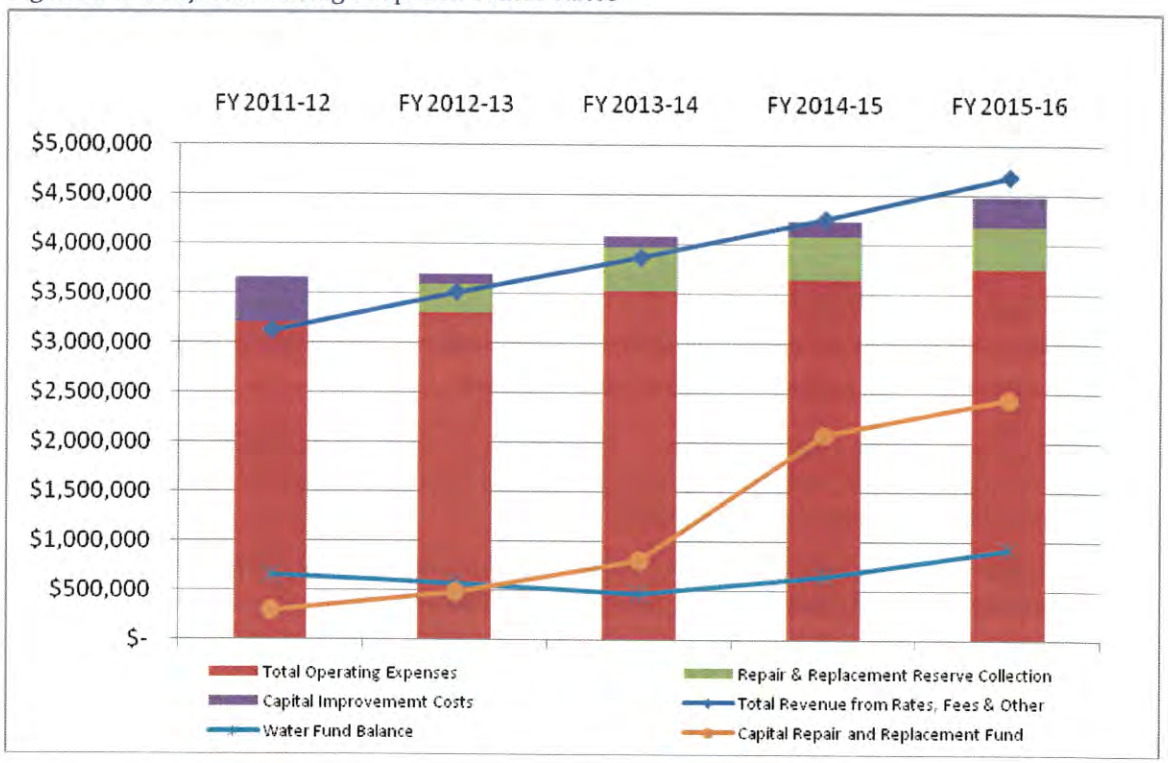
The graph (Figure E-1) below demonstrates the current and projected financial conditions of the water system **assuming no rate increases** over the next 5 years. As the figure illustrates, holding rates constant will result in depleted reserve funds, potential General Fund subsidy or borrowing, reduced quality of operations or services, and deferred capital projects that are urgently needed due to aging infrastructure.

Figure E-1: Projection Using Current Water Rates



The graph (Figure E-2) below demonstrates the projected financial condition of the water system assuming adoption of a recommended rate increases over the next 5 years. As the figures illustrate, the proposed rate structure and rate increases will enable the City to continue its operations, establish prudent reserve fund levels, and fund capital projects that are urgently needed through a bond financing.

Figure E-2: Projection Using Proposed Water Rates



Project Background

The City of San Fernando owns and operates a water system for residents and businesses within City limits. As of Fiscal Year 2009/10, the water system provides service to approximately 4,638 residential and non-residential potable water customers. The City operates the water system as a self-supporting enterprise, separate from other enterprises and General Fund activities.

The City's Public Works Department is responsible for water storage and delivery. Additionally, the Department is responsible for water resource management, water policy development, and water conservation programs. The Water Distribution Division of the Public Works Department is responsible for providing water to all City water customers in sufficient quantities to meet demands; and for maintenance water system. The Division also installs new services that are ordered for new structures or demands by land use changes. The City receives the majority of its water from ground water supplies. The remainder of the water the City receives comes from Metropolitan Water District (MWD).

Due to the economic climate and continued cost pressures, the City is facing several challenges to continuing its water utility operations as customer account growth has slowed to a 1.0% annual rate and

utility infrastructure is aging and must be replaced. Additionally, utility rate revenues are not keeping pace with increasing operational and capital renewal and rehabilitation costs.

Due to the existing water rate schedule (rate structure), recent market conditions, and conservation objectives implemented by water purveyors, the current model does not accurately reflect current realities or the revenue stream required for services provided. As the rates have not been updated since FY2005-2006, the City needs rates that fully reflect today's operations, maintenance, existing and future capital costs, and accounts for water conservation goals.

Key Financial Plan Objectives

Several objectives were identified during the study to guide decisions regarding the proposed financial plans and rate structures. The major objectives of the study were:

- Utility rates and fees should generate sufficient revenues to meet operating costs, capital program requirements, debt service obligations, and maintain adequate reserves consistent with sound financial management practices.
- Utility rates should be set proportionate to the cost of providing utility service to each customer to promote fairness and equity and compliance with Proposition 218.
- A financial plan that shifts a majority of future capital funding to a paygo basis to limit the Utility's debt.
- A financial plan that minimizes the need to continually update the water rate structure, do to short-term impacts.
- Conservation objectives of the City, and the State (20x2020) to encourage the efficient and reasonable use of water.
- Utility rate structures should be supported by a financial model that is easy to update should costs and assumptions change in the future beyond what was projected at the time of this report.

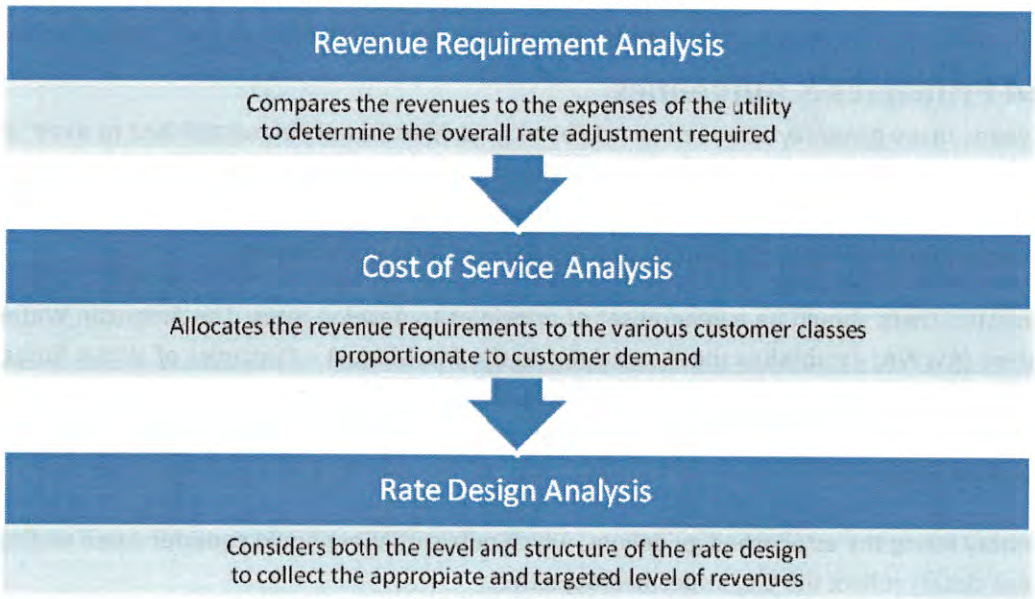
In reviewing the above objectives, it should be noted that the City has limited control over external forces such as growth, consumer behavior, the cost of purchasing water, and system usage. Recognizing these factors, we believe that the recommendations in this study provide a fair, reasonable, and balanced set of proposed rates and fees for the City that, to the extent possible, meets these key objectives.

Overview of the Rate Study Process

The scope of this study included the development of cost-based water user charges through a comprehensive cost of service and rate design analysis. Utility rates must be set at a level where a utility's operating and capital expenses meet the revenues received from customers. This is a significant point, as failure to achieve this level may lead to insufficient funds being available to appropriately maintain the system. A comprehensive rate study typically consists of following three interrelated analyses to develop the accurate funding levels (Figure 1-1 provides an overview of these processes).

- Financial Planning/Revenue Requirement Analysis: Create a five-year plan to support an orderly, efficient program of on-going maintenance and operating costs, capital improvement and replacement activities, and suitable leveraging of financial resources (debt load). In addition, the long-term plan should fund and maintain reserve balances to adequate levels based on industry standards and City fiscal policies.
- Cost of Service Analysis: Identifies and apportions annual revenue requirements to the different customer classes based on their demand on each utility system.
- Rate Design: Develops a fixed/variable schedule of rates for each customer class to proportionately recover the costs attributable to them. Assembly bill 2882 allows other policy objectives to be achieved, such as discouraging wasteful water use through price signaling. The policy objectives are balanced with the cost of service objectives of Prop 218 to maintain the delicate balance between customer equity, financial stability and resource conservation goals.

Figure 1-1: Comprehensive Rate Study Interrelated Analysis



Rate Setting Principles

The primary objective of conducting a comprehensive rate study is to 1) determine the adequacy of the existing rates (pricing and structure) and 2) provide the basis for any necessary adjustments to meet the City's operating and capital needs as well as policy objectives, such as efficient water use. The City intends for rate structures to fully fund operations, maintenance, and present and future capital costs. Furthermore, the City desired to maintain or possibly enhance its current rate structure. A tiered rate structure, as currently implemented by the City, encourages efficient use of water by allocating each customer a consumption allotment (block) based on average usage for which they are charged a base rate per hundred cubic foot (hcf). If an account's consumption exceeds its allotment, then the customer is charged an increased rate (block 2) per hcf for the consumption that falls above the allotment.

Established Principles & Guidelines

Over the past years, many generally accepted principles or guidelines have been established to assist in developing utility rates. The purpose of this section of the report is to provide a general background of the methodology and guidelines used for setting cost based utility rates. This will provide the reader with a higher-level understanding of the general process detailed later in this report.

As a practical matter, there should be a general set of principles to develop rates. The American Water Works Association (AWWA) establishes these principles in the M1 Manual – *Principles of Water Rates, Fees and Charges.* These guiding principles help to ensure there is a consistent global approach that is employed by all utilities in the development of their rates (water and water-related utilities including sewer and reclaimed water).

Below is a summary listing the established guidelines, which public utilities should consider when setting their rates. These closely reflect the City's specified objectives.

- Rates should be cost-based and equitable, and set at a level such that they provide revenue sufficiency.
- Rates and process of allocating costs should conform to generally accepted rate setting techniques.
- Rates should provide reliable, stable and adequate revenue to meets the utility's financial, operation, and regulatory requirements.
- Rate levels should be stable from year to year (limit "rate shocks").
- Rates should be easy to understand and administer.

These guidelines, along with the City's objectives, have been utilized within this study to help develop utility rates that are cost-based and equitable.

Revenue Requirements

The method used by most public utilities to establish their revenue requirements is called the "cash basis" approach of setting rates. As the name implies, a public utility combines its cash expenditures over a period of time to determine their required revenues from user rates and other forms of income. The figure below presents the "cash basis" methodology.

Figure 2-1: Overview of the "Cash Basis" Design

+ Operation and Maintenance Expenses
+ Capital Additions Financed with Rate Revenue
+ Debt Service (Principal and Interest)
= Total Revenue Requirements

To ensure existing ratepayers are not paying for growth-related capital projects, Willdan reviewed existing, approved/pending, and proposed Capital Improvement Projects (CIPs) with City staff to allocate projects between new (growth) and existing customers (operations and maintenance or "O&M"). Additionally, capital replacement expense is sometimes included to stabilize annual required revenue requirements by spreading the replacement costs of a depreciated asset over the expected life of the asset or through the term of bond issue, when municipal bond financing is used.

Based on the revenue requirement analysis, the utility can determine the overall level of rate adjustment needed in order for the utility to meet its overall expenditure needs.

Financial Planning

In the development of the revenue requirements, many assumptions are utilized to project future expenditures, customer and consumption growth, and required revenue adjustments. The City's budget documents are used as the initial starting point; however, assumptions play a necessary role in projecting future required revenue.

Conservative growth assumptions and prudent financial planning are fundamental to ensuring adequate rate revenue and to promote financial stability. The financial model developed appropriately considers the City's capital improvement needs and operating reserve balances.

Rate Design

The final element, the rate design process, applies the results from the revenue requirements to develop rates that achieve the general guidelines and objectives of the City. While these objectives must abide by the cost of service principles of Prop 218, the Agency may consider items such as continuity of past rate philosophy, efficient use of water, encouragement of economic development, ease of administration, and legal requirements. While cost-based rates are an important objective, all objectives should be balanced appropriately.

While the general description of the utility rate setting process discussed in this section of the report is simplified and condensed, it does address the underlying fundamentals. One of the key principles for a comprehensive rate study is found in economic theory, which suggests the price of a commodity must roughly equal its cost if equity among customers is to be maintained – i.e. cost-based. For example, capacity-related costs are usually incurred by a water utility to meet peak use requirements. Consequently, the customers causing peak demands should properly pay for the demand-related facilities in proportion to their contribution to maximum demands. Through refinement of costing and pricing techniques, consumers of a product are given a more accurate price point of what the commodity costs to produce and deliver.

The above fundamentals have considerable foundation in economic literature. They also serve as primary guidelines for Proposition 218 compliance and rate design by most utility regulators and administrative agencies. This "price-equals-cost" theory provides the basis for much of the subsequent analysis and comment. This theory is particularly important as the proposed rate structure has been modified to encourage the efficient use of water while maintaining this economic principle.

Rate Setting Principles Summary

This section of the report provides a brief introduction to the general principles, techniques, and economic theory used to set utility rates. These principles, techniques, and economic theory were the starting point for this rate study and the groundwork used to meet the City's key objectives in analyzing and adjusting their utility rates.

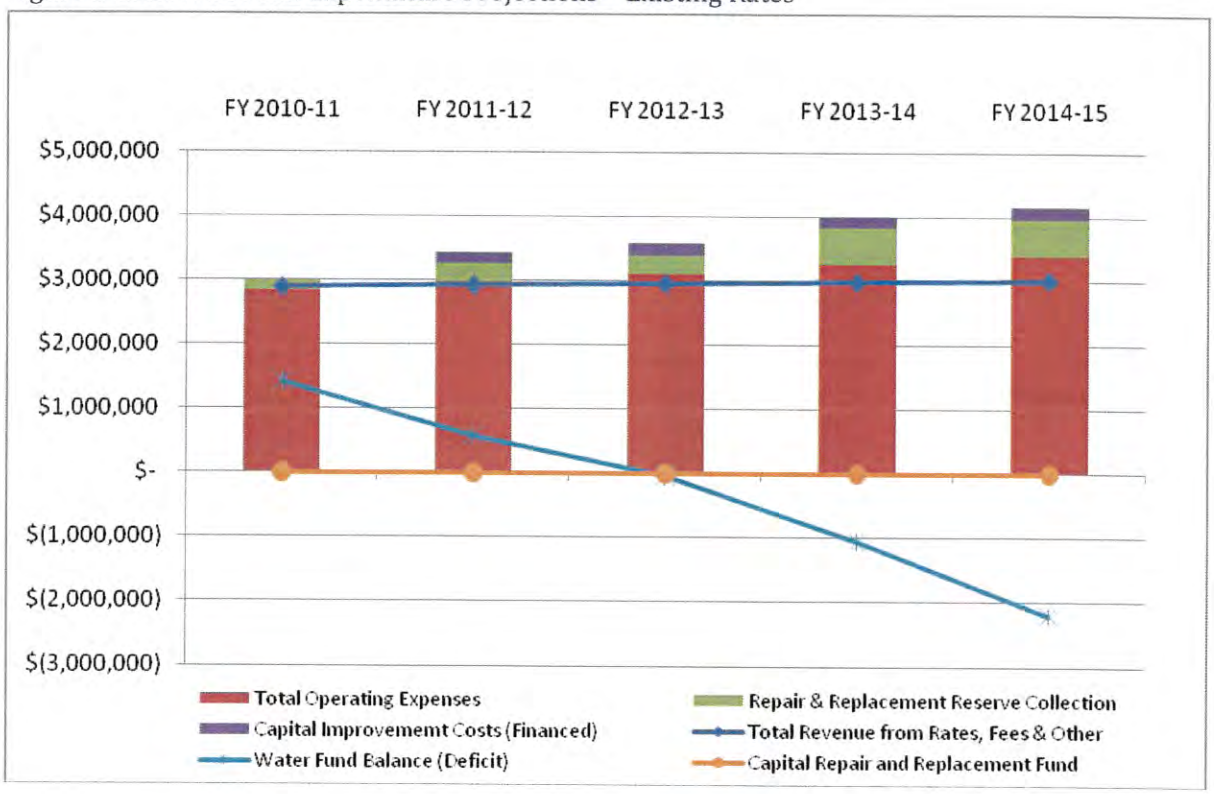
The total cost of serving each customer class is determined by distributing each of the utility cost components among the user classes based upon the respective service requirements of each customer class. Therefore, a true cost of service rate study enables a water utility to adopt rates based on the true costs to each user class. The purposes of this water utility cost of service study include:

- Proportional allocation of the costs of service to users.
- Derivation of unit costs to support the development of water rates.

Water Rate Analysis

The City is facing several challenges to continuing its high-quality operations. Utility revenues are not keeping pace with increasing operational and capital costs. In addition, customer account growth has slowed to a 1.0% rate and utility infrastructure is aging and must be replaced soon. Considering the above variables, Figure 3-1 projects the adequacy of existing rate revenue to support ongoing operations and maintenance.

Figure 3-1: Revenue and Expenditure Projections – Existing Rates



As the water fund balance becomes negative resulting in a deficit, the above figure indicates revenue increases are necessary to operate and maintain the water system. This will be evident as details of the process, data, and methodology utilized in the rate study are presented in this section of the report. Summary figures, outlining much of the analysis are included in this section of the report as well.

Customer Statistics

During the Fiscal Year 2010, the City provided water service to an estimated 4,638 customers, distributing roughly 1.314 million hundred cubic feet of potable water. Figure 3-2 shows the City's projected water usage and number of accounts by customer class.

Figure 3-2: Accounts and Consumption

Customer Class	Accounts	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Residential	3,943	930,904	930,811	930,718	940,025	949,426
Commercial	407	196,615	196,596	196,576	198,542	200,527
Elementary	10	7,129	7,129	7,128	7,199	7,271
Higher Education	9	15,468	15,466	15,465	15,620	15,776
Industrial	145	132,010	131,996	131,983	133,303	134,636
Churches	53	20,646	20,644	20,642	20,849	21,057
City Property	71	11,797	11,796	11,795	11,913	12,032
Total	4,638	1,314,570	1,314,439	1,314,307	1,327,450	1,340,725
			Percent of Total			
Residential	85.0%	70.8%	70.8%	70.8%	70.8%	70.8%
Commercial	8.8%	15.0%	15.0%	15.0%	15.0%	15.0%
Elementary	0.2%	0.5%	0.5%	0.5%	0.5%	0.5%
Higher Education	0.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Industrial	3.1%	10.0%	10.0%	10.0%	10.0%	10.0%
Churches	1.1%	1.6%	1.6%	1.6%	1.6%	1.6%
City Property	1.5%	0.9%	0.9%	0.9%	0.9%	0.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note:

Assumes a consumption growth rate of 1%. after FY 2013-14.

Incorporates a 3% reduction in consumption in FY 2012-13 & FY 2013-14 for price elasticity.

Source: City of San Fernando; Willdan Financial Services.

A projection of customers, usage, and production requirements is necessary in the evaluation of the revenue requirements. This projection is critical for the determination of revenues from rates, escalation of production-related costs, cost-causation, and design of the rates.

Given the current economic climate and review of potential growth, Willdan in conjunction with City staff determined to use a growth rate equal to 1.0%.

Revenue Requirements Analysis

Revenue from Existing Rates

The first step in developing the revenue requirements is to develop a projection of revenues from existing rates. The City expects to receive approximately $2.9 million in water sales in Fiscal Year 2012. By 2016, assuming the growth discussed above, water sales are projected to increase roughly 5.1% to $3.05 million. In addition to water sales, the City has a projected average of non-operating revenues approximately equal to twelve thousand dollars, consisting of interest income.

Projections of Operation and Maintenance Expenses

To project Operating and Maintenance (O&M) expenses over the five-year planning horizon, two escalation factors were developed. The operations cost escalator, set at 3.00%, is applied to basic expenditures that the Department incurs: materials, utilities, etc in fiscal years 2012 through fiscal year 2014 and an operations cost escalator of 4.00% in fiscal years 2015 and 2016. The Personnel cost escalator is set at 3.0%. Additionally, the City, as part of its financial policies, has established a reserve policy to provide 25% (90 days) of its annual operating and maintenance expenses in a reserve account.

We are recommending a maximum Operating Fund reserve policy of 90 days. This will ensure a sufficient and reasonable fund to offset any unforeseen or unaccounted financial challenges. Once this maximum is met, the balance will be transferred to a Capital Repair and Replacement Fund. The Capital Repair and Replacement Fund will be funded with the annual amount of depreciation, plus any excess funds from the operating reserve. The Capital Repair and Replacement reserve will provide the necessary capital to pay for future repair and replacement capital improvement projects.

Capital Improvement Projects

The Department's Capital Improvement Program (CIP) needs for the water utility are summarized in Figure 3-3. Individually, each project was identified by City staff as growth-related, existing needs (O&M) or a percentage of both to determine the appropriate funding mechanism (monthly rates or connection fee). The capital projects are required to meet the Utility's repair and maintence needs and to maintain the existing quality of the system.

Figure 3-3: Water Capital Projects

CIP Project No.	PROJECT	Description	FY 2011-2012	FY 2012-2013	FY 2013-2014	FY 2014-2015	FY 2015-2016
1	Other Projects	Nitrate Filter System, Phase 1	$ -	$ -	$ -	$ -	$ -
2	Other Projects	Well 4A Rehab & Electrical Panel Upgrade	-	-	-	-	-
3	Other Projects	Nitrate Filter System, Phase 2	395,223	-	-	-	-
4	Water Main Replacement	Capital Equipment Purchase - Computer Software Upgrades	32,260	-	-	-	-
5	Water Main Replacement	Software	16,130	-	-	-	-
6	Other Projects	Capital Equipment Replacement - Backhoe	-	105,937	-	-	-
7	Other Projects	400 No. Huntington Street.	-	-	110,087	-	-
8	Other Projects	900 Macneil Street.	-	-	-	110,801	-
9	Other Projects	MWD Booster Pump #4 Rehab (#3 done FY 07)	-	-	-	23,983	-
10	Other Projects	Arroyo Booster Pump #2 Rehab	-	-	-	23,983	-
11	Other Projects	Capital Equipment Replacement - Distribution Truck	-	-	-	-	186,526
12	Water Main Replacement	900-1000 Lucas Street	-	-	-	-	111,418
13	Water Main Replacement	Reservoir #4 Reconstruction and Land Purchase	-	-	-	-	-
		Total	$ 443,613	$ 105,937	$ 110,087	$ 158,767	$ 297,944

Notes:

Construction cost estimates were escalated annually by a factor of 3.7%, based on the average annual increase between 2005 and 2010 in the Producer Price Indices for steel and plastic construction materials.

Source: City of San Fernando; Bureau of Labor Statistics; Willdan Financial Services.

Summary of Revenue Requirements Analysis

The above components comprise the foundation of the revenue requirement analysis. During the discussions with the City, City staff made recommendations to assure the accuracy of financial and growth variables used in developing the revenue requirement analysis. Particular emphasis was placed on attempting to minimize rates, yet still encompass adequate funds to support the operational activities and capital projects throughout the study period.

The revenue requirements analysis figure, presented below, provides a basis for evaluating the timing and level of water revenue increases required to meet the projected required revenue for the study period. The percentages shown at the bottom of the figure show the recommended revenue adjustments.

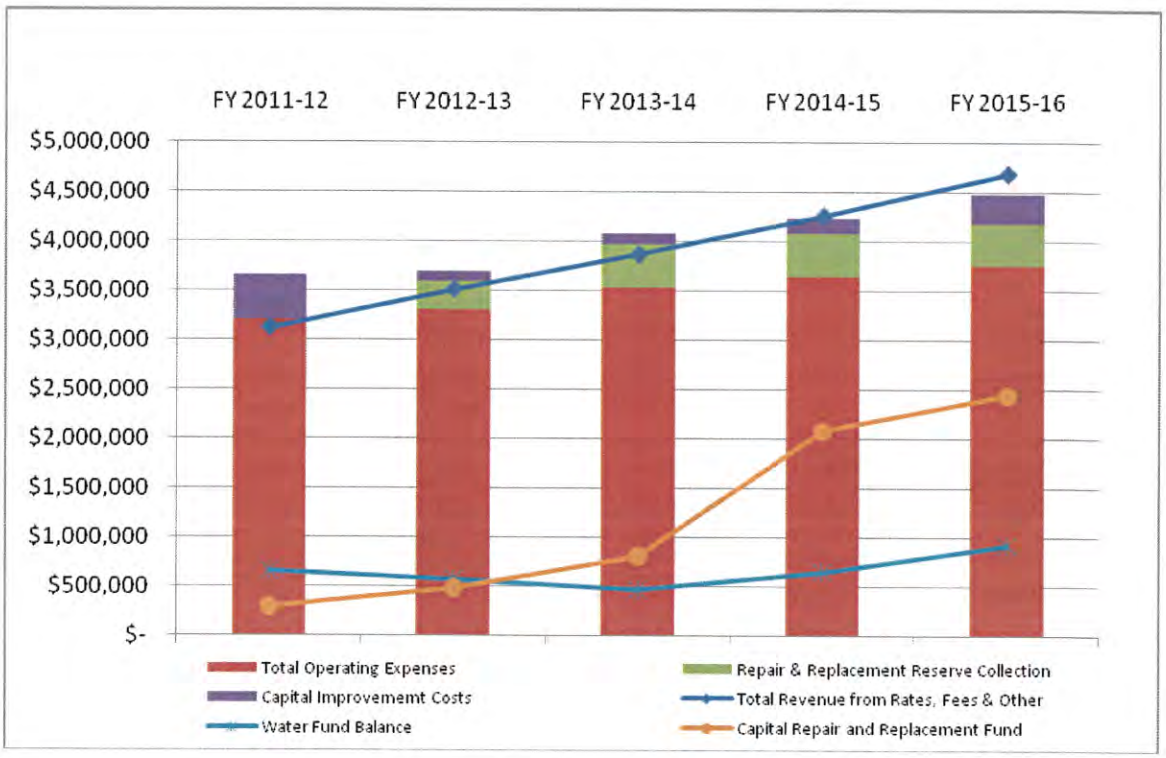
Figure 3-4: Revenue Requirements

	Description	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	**Projected Customer Growth Rate**	1.00%	1.00%	1.00%	1.00%	1.00%
2	**Estimated Existing Operating Revenue**	2,929,000	2,958,290	2,987,873	3,017,752	3,047,929
3	Additional Revenue Required	197,708	556,454	881,509	1,242,051	1,641,688
4	Total Operating Revenues **(Required Revenue)**	**3,126,708**	**3,514,744**	**3,869,382**	**4,259,803**	**4,689,617**
	Revenue Increase	9.00%	9.00%	9.00%	9.00%	9.00%
5	**Operating Expenses**					
6	Personnel Services	1,766,312	1,819,301	1,873,880	1,930,097	1,988,000
7	Utilities	198,746	204,708	210,849	219,283	228,055
8	Telephone	4,470	4,604	4,742	4,932	5,129
9	Rents & Leases	3,090	3,183	3,278	3,409	3,546
10	Contractual Services	128,702	132,563	136,540	142,001	147,681
11	Professional Services	8,755	9,018	9,288	9,660	10,046
12	Office Equipment Maintenance	1,514	1,560	1,606	1,671	1,737
13	Department Supplies	66,435	68,428	70,481	73,300	76,232
14	Equipment and Supplies	10,061	10,363	10,674	11,101	11,545
15	Equipment Maintenance	32,548	33,524	34,530	35,911	37,348
16	Building Maintenance and Repair	3,100	3,193	3,289	3,421	3,557
17	Small Tools	3,605	3,713	3,825	3,978	4,137
18	Personnel Training	3,348	3,448	3,551	3,693	3,841
19	Meetings, Memberships, Licenses, and Training	3,090	3,183	3,278	3,409	3,546
20	Subscriptions / Dues & Memberships	3,966	4,084	4,207	4,375	4,550
21	Fuel and Vehicle Maintenance	23,246	23,943	24,662	25,648	26,674
22	Activities & Programs	11,330	11,670	12,020	12,501	13,001
23	Other Expenses	68,804	70,868	72,994	75,914	78,950
24	Cost Allocation	410,697	423,018	435,709	453,137	471,262
25	Nitrate System Operational Expenses	214,608	218,608	361,456	361,456	361,456
26	Interfund Sewer Fund Loan Transfer Repayment	75,000	75,000	75,000	75,000	75,000
27	Capital Expenses	111,498	114,842	118,288	123,019	127,940
28	Transfer Accounts	62,830	64,715	66,656	69,323	72,096
29	**Total Operating Expenses**	**3,215,754**	**3,307,538**	**3,540,804**	**3,646,239**	**3,755,329**
30	Net Operating Income	(89,046)	207,206	328,578	613,564	934,288
31	**Non-Operating Revenue**					
32	Investment Earnings	27,966	15,008	17,126	20,751	38,298
33	Operating Transfer In	-	-	-	-	-
34	One-Time Sale of MWD Rights	426,000	-	-	-	-
35	**Total Non-Operating Revenue**	**453,966**	**15,008**	**17,126**	**20,751**	**38,298**
36	**Capital Projects Funded by Rates**					
37	Repair & Replacement Reserve Collection	-	289,000	433,500	433,500	433,500
38	CIP PAYGO - Rate Funded	378,767	-	-	-	-
39	**Total Capital Projects Funded by Rates**	**378,767**	**289,000**	**433,500**	**433,500**	**433,500**
40	**Net Income (Loss)**	(41,813)	(81,794)	(104,922)	180,064	500,788
41	**Water Enterprise Fund**					
42	Beginning Operating Fund Balance	700,500	658,687	576,894	471,972	652,036
43	Fund Balance Days of O&M	90	90	90	90	90
44	Desired Fund Balance	792,926	815,557	873,075	899,073	925,972
45	Excess (Deficit) O&M / Excess to R&R Fund	-	-	-	-	226,852
46	**Ending Operating Fund Balance**	**$ 658,687**	**$ 576,894**	**$ 471,972**	**$ 652,036**	**$ 925,972**
47	**Capital Repair and Replacement Fund**					
48	Beginning Capital R&R Fund Balance	364,847	300,000	483,063	806,476	2,081,209
49	Repair & Replacement Reserve Collection	-	289,000	433,500	433,500	433,500
50	Potential Grant Money	-	-	-	1,000,000	-
51	Capital Projects - R&R Funded	(64,847)	(105,937)	(110,087)	(158,767)	(297,944)
52	Excess from O&M Fund	-	-	-	-	226,852
53	**Ending Capital R&R Fund Balance**	**$ 300,000**	**$ 483,063**	**$ 806,476**	**$ 2,081,209**	**$ 2,443,617**

Sources: City of San Fernando; Willdan Financial Services.

Based upon the revenue requirement analysis, the City will need to adjust the rate revenue by 9% in January 1, 2012, followed by subsequent 9% increases in fiscal year 2012/2013 through fiscal year 2015/2016 which are needed to keep ahead of inflation and to fund future capital rehabilitation needs. This approach will result in a compounded 45% revenue increase over the next five years. Figure 3-5 expands upon the earlier figure (Figure 3-1), to illustrate the positive impact of the revenue increase on the utility's financial condition.

Figure 3-5: Revenue and Expenditure Projections – Proposed Rates



Cost of Service Analysis

The cost of service analysis is a systematic process by which revenue requirements are used to generate a classification of fair and equitable costs in proportion to the service received for each user class.

Cost Allocation by Function

The cost of service allocation conducted in this study is established on the base-extra capacity method endorsed by the AWWA. Under this method, revenue requirements are separated between fixed and variable costs and then differentiates variable related costs amongst "Base" and "Max Day (Peak)". The fixed and variable costs are allocated to the different user classes proportionate to the demand they place on the water system. Expenditure allocations are based on average day (base) usage, maximum day (peak) usage, meters and services, and billing and collection. Average day (base) costs detailed below are allocated to customer classes based on the total annual amount of water consumption. Maximum day (peak) usage costs are allocated to customer classes based on the total annual amount of

water consumption adjusted by the peaking factor. Meters and services costs are allocated based on the number of equivalent meters of each customer class. Finally, customer account (billing & services) costs are allocated on the number of accounts of each customer class. Use of this methodology results in an AWWA-accepted cost distribution among customer classes and a means of calculating and designing rates to proportionately recover costs incurred.

Figure 3-6 classifies the major functions of the water system and allocates those related costs to the demand factors average day (base), maximum day (peak) usage, meters and services, and customer accounts.

Figure 3-6: Classification of Water Expenses by Function

			Extra Capacity	Customer Costs		
Description	Total Revenue Requirement	Base	Max Day	Customer Account	Meters & Services	Basis of Classification
Water Production						
Personnel Services	$ 566,172	$ 333,339	$ 232,833	$ -	$ -	Avg/Max Day
Utilities	188,140	110,769	77,371	-	-	Avg/Max Day
Telephone	2,820	1,660	1,160	-	-	Avg/Max Day
Rents & Leases	1,500	883	617	-	-	Avg/Max Day
Contractual Services	100,100	58,935	41,165	-	-	Avg/Max Day
Department Supplies	17,000	10,009	6,991	-	-	Avg/Max Day
Equipment and Supplies	4,134	2,434	1,700	-	-	Avg/Max Day
Equipment Maintenance	17,000	10,009	6,991	-	-	Avg/Max Day
Building Maintenance and Repair	3,010	1,772	1,238	-	-	Avg/Max Day
Small Tools	1,000	589	411	-	-	Avg/Max Day
Personnel Training	1,000	589	411	-	-	Avg/Max Day
Meetings, Memberships, Licenses, and Training	2,000	1,178	822	-	-	Avg/Max Day
Fuel and Vehicle Maintenance	4,200	2,473	1,727	-	-	Avg/Max Day
Activities & Programs	2,000	1,178	822	-	-	Avg/Max Day
Other Expenses	44,400	26,141	18,259	-	-	Avg/Max Day
Capital Expenses	2,500	1,472	1,028	-	-	Avg/Max Day
Transfer Accounts	1,000	589	411	-	-	Avg/Max Day
Total Water Production	**$ 957,976**	**$ 564,018**	**$ 393,958**	**$ -**	**$ -**	
Water Distribution						
Personnel Services	$ 410,152	$ 136,717	$ 136,717	-	136,717	33% Base/Max/Meters
Rents & Leases	1,500	500	500	-	500	33% Base/Max/Meters
Contractual Services	11,500	3,833	3,833	-	3,833	33% Base/Max/Meters
Professional Services	2,500	833	833	-	833	33% Base/Max/Meters
Department Supplies	39,000	13,000	13,000	-	13,000	33% Base/Max/Meters
Equipment and Supplies	5,634	1,878	1,878	-	1,878	33% Base/Max/Meters
Equipment Maintenance	3,600	1,200	1,200	-	1,200	33% Base/Max/Meters
Small Tools	2,500	833	833	-	833	33% Base/Max/Meters
Personnel Training	750	250	250	-	250	33% Base/Max/Meters
Fuel and Vehicle Maintenance	8,800	2,933	2,933	-	2,933	33% Base/Max/Meters
Capital Expenses	93,500	31,167	31,167	-	31,167	33% Base/Max/Meters
Capital Projects	68,000	22,667	22,667	-	22,667	33% Base/Max/Meters
Depreciation Expenses	578,000	192,667	192,667	-	192,667	33% Base/Max/Meters
Total Water Distribution	**$ 1,225,436**	**$ 408,479**	**$ 408,479**	**$ -**	**$ 408,479**	
Utility Billing						
Personnel Services	$ 355,455	$ -	$ -	$ 355,455	$ -	100% Customer Billing
Contractual Services	1,500	-	-	1,500	-	100% Customer Billing
Department Supplies	6,000	-	-	6,000	-	100% Customer Billing
Equipment Maintenance	7,250	-	-	7,250	-	100% Customer Billing
Fuel and Vehicle Maintenance	6,514	-	-	6,514	-	100% Customer Billing
Computer Service Charges	-	-	-	-	-	100% Customer Billing
Capital Expenses	3,000	-	-	3,000	-	100% Customer Billing
Total Utility Billing (Customer Costs)	**$ 379,719**	**$ -**	**$ -**	**$ 379,719**	**$ -**	
Total O & M ($)	$ 2,563,131	$ 972,497	$ 802,437	$ 379,719	$ 408,479	
Total O & M (%)	100.00%	37.94%	31.31%	14.81%	15.94%	

Figure 3-6: Classification of Water Expenses by Function Continued

Description	Total Revenue Requirement	Extra Capacity		Customer Costs		Basis of Classification
		Base	Max Day	Customer Account	Meters & Services	
Water Administration						
Personnel Services	$ 383,087	$ 145,350	$ 119,933	$ 56,753	$ 61,051	% of O&M
Utilities	4,817	1,828	1,508	714	768	% of O&M
Contractual Services	11,853	4,497	3,711	1,756	1,889	% of O&M
Office Equipment Maintenance	1,470	558	460	218	234	% of O&M
Department Supplies	2,500	949	783	370	398	% of O&M
Equipment Maintenance	3,750	1,423	1,174	556	598	% of O&M
Personnel Training	1,500	569	470	222	239	% of O&M
Meetings, Memberships, Licenses, and Training	1,000	379	313	148	159	% of O&M
Subscriptions / Dues & Memberships	3,850	1,461	1,205	570	614	% of O&M
Fuel and Vehicle Maintenance	3,055	1,159	956	453	487	% of O&M
Interest-only Payment to Sewer Fund	-	-	-	-	-	% of O&M
Activities & Programs	9,000	3,415	2,818	1,333	1,434	% of O&M
Other Expenses	22,400	8,499	7,013	3,318	3,570	% of O&M
Cost Allocation	398,735	151,287	124,832	59,071	63,545	% of O&M
Capital Expenses	9,250	3,510	2,896	1,370	1,474	% of O&M
Transfer Accounts	60,000	22,765	18,784	8,889	9,562	% of O&M
Transfer to Pavement Management Fund	-	-	-	-	-	% of O&M
Total Water Administration	**$ 916,267**	**$ 347,648**	**$ 286,855**	**$ 135,742**	**$ 146,023**	
DEBT SERVICE/CAPITAL EXPENDITURES						
Total Loan Payment	-	-	-	-	-	% of O&M
Total Capital Projects Funded by Rates	339,500	113,167	113,167	-	113,167	33% Base/Max/Meters
Total Debt Service	$ 339,500	$ 113,167	$ 113,167	$ -	$ 113,167	
TOTAL FUNCTIONALIZED COSTS	**$ 3,818,898**	**$ 1,433,311**	**$ 1,202,458**	**$ 515,461**	**$ 667,668**	
FUNCTIONAL COSTS ALLOCATION FACTOR	**100.00%**	**37.53%**	**31.49%**	**13.50%**	**17.48%**	

Sources: City of San Fernando; Willdan Financial Services

The resulting functionalization factors that appear at the bottom of Figure 3-6 are utilized to allocate system operating and capital costs to each customer class based on the each class' demand on the system. As an example, the Residential customer class accounts for 70.8% of the City's water consumption; therefore they are allocated 70.8% of theTotal Base Functionalized Costs. Base variable related costs represent 37.53% of Total Revenue Requirements.

Rate Design Balance

While Prop 218 requires a cost of service nexus, AB 2882 recognizes that water is a scarce resource and provides the ability to discourage wasteful use of water through price signaling and other measures. Willdan balances Prop 218 and AB 2882 in the design of the rate structure to meet the City's rate setting objectives to be consistent with cost of service principles and conservation objectives.

Rate Design Analysis

The final step of the rate study is the design of the water rates to collect the necessary level of revenue determined in the revenue requirement analysis, while encouraging the efficient use of water. During this analysis, consideration is given to both the level of rates and the structure of the rates. This section reviews the proposed water rate design for the City.

Criteria and Considerations

In determining the appropriate rate level and structure, Willdan, in conjunction with City staff, analyzed various generated financial scenarios concerning the proposed adjustments and the implications attributed to those decisions.

A simplified list of some of the design considerations that were reviewed is listed:

- Clear and understandable rates
- Easily administered
- Encourage efficient use of water
- Revenue stability (month to month and year to year)
- Efficient allocation of resources
- Capital Improvement Financing (improving the existing system)
- Fair and equitable (cost-based) rates

Every consideration has merit and plays an important role in a comprehensive rate study. When developing the City's proposed rates all of the aforementioned criteria were taken into consideration. Determining the appropriate balance is crucial, as some of the criteria sometime conflict with one another. In designing rates, there will always be a balance between the various objectives; however, we attempt to ensure the proposed rates meet all of the leading objectives of the City.

Proposed Rate Structure Adjustments

Conservation

In addition to a cost-based approach, a secondary objective of the City is to encourage water conservation through design and implementation of the new rate and structure. Beyond the results from the previous two steps, Willdan and the City discussed changes to the rate structure to disincentives wasteful water use. The proposed rate structure enables the City to encourage conservation, while reducing the burden on those already conserving. By matching the consumption blocks to consumption levels, The City should be able to achieve their conservation goals. To be consistent with Prop 218 and AB 2882, the first tier consumption allotment is based on a efficient indoor water use of 55 gallons per day per capita. The second tier consumption allotment is 110 gallons per day per capita which based on double the efficient indoor water use. The third tier covers all consumption above the combined allotments of the first and second tiers. This rate structure provides a reasonable allocation of water and reflects the cost nexus between source of supply and the higher cost associated with greater demand.

Summary of Water Rate Study

Throughout the process of the water rate study, many renditions and scenarios were considered. Presented below is the culmination of numerous analyses and discussions. Figure 3-8 recaps the proposed monthly fixed base charge rate and Figure 3-9 summarizes the variable charges by customer class as designed in this study. The variable commodity charges represent 37.53% (Base Costs) and 31.49% (Max Day Costs) of the total revenue requirements as shown in Figure 3-4. The variable cost is divided by each customer classes projected annual consumption to determine the commodity charge.

In the cost of service analysis, the revenue requirements are separated out between fixed and variable costs. The Monthly Combined Fixed Charge is combination of following two charges: The monthly fixed customer charge and the representative fixed monthly meter charge based on the size of the meter. In determining the monthly fixed customer cost charges, customer costs which represent 13.50% of the total revenue requirements are divided by the total number of active customer accounts. In determining the monthly fixed meter charges, meter & services costs which represent 17.48% of the total revenue requirements are divided by the total number of equivalent meters.. Similar to variable costs, costs associated with meters and services are spread using meter equivalencies because a bigger meter has a higher capacity and total flow rate. The service demands that bigger meters with higher capacity and total flow rate place on the Utility cause higher maintenance costs. The total number of equivalent meters are determined using AWWA meter equivalency ratios represented in Figure 3-8.

A prerequisite to the calculation of residential tiered commodity charges, is analyzing consumption data to determine the amount that falls into each of the three tiers. A tiered analysis was conducted for the residential customer class as shown in Figure 3-7. Block 1 rates are determined by taking total base variable cost component of the revenue requirements divided by the amount of projected consumption (based on actual) representive of the tier 1 allotment [(block 1 consumption). Block 2 rates are determined by taking the total base and peak variable cost component of the revenue requirements allocated to tier 2 divided by the amount of consumption representative of the tier 2 allotment [(block 2

consumption)]. Finally, Block 3 rates are determined by taking the total base and peak variable cost component of the revenue requirements allocated to tier 3 divided by the amount of consumption representative of consumption above the tier 2 allotment [(block 3 consumption)].

Figure 3-7: Residential Tiered Analysis

			Consumption	373,163	239,607	318,134
			% of Consumption	40%	26%	34%
			Peak Factor	1.00	1.72	2.85
		Base - Variable		Residential Tiers - Variable		
Description	Total Water Expenses	Base	Max Day	Tier 1	Tier 2	Tier 3
				9	9	12
Residential Share of Variable Cost Components		26.6%	22.6%			
TOTAL ALLOCATION	3,517,816	1,340,178	1,099,128	333,202	434,743	770,063
			Rate per unit	0.89	1.81	2.42

The non-residential commodity charges are determined by taking the total base and max day variable cost components divided by the projected annual consumption.

The total cost of serving each customer class is determined by distributing each of the utility cost components among the user classes based upon the respective service requirements (demand) of each customer class. Therefore, a true cost of service rate study enables a water utility to adopt rates based on the true costs to each user class. The purposes of this water utility cost of service study include: 1) The Proportional allocation of the costs of service to users and 2) theDerivation of unit costs to support the development of water rates.

Figure 3-8: Monthly Fixed Water Charge Rates

		FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
CUSTOMER COSTS						
Total Customer Costs		$ 422,031	$ 474,407	$ 522,275	$ 574,972	$ 632,987
Number of Accts		4,731	4,779	4,826	4,875	4,923
Monthly Customer Cost Charge per Account		$ 7.43	$ 8.27	$ 9.02	$ 9.83	$ 10.71
METER AND SERVICES COSTS						
Total Meter and Services Costs		$ 546,651	$ 614,492	$ 676,494	$ 744,753	$ 819,898
Number of Equivalent Meters		7,416	7,490	7,565	7,640	7,717
Monthly Meter Charge per 5/8" - 3/4" Meter		$ 6.14	$ 6.84	$ 7.45	$ 8.12	$ 8.85
Meter Size	AWWA Equivalent Meter Factor					
5/8", 3/4"	1.0	$ 6.14	$ 6.84	$ 7.45	$ 8.12	$ 8.85
1"	2.5	15.36	17.09	18.63	20.31	22.14
1 1/2"	5.0	30.72	34.19	37.26	40.62	44.27
2"	8.0	49.14	54.70	59.62	64.98	70.83
3"	16.0	98.29	109.39	119.24	129.97	141.67
4"	25.0	153.58	170.93	186.31	203.08	221.35
6"	50.0	307.15	341.85	372.62	406.15	442.71
TOTAL COMBINED MONTHLY FIXED CHARGE						
Meter Size	AWWA Equivalent Meter Factor					
5/8", 3/4"	1.0	$ 13.58	$ 15.11	$ 16.47	$ 17.95	$ 18.68
1"	2.5	22.79	25.37	27.65	30.14	31.96
1 1/2"	5.0	38.15	42.46	46.28	50.44	54.10
2"	8.0	56.58	62.97	68.64	74.81	80.66
3"	16.0	105.72	117.67	128.26	139.80	151.50
4"	25.0	161.01	179.20	195.33	212.91	231.18
6"	50.0	314.58	350.12	381.64	415.98	452.54

Sources: City of San Fernando; Willdan Financial Services.

Figure 3-9: Proposed Commodity Charges

Description	FY 2011-2012	FY 2012-2013	FY 2013-2014	FY 2014-2015	FY 2015-2016
Residential					
Block 1 Rate per hcf (0-9 hcf)	$ 0.89	$ 1.00	$ 1.11	$ 1.20	$ 1.31
Block 2 Rate per hcf (10-18 hcf)	1.81	2.04	2.25	2.45	2.67
Block 3 Rate per hcf (18+ hcf)	2.42	2.72	3.00	3.27	3.56
Non-Residential	1.62	1.82	2.00	2.18	2.38

Sources: City of San Fernando; Willdan Financial Services.

Impact of Revenue Increase

In Fiscal Year 2011/2012, the proposed 9% increase in required revenue does not directly correlate to a 9% increase in rates. The cost of service analysis and, in residential's case, the restructuring of the consumption blocks dictate the actual adjustments to the rates.

Figure 3-9 details a comparison of the City's existing rates with the proposed single-family rates (rate increase effective January 2012). Based on the State's 2020 goal of 55 gallons per capita per day for indoor usage, the average indoor gallons per day (gpd) for a single-family residential (SFR) home is 223 gallons per day. Given the household density of 4.05, this calculates to be a monthly indoor consumption of 9 hcf for an average single-family residence. The typical average monthly consumption for a San Fernando single-family residence which includes consumption for indoor and irrigation needs is 18 hcf. As revealed in the comparison below, residential customers that are efficient water users are projected to see a slight reduction in their monthly water bill. Figure 3-10 details a comparison of the City's existing rates with the proposed non-residential rates (rate increase effective January 2012).

Figure 3-10: Comparative Water Bills - Residential

2011/12 Proposed Block 1 Consumption Rate per hcf	**(0-9 hcf)**	**$ 0.89**
2011/12 Proposed Block 2 Consumption Rate per hcf	**(10-18 hcf)**	**$ 1.81**
2011/12 Proposed Block 3 Consumption Rate per hcf	**(18+ hcf)**	**$ 2.42**

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Block 1 Consumption Charge	Proposed Block 2 Consumption Charge	Proposed Block 3 Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
9	$ 12.68	$ 10.71	$ 23.39	$ 13.58	$ 8.04	$ -	$ -	$ 21.61	$ (1.78)
18	12.68	22.08	34.76	13.58	8.04	16.33	-	37.94	3.18
25	12.68	31.95	44.63	13.58	8.04	16.33	16.94	54.89	10.26
40	12.68	53.10	65.78	13.58	8.04	16.33	53.25	91.19	25.41
50	12.68	67.20	79.88	13.58	8.04	16.33	77.46	115.40	35.52

Sources: City of San Fernando; Willdan Financial Services.

2012/13 Proposed Block 1 Consumption Rate per hcf	**(0-9 hcf)**	**$ 1.00**
2012/13 Proposed Block 2 Consumption Rate per hcf	**(10-18 hcf)**	**$ 2.04**
2012/13 Proposed Block 3 Consumption Rate per hcf	**(18+ hcf)**	**$ 2.72**

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Block 1 Consumption Charge	Proposed Block 2 Consumption Charge	Proposed Block 3 Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
9	$ 12.68	$ 10.71	$ 23.39	$ 15.11	$ 9.03	$ -	$ -	$ 24.14	$ 0.75
18	12.68	22.08	34.76	15.11	9.03	18.36	-	42.50	7.74
25	12.68	31.95	44.63	15.11	9.03	18.36	19.05	61.55	16.92
40	12.68	53.10	65.78	15.11	9.03	18.36	59.87	102.37	36.59
50	12.68	67.20	79.88	15.11	9.03	18.36	87.08	129.58	49.70

Sources: City of San Fernando; Willdan Financial Services.

2013/14 Proposed Block 1 Consumption Rate per hcf	(0-9 hcf)	$ 1.11
2013/14 Proposed Block 2 Consumption Rate per hcf	(10-18 hcf)	$ 2.25
2013/14 Proposed Block 3 Consumption Rate per hcf	(18+ hcf)	$ 3.00

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Block 1 Consumption Charge	Proposed Block 2 Consumption Charge	Proposed Block 3 Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
9	$ 12.68	$ 10.71	$ 23.39	$ 16.47	$ 9.95	$ -	$ -	$ 26.42	$ 3.03
18	12.68	22.08	34.76	16.47	9.95	20.21	-	46.63	11.87
25	12.68	31.95	44.63	16.47	9.95	20.21	20.97	67.60	22.97
40	12.68	53.10	65.78	16.47	9.95	20.21	65.91	112.54	46.76
50	12.68	67.20	79.88	16.47	9.95	20.21	95.88	142.51	62.63

Sources: City of San Fernando; Willdan Financial Services.

2014/15 Proposed Block 1 Consumption Rate per hcf	(0-9 hcf)	$ 1.20
2014/15 Proposed Block 2 Consumption Rate per hcf	(10-18 hcf)	$ 2.45
2014/15 Proposed Block 3 Consumption Rate per hcf	(18+ hcf)	$ 3.27

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Block 1 Consumption Charge	Proposed Block 2 Consumption Charge	Proposed Block 3 Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
9	$ 12.68	$ 10.71	$ 23.39	$ 17.95	$ 10.84	$ -	$ -	$ 28.79	$ 5.40
18	12.68	22.08	34.76	17.95	10.84	22.03	-	50.83	16.07
25	12.68	31.95	44.63	17.95	10.84	22.03	22.86	73.69	29.06
40	12.68	53.10	65.78	17.95	10.84	22.03	71.85	122.67	56.89
50	12.68	67.20	79.88	17.95	10.84	22.03	104.50	155.33	75.45

Sources: City of San Fernando; Willdan Financial Services.

2015/16 Proposed Block 1 Consumption Rate per hcf	(0-9 hcf)	$ 1.31
2015/16 Proposed Block 2 Consumption Rate per hcf	(10-18 hcf)	$ 2.67
2015/16 Proposed Block 3 Consumption Rate per hcf	(18+ hcf)	$ 3.56

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Block 1 Consumption Charge	Proposed Block 2 Consumption Charge	Proposed Block 3 Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
9	$ 12.68	$ 10.71	$ 23.39	$ 18.68	$ 11.82	$ -	$ -	$ 30.50	$ 7.11
18	12.68	22.08	34.76	18.68	11.82	24.01	-	54.52	19.76
25	12.68	31.95	44.63	18.68	11.82	24.01	24.92	79.43	34.80
40	12.68	53.10	65.78	18.68	11.82	24.01	78.31	132.83	67.05
50	12.68	67.20	79.88	18.68	11.82	24.01	113.91	168.43	88.55

Sources: City of San Fernando; Willdan Financial Services.

Figure 3-11: Comparative Water Bills – Non-Residential

2011/12 Proposed Consumption Rate per hcf **1.62**

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
10	$ 12.68	10.80	$ 23.48	$ 13.58	$ 16.16	$ 29.74	$ 6.26
16	12.68	19.26	31.94	13.58	$ 25.86	39.43	7.49
20	12.68	24.90	37.58	13.58	$ 32.32	45.90	8.32
25	12.68	31.95	44.63	13.58	$ 40.40	53.98	9.35
40	12.68	53.10	65.78	13.58	$ 64.64	78.22	12.44
50	12.68	67.20	79.88	13.58	$ 80.80	94.38	14.50
75	12.68	102.45	115.13	13.58	$ 121.20	134.78	19.65

Sources: City of San Fernando; Willdan Financial Services.

2012/13 Proposed Consumption Rate per hcf **1.82**

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
10	$ 12.68	10.80	$ 23.48	$ 15.11	$ 18.17	$ 33.28	$ 9.80
16	12.68	19.26	31.94	15.11	29.07	44.18	12.24
20	12.68	24.90	37.58	15.11	36.34	51.45	13.87
25	12.68	31.95	44.63	15.11	45.42	60.53	15.90
40	12.68	53.10	65.78	15.11	72.67	87.78	22.00
50	12.68	67.20	79.88	15.11	90.84	105.95	26.07
75	12.68	102.45	115.13	15.11	136.26	151.37	36.24

Sources: City of San Fernando; Willdan Financial Services.

2013/14 Proposed Consumption Rate per hcf **2.00**

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
10	$ 12.68	10.80	$ 23.48	$ 16.47	$ 20.00	$ 36.47	$ 12.99
16	12.68	19.26	31.94	16.47	32.00	48.47	16.53
20	12.68	24.90	37.58	16.47	40.01	56.48	18.90
25	12.68	31.95	44.63	16.47	50.01	66.48	21.85
40	12.68	53.10	65.78	16.47	80.01	96.48	30.70
50	12.68	67.20	79.88	16.47	100.01	116.48	36.60
75	12.68	102.45	115.13	16.47	150.02	166.49	51.36

Sources: City of San Fernando; Willdan Financial Services.

2014/15 Proposed Consumption Rate per hcf **2.18**

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
10	$ 12.68	10.80	$ 23.48	$ 17.95	$ 21.80	$ 39.76	$ 16.28
16	12.68	19.26	31.94	17.95	34.88	52.84	20.90
20	12.68	24.90	37.58	17.95	43.61	61.56	23.98
25	12.68	31.95	44.63	17.95	54.51	72.46	27.83
40	12.68	53.10	65.78	17.95	87.21	105.16	39.38
50	12.68	67.20	79.88	17.95	109.02	126.97	47.09
75	12.68	102.45	115.13	17.95	163.52	181.48	66.35

Sources: City of San Fernando; Willdan Financial Services.

2015/16 Proposed Consumption Rate per hcf **2.38**

Monthly Consumption	Current Monthly Meter Rates	Current Rates Consumption Charge	Total Current Charge	Proposed Monthly Meter Charge	Proposed Consumption Charge	Total Proposed Charge	Increase/ (Decrease)
10	$ 12.68	10.80	$ 23.48	$ 18.68	$ 23.77	$ 42.45	$ 18.97
16	12.68	19.26	31.94	18.68	38.02	56.71	24.77
20	12.68	24.90	37.58	18.68	47.53	66.21	28.63
25	12.68	31.95	44.63	18.68	59.41	78.10	33.47
40	12.68	53.10	65.78	18.68	95.06	113.74	47.96
50	12.68	67.20	79.88	18.68	118.83	137.51	57.63
75	12.68	102.45	115.13	18.68	178.24	196.92	81.79

Sources: City of San Fernando; Willdan Financial Services.