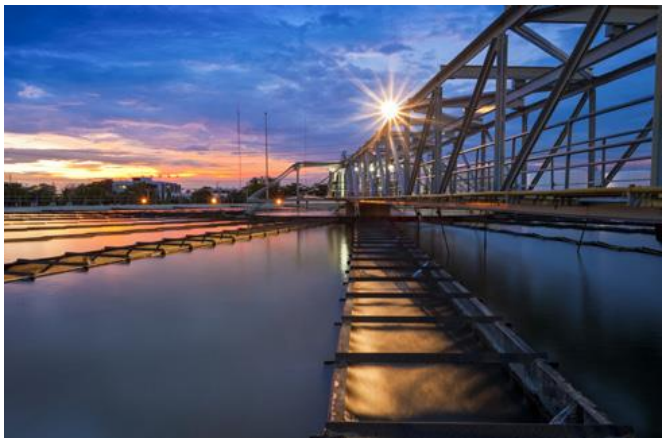
City of Chula Vista, California

Report

Sewer Rate Study



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Section 1 – Executive Summary

The City of Chula Vista (City) provides sewer service to a population of approximately 275,000. The City's sewer enterprise fund is self-supporting and funds operations and maintenance (O&M) costs, capital projects including routine repair and replacement of aging system components of the sewer system. Sewer user rate revenue provides stable secure revenue for the utility and is the primary revenue source. Revenue from sewer user rates cannot be used for any other general or special purpose. The main objective of this study was to develop a ten-year financial plan with a focus on the first five years, that evaluated the sufficiency of projected revenue over the ten-year projection period to cover the costs of operating and maintaining the utility. The financial plan includes recommended rate revenue adjustments to ensure continued revenue sufficiency and stability. These are discussed in further detail in the body of this report. The five-year plan is covered in the balance of this report while the full ten-year plan can be found in the appendices.

1.1 Study Overview

The City contracted with Willdan Financial Services ("Willdan"), to complete a sewer rate study comprised of the following objectives:

- **Ten-Year Financial Plan with a Five-Year Focus:** Identify the revenues required by the utility to meet the respective annual costs of operation and system maintenance.
- **Recommendations for potential rate increases:** Identify where adjustments in future rates may be necessary to generate sufficient revenue for system objectives and costs.

1.2 Financial Planning Period

This study develops a 10-year financial plan but focuses on the current year plus the first 5-years (fiscal years 2021-22 through fiscal year 2025-26), identifying costs such as operating expenses (including costs related to the San Diego Metropolitan Wastewater Authority Point Loma Treatment Plant), capital improvement costs and debt financing (should future debt be issued). In addition, a broader outlook (fiscal years 2021-22 through fiscal year 2029-30) is reviewed and included to ensure appropriate reserve balances are met based on industry standards and the City of Chula Vista's fiscal policies.

1.3 Financial Management Goals of the City

The establishment of specific financial management goals of a utility is a key step in developing financial plans that are consistent in approach, based on sound policies, and that will ensure the financial health of the utility remains strong. The City has established reserve policies for the sewer utility to help ensure financial stability as well as the continued ability to provide sewer service. The City maintains the following sewer utility funds:

- *Sewer Services Revenue Fund (Fund 414)* – The fund is mainly for operations and maintenance of system assets but can also be used to meet capital and planning needs.
- *Sewer Facilities Replacement (SFR) (Fund 428)* – This fund is for capital projects related to the rehabilitation and replacement of the City's collection system.
- *Trunk Sewer Capital Fund (Fund 413)* – This fund includes capacity fees paid to the City and represents the cost of buying into the system for new customers or increased flows. The funds are to be used to pay the costs and expenses associated with repairing or replacing large trunk sewer facilities and to enhance the sewer system. With City Council's approval this fund can be used for regional treatment facilities.
- *Sewer Income Fund (Fund 411)* **–** Revenue deposited into this fund is used to pay for lateral connection infrastructure associated with new connections to the system. New customers pay for the cost of the connection. Revenues collected for this fund cover the City's cost to construct the public wastewater system for new properties through permit fees. These costs are calculated separately. This fund was not included in the study evaluation.
- *Sewer Development Impact Fee Fund (Sewer DIF) (Fund 430)* **–** These funds cover capital projects triggered by new development, including infill or redevelopment. The revenues and expenses associated with DIF related projects in this fund are DIF funds and are addressed in separate studies and not included in this study.
- *Strom Drain Fee (Fund 301)* – These funds are used to operate and maintain the City's storm drainage system. This fund was not included in the study.

Target reserve policies have been identified within individual funds that the City strives to achieve and maintain. The current financial management goals of the City are described below in terms of cash reserve targets. By meeting the cash reserve targets (identified below) the implication is that the revenues and expenses are also balanced.

Cash Reserve Targets – Sewer Revenue Fund (Fund 414)

In December 2013, City Council approved a reserve policy for the Sewer Services Revenue Fund or Fund 414, which includes five reserve categories; summarized in Table 1-1.

Table 1-1
Summary of Reserve Policy for the Sewer Service Revenue Fund (Fund 414)

Reserve	Purpose	Minimum Balance	Maximum Balance
Working Capital	▪ Manage differences in revenue and expense cycles	▪ 90 days of operating expenses ($9.6 million in 2021)	▪ 125% of minimum balance ($12.0 million in 2021)
Rate Stabilization	▪ Protect against unforeseen fluctuations in revenues or expenses	▪ 90 days of operating expenses ($9.6 million in 2021)	▪ 125% of minimum balance ($12.0 million in 2021)
Emergency	▪ Provide funding for emergency asset replacement and insurance deductibles	▪ 5% of operating expenses ($1.9 million in 2021)	▪ 125% of minimum balance ($2.4 million in 2021)
Vehicle Replacement	▪ Levelize cost impacts of vehicle replacement needs	▪ 2% of operating expenses ($779 thousand in 2021)	
EPA Permit Renewal Liability	▪ Accrue funding for PLWTP upgrade (recommended scenario)	▪ Prior annual transfer target $1.8 million ▪ Recommended for removal	

As of June 30, 2020, Fund 414 had a balance of $48.1 million.

Cash Reserve Targets – Sewer Facilities Replacement (SFR) (Fund 428)

As of June 30, 2020, the Sewer Facilities Replacement Fund (Fund 428) or SFR had a balance of $13.6 million. The generally accepted industry standard reserve target for this type of fund is based on the annual revenues with the target collection equal to the annual depreciation of its infrastructure. Revenue equal to annual depreciation helps to ensure that infrastructure is kept reliable as system components age and can help prevent significant unexpected repairs which can be more costly than routine repair and replacements of aging system components paid for from an adequately funded annual capital replacement and rehabilitation reserve. The last rate study set a target for the fund at starting point of 54% of the annual depreciation.

The Sewer Fund depreciation for FY 2019-20 was $6.5M (per the 2020 Comprehensive Annual Financial Report (CAFR) page 46). The revenue collected for this fund in FY 2019-20 was $2.4 million which represents 36.9% of annual depreciation. This amount falls short both of the goal of matching annual

depreciation as well as the recommended target from the prior study[1]. To achieve the target of 54% of annual depreciation the City would have needed to generate $3.7 million in revenues.

Cash Reserve Targets – Trunk Sewer Capital Fund (Fund 413)

The Trunk Sewer Capital Fund represents revenues collected and held from the payment of fees to offset the cost to buy into the City of Chula Vista's sewer system. These funds can be used for enlargement of sewer facilities and planning of area-wide sewage treatment and/or reclamation systems or facilities. With City Council approval, the money can be used for construction of sewage collection or treatment facilities. The available cash balance of the Trunk Sewer Capital Fund as of June 30, 2020 was $64.8 million. Since the fund represents the cost to buy into the sewer system, no cash reserve target exists.

1.4 Findings and Recommendations

In developing the financial plan for the sewer utility, it was determined that if the following recommendations are implemented, the sewer rates charged to customers can remain unchanged for Fiscal Year 2021-22 followed by moderate annual increases between 4.5% to 5.5% for the remaining 9 years of the study period (through Fiscal year 2029-30). The recommendations are:

1. Implement Metro Costs Pass Through – The California Government Code Section 53756 allows for adjustments that pass through the increases and decreases in wholesale charges for sewage treatment.
2. Rescind the Permit Liability Reserve (or EPA Liability Reserve or EPA Reserve) - The implementation of the Metro Costs Pass Through along with other factors described in more detail in later sections allow for the removal of the EPA Liability Reserve. The amount of revenue collected to meet this reserve was targeted at $1.8 million based on assumptions from the 2013 Rate Study. Removal of this reserve amount allows for more available cash and makes possible the stabilization of customer rates.
3. Increase the Allocation of the Service Charge Revenue to SFR Fund – The reserve goal of the SFR fund was increased to meet industry standards. The last rate study had a goal of meeting approximately half of the industry reserve standards. Under the revised goal, more money is needed for this fund on an annual basis. Thus, the percent of the service charges going into the

[1] City of Chula Vista Sewer Cost-of-Service Rate Study November 2013 Prepared by FCS Group.

SFR fund from the service charges collected from the customers increases. This also means that less service charge revenue is allocated to Fund 414.

4. Request Council authorize the use of Trunk Sewer Capital Reserve Fund – The Trunk Sewer Capital Reserve Fund can be used for capital expenses of the sewer system with City Council approval. The City is working to keep sewer rates reasonable and fair in compliance with Proposition 218. In the last two years of the five-year study FY 2024-25 and FY 2025-26, the released reserve amount from the EPA Liability Reserve has been depleted and with expenses outpacing revenues the reserve targets cannot be met without large increases to rates. Thus, it is recommended that with City Council approval, money from Fund 413 be used to pay for regional capital sewer expenses charged by Metro. The result is that less money is needed from Fund 414 to pay for the City of San Diego Metro costs and the fund can maintain the target balances.

As noted in Table 1-1, the EPA permit reserve is recommended for removal. When this reserve was initially adopted, (with an initial target of $1.8 million) an assumption was made that the City of San Diego would cash fund the capital costs associated with the Point Loma Wastewater Treatment Plant upgrades for secondary treatment. The reserve was intended to offset the City's share of the upgrade costs. In the time since the reserve was established, the City of San Diego has provided the Participating Agencies (on an annual basis) five-year projections for the Agencies contributions. In these projections, San Diego is showing their own debt servicing. San Diego's change in approach to funding the treatment plant upgrades eliminates the need for the City to maintain a large cash reserve on hand to pay their one-time share of capital costs. Instead, the City's share of the upgrade costs is budgeted annually in the financial plan. Another reason for eliminating the reserve is that this study recommends a pass-through adjustment mechanism to account for annual fluctuations in Metro Costs which are beyond the City's control. The pass through is discussed in more detail later in this report.

It is recommended that the City update the cashflow portion of this study each year. This will help to ensure projected revenue remains on track over time and is sufficient to fund projected expenses going forward. This is important as assumptions made during this analysis may change and have a material impact on the analysis. A summary of the projected rate revenue increases, fund goals and cash balances are illustrated in Table 1-2.

Table 1-2
Projected Rate Revenue Increases and Cash Balances
Fiscal Years Ending June 30

Fiscal Year	Sewer Rate Revenue Increases	Target Balance [(1)] SSR Fund 414	Actual Ending Balance SSR Fund 414	Target Revenues SFR Fund 428	Actual Revenues SFR Fund 428	Actual Ending Balance TSC Fund 413
		(In Thousands)				
2021-22	0.0%	$21,535	$37,661	$7,135	$1,801	$64,837
2022-23	4.5%	22,055	33,503	7,345	2,306	64,837
2023-24	5.0%	22,579	30,016	7,563	2,871	64,837
2024-25	5.0%	23,108	33,721	7,786	3,536	58,837
2025-26	5.5%	24,324	31,720	8,016	4,303	58,837

(1) It is assumed that in FY 2021-22 the recommendations are implemented. One recommendation is the removal of the EPA Liability Reserve which is why the actual ending balance for Fund 414 appears to be large compared to the target balance in Fund 414.

It should be noted that the City's current sewer rates developed through the cost-of-service analysis in the prior report[2] appear reasonable and meet the requirements of Proposition 218. A more detailed summary of the rate study is presented in the balance of this report.

[2] City of Chula Vista Sewer Cost-of-Service Rate Study November 2013 Prepared by FCS Group.

Section 2 - Introduction

2.1 Introduction

Willdan Financial Services ("Willdan") was retained by the City of Chula Vista, California ("City") to conduct a Sewer Rate and Financial Study ("Rate Study") for the City's sewer utility ("Utility"). This report details the results of the Rate Study analysis for the forecast period, from the current year through the next five years, fiscal year (FY) 2021-22 through FY 2025-26, the results of which are presented in this Rate Study Report.

The results of the Rate Study include a 10-year financial plan and suggested rate adjustments designed to provide revenue necessary to over time be sufficient to fund the ongoing operating, maintenance and capital costs necessary to operate the City's sewer utility, including the costs of treatment incurred by the City from the San Diego Metropolitan Wastewater Authority, while striving to meet the financial requirements and goals set forth by the City for the sewer enterprise fund.

Based on discussion with City staff, this report presents the recommended financial plan and adjustments to meet the City's objectives.

2.2 Goals and Objectives

The primary goal of the Rate Study was to develop a financial plan that evaluated the adequacy of the current revenue streams to meet ongoing costs (operations & maintenance and capital), and to maintain industry standard financially prudent cash reserves. More specifically the Rate Study was undertaken to:

- Conduct the analysis in accordance with industry standards consistent Water Environment Federation ("WEF") guidelines; and
- Develop a financial plan consistent with industry standards and best practices while recognizing the needs specific to the City.

2.3 Overview of the Rate Study Process

The study involved a determination of the adequacy of system revenues to meet system expenses during the study forecast period. The result of this analysis, known as the Revenue Sufficiency Analysis, is an assessment of the ability of the existing revenue stream from sewer service charges (rates) to meet the

projected financial requirements of the system during the forecast period and, to the extent required, the identification of the magnitude and timing of any required rate adjustments.

2.4 Organization of this Report

This Rate Study presents an overview of the financial planning concepts employed in the development of the analysis contained here. The analysis is followed by a discussion of the data, assumptions and results associated with each component of the analysis. Finally, appendices with detailed schedules are presented for further investigation and insight into the data, assumptions and calculations which drive the results presented in this Rate Study. The report is organized as follows:

- Section 1 – Executive Summary
- Section 2 – Introduction
- Section 3 – Overview of Financial Planning Principles, Processes, and Issues
- Section 4 – Financial Plan Development and Results
- Section 5 – Conclusions and Recommendations
- Appendix A – Financial Plan Summary
- Appendix B – Reserve Fund Policies
- Appendix C – Cash Balances
- Appendix D – System Growth Estimates
- Appendix E – Interest Earnings Assumptions
- Appendix F – Metro Cost Projections
- Appendix G – Cost Escalation Factors
- Appendix H – ENR 20 Cities Index

The following abbreviations are used throughout this report:

CAFR – Comprehensive Annual Financial Report

CIP – Capital Improvement Plan

ENR CCI – Engineering News Record Construction Cost Index

FY – Fiscal Year

DSC – Debt Service Coverage

Metro – City of San Diego Metropolitan Wastewater

O&M – Operations and Maintenance Expense

PLWTP – Point Loma Wastewater Treatment Plant

PUD – City of San Diego Public Utilities Department

SFR – Sewerage Facility Replacement

USEPA – United States Environmental Protection Agency

2.5. Reliance on Data

During this project, the City (and/or its representatives) provided Willdan with a variety of technical information, including capital cost and demographic data. This data was used by Willdan in the process of developing the financial plans and recommended rate adjustments. Willdan did not independently assess or test for the accuracy of such data, historic or projected, but worked with City staff to better verify and understand the data and its sources and ensure it was incorporated appropriately into the analysis. We believe it to be the best available information at the time of the study.

Section 3 – Overview of Financial Planning Principles, Processes, and Issues

3.1 Introduction

The rate study process for the sewer utility begins with a determination of the adequacy of system revenues to meet system expenses during the study forecast period. The result of this analysis, known as the Revenue Sufficiency Analysis, is an assessment of the ability of the existing revenue stream to meet the projected financial requirements of the system during the forecast period and, to the extent required, the identification of the magnitude and timing of any required rate adjustments.

3.2 The Revenue Sufficiency Process

In order to determine whether existing rates and charges will generate sufficient revenue to meet the fiscal requirements of the sewer utility, a calculation of the annual rate revenue requirements must be completed. A Revenue Sufficiency Analysis compares the sufficiency of revenues under existing rates to meet forecasted costs for operations and maintenance expenses (O&M), debt service (if applicable), and capital, as well as the accumulation and maintenance of reasonable cash reserves. The purpose of the comparison is to determine the adequacy of the existing rates to recover the utility's costs. The analysis of the maintenance of the cash reserves includes an examination of the projected reserve balance as compared to the objectives outlined in the City's reserve policies.

The process employed in the Revenue Sufficiency Analysis involves a rigorous review of operating, maintenance and capital budgets for the utility, and results in the identification of revenue requirements of the system, such as operating expenses, capital expenses (minor and major), transfers in and out, and the maintenance of both restricted and unrestricted reserves at appropriate levels. These revenue requirements are then compared to the total sources of funds available during each year of the forecast period to determine the adequacy of projected revenues to meet projected revenue requirements. To the extent that the existing revenue stream is projected to be insufficient to meet the annual revenue requirements of the system during the projection period, a series of recommended rate revenue increases are calculated which if enacted, would provide revenue sufficient to meet those needs.

3.2.1 Determination of the Revenue Requirements

Considerations in Setting Revenue Requirements

There are a multitude of considerations, ranging from financial and policy, to political to legal that must be analyzed or discussed during the revenue requirements process of a rate analysis. This section provides an overview of the considerations that are reviewed during this process.

Capital Budgeting and Financing

Capital needs are identified in the City's Sewer Capital Improvement Plan (CIP) which is updated on an annual basis. As part of its budget and planning process, the City identified capital improvements that are necessary for the continued operation of the sewer system. Capital improvement projects typically use money from the Sewer Facility Replacement Fund which receives revenue from a portion of the sewer service charges.

Capital Funding: Debt vs. PAYGO

The selection of the appropriate funding strategy for capital projects is primarily a policy decision between use of cash ("Pay-as-you-go financing" or PAYGO), the issuance of debt, or a combination. PAYGO is the use or build-up of cash to fund capital improvements. With debt financing, capital improvements are funded with borrowed funds (usually through the issuance of bonds) with the obligation of repayment, typically with interest, in future years. Development of an optimal capital financial plan depends on the definition of optimal. Each funding mechanism has a different impact on sewer rates in the short and long run, different net present values, risks, and legal obligations. Due to the borrowing costs associated with debt, cash funding can be cheaper in the end (by not having to incur interest costs on borrowed money); however, debt typically ensures greater generational equity for larger and longer lasting capital projects (by contributing to annual debt payments, new customers who connect to the system help pay for the infrastructure that was installed prior to their arrival, but still benefits them)[3].

The City, as is typical for a public utility, operates its sewer utility on a "cash basis". Under the "cash basis" approach, revenues and expenses are recognized at the time physical cash is received or paid out.

[3] *Willdan Financial Services is not advising or recommending any action be taken by the recipient of this information with respect to any prospective, new, or existing municipal financial products or issuance of municipal securities (including with respect to the structure, timing, terms and other similar matters concerning such financial products or issues). The issuance, timing and structure of new debt issues should be evaluated by the City and their financial advisor.*

Revenue requirements are determined for a specified period of time (in the case of the City an annual fiscal year), by summing the total anticipated expenses to be paid out during the fiscal year. Where cash flows and balances are insufficient, the revenue requirements analysis recommends the needed additional cash flows to meet all funding goals. The two primary categories of expenses are as follows:

- Operations and Maintenance (O&M) expenses, such as salaries and benefits of City utility personnel, third party costs such as treatment costs billed to the City from the San Diego Metro Wastewater Authority, transfers out, and reserves; and
- Capital expenses, such as the annual capital improvement program.

3.3 Determination of Revenue Requirements

In order to complete the revenue sufficiency process, it is first necessary to identify the utility's costs (revenue requirements).

The process started by identifying the sewer funds, their target balances based on best practices and/or the City's fiscal policies, and their actual balances at the beginning of the projection period. There are five sewer funds and a storm drainage fund, each set up with a different purpose, and which are briefly described above in Section 1.3.

Sewer Funds

- *Sewer Services Revenue Fund (Fund 414)*
- *Sewer Facilities Replacement (SFR) (Fund 428)*
- *Trunk Sewer Capital Fund (Fund 413)*
- *Sewer Income Fund (Fund 411) – Not included in this study*
- *Sewer Development Impact Fee Fund (Sewer DIF) (Fund 430) – Not included in this study*
- *Storm Drain Fee Fund (Fund 301) – Not included in this study*

3.4 Financial Management Goals of the City

The establishment of specific financial management goals of a utility is a key step in developing financial plans that are consistent in approach, based on sound policies, and that will ensure the financial health of the utility remains strong. The City has established reserve policies for the sewer utility to help ensure financial stability as well as the continued ability to provide sewer service. The City maintains the following sewer utility funds:

- **Sewer Service Revenue Fund (Fund 414)** – Used to account for a portion of monies collected from the monthly sewer charge and is used for any and all sewer related activities.
- **Trunk Sewer Capital Reserve Fund (413)** – Used to account for sewerage facility participation fees received to develop or modify property which will increase the volume of flow to the City's sewer system. The funds are to be used to pay the costs and expenses associated with repairing or replacing large trunk sewer facilities to enhance the capacity of the sewer system.
- **Sewer Replacement Fund (428)** – Funded via a portion of the monthly sewer service charge. Monies in the fund are restricted for the purpose of paying the costs and expenses associated with the upgrade or replacement of sewerage facilities.

Target reserve policies have been identified within individual funds that the City strives to achieve and maintain. The current financial management goals of the City are described below in terms of cash reserve targets. By meeting the cash reserve targets (identified below) the implication is that the revenues and expenses are also balanced.

3.4.1 Cash Reserve Targets

Cash Reserve Targets – Sewer Revenue Fund (Fund 414)

In December 2013, City Council approved a reserve policy for the Sewer Services Revenue Fund, which is summarized in Table 3-1. The City's full reserve policies can be found in Appendix B.

Table 3-1
Summary of Reserve Policy for the Sewer Service Revenue Fund (Fund 414)

Reserve	Purpose	Minimum Balance	Maximum Balance
Working Capital	▪ Manage differences in revenue and expense cycles	▪ 90 days of operating expenses ($9.6 million in 2021)	▪ 125% of minimum balance ($12.0 million in 2021)
Rate Stabilization	▪ Protect against unforeseen fluctuations in revenues or expenses	▪ 90 days of operating expenses ($9.6 million in 2021)	▪ 125% of minimum balance ($12.0 million in 2021)
Emergency	▪ Provide funding for emergency asset replacement and insurance deductibles	▪ 5% of operating expenses ($1.9 million in 2021)	▪ 125% of minimum balance ($2.4 million in 2020)
Vehicle Replacement	▪ Levelize cost impacts of vehicle replacement needs	▪ 2% of operating expenses ($779 thousand in 2021)	
EPA Permit Renewal Liability	▪ Accrue funding for PLWTP upgrade (recommended scenario)	▪ Prior annual transfer target $1.8 million ▪ Recommended for removal	

As of June 30, 2020, Fund 414 had a balance of $48.1 million.

As noted in Table 3-1, the EPA permit reserve is recommended for removal. When this reserve was initially adopted, an assumption was made that the City of San Diego would cash fund the capital costs associated with the Point Loma Wastewater Treatment Plant upgrades for secondary treatment. The reserve was intended to offset the City's share of the upgrade costs. In the time since the reserve was established, the City of San Diego has provided the Participating Agencies (on an annual basis) with five-year projections for the Agencies contributions. The City of San Diego's annual five-year cost projections to Participating Agencies eliminates the need for the City to maintain a large cash reserve on hand to pay their one-time share of capital costs. Instead, the City's share of the upgrade costs is currently proposed to be budgeted annually in the financial plan. Another reason for eliminating the reserve is that this study recommends a pass-through to account for fluctuations in Metro Costs. The pass through is discussed in more detail later in this report.

Cash Reserve Targets – Sewer Facilities Replacement (SFR) (Fund 428)

As of June 30, 2020, the Sewer Facilities Replacement Fund (Fund 428) or SFR had a balance of $13.6 million. The generally accepted industry standard reserve target for this type of fund is based on the annual revenues with the target annual revenue equal to the annual depreciation of its infrastructure. Revenue equal to annual depreciation helps to ensure that infrastructure is reliable as system components age and can help prevent significant unexpected repairs which can be more costly than an adequately funded annual capital replacement and rehabilitation. The last rate study set initiated a target for the fund at starting point of 54% of the annual depreciation.

The Sewer Fund depreciation for FY 2019-20 was $6.5M (per the 2020 CAFR page 45). The revenue collected for this fund in FY 2019-20 was $2.4 million which represents 36.9% of annual depreciation. To achieve the target of 54% of annual depreciation the City would have needed to generate $3.7 million in revenues.

Cash Reserve Targets – Trunk Sewer Capital Fund (Fund 413)

The Trunk Sewer Capital Fund represents funds from fees paid to offset the cost to buy into the City's sewer system and can be used for enlargement of sewer facilities and planning of area-wide sewage treatment and/or reclamation systems or facilities. With City Council approval, the money can be used for construction of sewage collection or treatment facilities. The cash balance of the Trunk Sewer Capital Fund as of June 30, 2020 was $64.8 million. Since the fund represents the cost to buy into the sewer system, no cash reserve target exists. The 2014 Wastewater Master Plan included an analysis of the capacity fee; no additional evaluation of this fee was included in this study.

Section 4 – Financial Plan Development and Results

4.1 Revenue Sufficiency Analysis

The scope of this study included the development of a sewer financial plan for a 10-year planning period with a focus on the current year plus a 5-year planning period encompassing FY 2021-22 through FY 2025-26. While a longer-range view (10 years) was taken to allow the City to plan for the future, the assumptions made as of the date of this report will change in the future and some of the changes in assumptions may be significant. The City's sewer utility financials should be reviewed and updated regularly (at a minimum on an annual basis) to make adjustments based on changes in the underlying assumptions on which the financial plan was built.

4.1.1 General Methodology

The City operates its sewer utility on a cash basis as is typical for a public utility. Under the cash basis approach, revenues and expenses are recognized at the time physical cash is received or paid out. Revenue requirements are determined for a specified period of time (in the case of the City an annual fiscal year), by summing the total anticipated expenses to be paid out during the fiscal year. Where cash flows and balances are insufficient, the revenue requirements analysis recommends the needed additional cash flows to meet funding goals.

The primary categories of expenses are as follows:

- Operations and Maintenance;
- Anticipated debt service;
- Targeted reserves; and
- Capital expenses.

It should be noted that one of the City's primary expenses included in operations and maintenance is the cost to treat wastewater at the City of San Diego Metropolitan Wastewater facilities (Metro). This accounts for approximately 65% of the City's overall wastewater expenses.

The primary categories of revenue are as follows:

- Sewer Service Charges

- Capacity Fees[4]
- Licenses and Permits
- Revenues From Use of Money and Property

In the development of the revenue projections, certain parameters are utilized including growth in customers and flows.

The City's budget documents are used as the baseline for revenues and expenses, which are then projected over a planning horizon. Growth assumptions and prudent financial planning are fundamental in ensuring adequate rate revenue to promote financial stability.

4.1.2 Data Items

Key data items reviewed, discussed and incorporated into the Revenue Sufficiency Analysis were:

- FY 2020-21 beginning of year cash balances;
- Interest earnings;
- FY 2020-21 adopted budgets;
- Rate Revenue projections;
- Regional Wastewater Disposal Costs/Metro Costs
- Capital improvement needs based on City's plans; and
- General assumptions related to:
  - System growth;
  - Operations and Maintenance (O&M) Escalation Factors.

A discussion of the use of each of the above data items is presented below.

4.1.3 FY 2020-21 Beginning of Year Cash Balance

To better understand the balance of available funds the City's utility had on hand to start the forecast period, a review of the cash balance as of the beginning of FY 2020-21 was conducted and discussed with

[4] The capacity fees are paid into the Trunk Sewer Capital Reserve Fund (Fund 413).

City staff. A summary of the cash balances (cash on hand) associated with the sewer utility enterprise fund for the beginning of FY 2020-21, as adjusted for use in this analysis, are summarized in Table 4-1 below.

Table 4-1
Beginning Cash Balance
Fiscal Year Beginning July 1, 2020

Description	Sewer Service Revenue Fund (414)	Sewerage Facility Replacement Fund (428)	Trunk Sewer: Capital Reserve Fund (413)
Cash Balance	$48,147,276	$13,605,982	$64,836,569

The sewer utility enterprise fund for the end of FY 2019-20 and therefore the beginning of FY 2020-21, as adjusted for use in this analysis, is $126,589,827, and is comprised of the cash balances of Fund 414 – Sewer Service Revenue Fund, Fund 428 – Sewerage Facility Replacement (SFR) Fund and Fund 413 – Trunk Sewer: Capital Reserve Fund. The cash balance of Fund 414 includes the targeted reserves (working capital and rate stabilization, emergency and vehicle replacement) identified by City policy and discussed previously. The cash balance in Fund 413 ($64,836,569) is intended to be used for capital projects to enlarge sewer facilities and planning for area wide sewage or water reclamation projects and with City Council approval can be used for planning, design, or construction of sewage collection or treatment or water reclamation. A further description of cash balances can be found in Appendix C.

4.1.4 Interest Earnings

Through discussions with the City's finance department a 1.0% interest earnings rate was identified as being the appropriate rate to calculate interest earnings on the utility's cash balance (Appendix E).

4.1.5 FY 2020-21 Adopted Budget

Staff provided Willdan with the FY 2020-21 Budget, including associated line-item detail. The line-item budgeted expenses for FY 2020-21 were used as the basis for the projection of future budgetary line-items for the remainder of the forecast period. Cost escalation factors were reviewed by staff and were used to project line-item costs beyond the FY 2020-21 budget. Those factors were applied based on individual line-item cost classifications.

4.1.6 Rate Revenue Projections

For financial planning purposes the financial plan is projected using FY 2020-21 budgeted revenues as the starting point. Charges for services were escalated through the study period by system growth and any

anticipated rate revenue increases. Other revenues were escalated based on system growth while investment earnings fluctuate from year to year based on cash balances and an assumed interest earnings rate of 1.0%.

4.1.7 Regional Wastewater Disposal Costs/Metro Costs

The City of San Diego Public Utilities Department (PUD) in January 2019, authorized a five-year financial outlook as a guide to long range planning for their Water and Sewer Revenue Funds (Appendix F). Table 5.4 of the document identifies the PUD's revenue projections from the Joint Power's Authority Participating Agencies. The City of Chula Vista's share represents about 32% of the total cost contribution from all the Participating Agencies. However, PUD's agreement with Chula Vista obligates the City to pay their percentage of actual costs for service and capital expenses. If projected expenditures associated with the Participating Agencies increase or decrease, this will ultimately be offset by increased or decreased revenue from the Participating Agencies. Note that Chula Vista's cost contribution represents approximately 10% to 12% of the total Metro wastewater expenses.

A portion of the Metro costs are related to capital investment of the treatment system. As discussed previously, the City's Fund 413 with Council approval can be used for the construction of sewage collection or treatment or water reclamation purposes. The financial plan developed for the City projects the need for revenue increases in years 2 through 10 of 4.5% to 5.5% per year and assumes the use of $6 million of Capital Reserve Fund balance in FY 2024-25. It is recommended that rate revenue increases be further evaluated for the next 5-year period. Without a rate increase, and assuming the current recommendations are implemented with the balance of Fund 413 drawing down over years 6 through 10 of the Financial Plan. These additional drawdowns that would be necessary from Fund 413 would exceed the balance that is projected for the fund; thus, the balance is not adequate to support the continued drawdown.

4.1.8 Capital Improvements Plan (CIP)

The financial plans contained herein do not anticipate any debt funding of the City's CIP. The CIP was provided in current day dollars and has been escalated for future years using a 3-year compound annual average (2017-2019) of the Engineering News Record Construction Cost Index (ENR CCI) at an inflationary rate of 2.95% (Appendix H). The CIP in current day dollars for FY 2020-21 through FY 2029-30 totals $30,370,000. The value of the CIP with the annual inflator applied for FY 2020-21 through FY 2029-30 totals $36,671,351. A summary table of the CIP (in inflated dollars) for the FY 2020-21 through FY 2025-

26 forecast period is presented below in Table 4-2. The project specific CIP is presented in Schedules A-6, in Appendix A.

Generally accepted industry standard best practices suggest that a utility should make an annual investment in its infrastructure equivalent to annual depreciation, to ensure aging system components are repaired or replaced on a routine basis, to help minimize breakdowns or failures of deteriorated and old systems. The Sewer Fund depreciation as identified on page 46 of the FY 2019-20 CAFR was $6.5 million.

The prior study[5] targeted replacement funding of aging infrastructure at 54% of annual system depreciation expense of $4.0 million by FY 2018-19 (page 2). The projected Sewer Facilities Replacement (SFR) Fee revenue in FY 2018-19 was $3.9 million (page 9). This study recommends increasing the amount of the collected revenue going into the SFR Fund from the fees to achieve the annual depreciation funding amount over a 10-year period, (based on the projections in this study, it is achieved in FY 2029-30. With the recommendation to increase the sewer services fee paid by the customer over time, the effect is a compounding of the increased amount portion of those charges for service going into the SFR Fund (Fund 428). It is possible to decrease the percentage of charges for service going into the Sewer Service Revenue Fund because the Trunk Sewer Capital Reserve Fund (Fund 413) can be used to pay the capital expenses incurred by Metro which are currently being paid from Fund 414.

Table 4-2
Capital Improvement Plan (escalated dollars)
Fiscal Years Ending June 30 ($ thousands)

FY	20-21	21-22	22-23	23-24	24-25	25-26
Sewer	$2,650	$3,798	$3,404	$3,505	$3,608	$3,715
Note: Values are rounded to the nearest $1,000						

4.1.9 General Assumptions

In order to develop the financial and rate projections, certain assumptions were made with regard to elements of the revenue sufficiency analysis. A summary of those assumptions is presented below.

[5] City of Chula Vista Sewer Cost-of-Service Rate Study November 2013 Prepared by FCS Group

4.1.9.1. System Growth

The City anticipates average annual growth of sewer system customers of approximately 1.20% per year through 2024 based on Table 3 in the City's Chula Vista 2019 Annual Residential Growth Forecast (Appendix D). The model assumes a direct correlation between customer growth and service charge revenue growth. In other words, it is assumed that service charge revenues will also grow by 1.20% per year. Since a portion of the revenue collected is based on the volume of potable water consumption, water conservation initiatives could result in service charge revenue not increasing at the same rate as customer growth or it may even decrease. The City should continue to monitor the impact of conservation and adjust revenue projections accordingly. While this study did project system growth, it did not re-evaluate customer classifications or characteristics (assumptions of volume and strength of flow) nor did it project growth to specific customer categories, but rather applied general growth assumptions to all customer classes.

4.1.9.2. O&M Escalation Factors

Willdan worked with City staff (finance department) to identify reasonable cost escalation factors to be applied to operations and maintenance expenses in recognition of increasing costs over time.

The City's finance department identified personnel related cost escalation factors of 2% for salaries, 5% for health insurance/flex benefits and an average of 4% for pension benefits. In examining the individual components, the weighted average cost escalation factor is 3%, based on historical line-item costs projected for the future using the respective escalation factors (the calculation can be found in Appendix G).

The City projects supplies and services costs to increase by 8% in 2021, 7% in 2022 and by 2% per year thereafter.

Utility costs (electricity as an example) are projected to increase at a rate of 5% per year.

Metro costs are projected to increase at 6% per year after the FY 2023-24 cost estimate based on the projected cost increase between FY 2022-23 and FY 2023-24.

All other O&M expenses are projected to increase at a rate of 2% per year.

4.1.9.3. Results of the Revenue Sufficiency Analysis

After a review of the above-mentioned data elements, the Revenue Sufficiency Analysis was completed and is presented herein with recommendations incorporated to show the stabilization of sewer funds.

The first step in the analysis was to develop the 5-year financial plan for the City's sewer funds under current operations. Table 4-3 provides a summary of the current operations from a financial perspective.

Table 4-3
Fiscal Years Ending June 30 ($ thousands)

Line		Budget	Projected				
		20-21	21-22	22-23	23-24	24-25	25-26
	SERVICE REVENUE FUND – FUND 414						
	Expenditures						
1	Operations and Maintenance Expenses (OE)						
2	Personnel Services	$4,860	$5,005	$5,156	$5,310	$5,470	$5,862
3	Capital (Vehicle Replacement & Other Capital)	1,730	1,764	1,799	1,835	1,872	1,910
4	Regional Wastewater Disposal/ Metro Costs	25,595	24,595	25,195	25,795	26,394	27,978
5	Other Expenses	6,740	6,876	7,013	7,154	7,297	7,443
6	**Total Expenditures**	**38,925**	**38,240**	**39,163**	**40,094**	**41,033**	**43,193**
	Revenue Under Existing Rates						
7	Charges for Service Revenue	$32,520	$32,942	$33,358	$33,699	$34,441	$35,199
8	Other Revenue	605	993	945	891	839	781
9	**Total Revenue Under Existing Rates**	**33,125**	**33,935**	**34,304**	**34,590**	**35,280**	**35,979**
10	**Difference Rev. Over/(Under) Exp.**	**(5,800)**	**(4,306)**	**(4,860)**	**(5,504)**	**(5,753)**	**(7,214)**
11	**Cash Balance at the Beginning of the Year** [1]	$48,147	$42,347	$38,041	$33,182	$27,687	$21,925
12	**Cash Balance After Rev. Less Exp.**	**$42,347**	**$38,041**	**$33,182**	**$27,687**	**$21,925**	**$14,711**
	Minimum Reserve Targets [2]						
13	Working Capital (90 Days of O&E)	$9,598	$9,466	$9,694	$9,924	$10,157	$10,650
14	Rate Stab. (90 Days of O&E)	9,598	9,466	9,694	9,924	10,157	10,650
15	Emergency (5% of O&E)	1,946	1,919	1,966	2,012	2,060	2,160
16	Vehicle Replace, (2% of O&E)	779	768	786	805	824	864
17	EPA Reserve [3]	27,142	30,885	34,629	38,372	42,116	42,116
18	**Total Minimum Reserve Targets**	**$49,063**	**$52,504**	**$56,770**	**$61,038**	**$65,313**	**$66,440**
	SEWERAGE FACILITY REPLACEMENT FUND – FUND 428						
	Expenditures						
19	Capital Improvement Program (Escalated)	$2,650	$3,798	$3,404	$3,505	$3,608	$3,715
20	Expenses	153	156	159	162	166	166
21	**Total Expenditures**	**2,803**	**3,954**	**3,563**	**3,667**	**3,774**	**3,881**
	Revenue Under Existing Rates						
22	Sewer Facility Replacement Charge [4]	$1,405	$1,423	$1,441	$1,456	$1,488	$1,521
23	Other Revenues (Interest Earnings)	52	151	132	124	121	125
24	**Total Revenue Under Existing Rates**	**1,457**	**1,574**	**1,573**	**1,580**	**1,609**	**1,645**
25	**Difference Rev. Over/(Under) Exp.**	(1,343)	(2,376)	(1,987)	(2,084)	(2,162)	(2,235)
26	**Cash Balance at the Beginning of the Year** [1]	$13,606	$12,262	$9,886	$7,899	$5,815	$3,653
27	**Cash Balance After Rev. Less Exp.**	**$12,262**	**$9,886**	**$7,899**	**$5,815**	**$3,653**	**$1,418**
28	**Annual Depreciation Funding Target** [5]	**$6,930**	**$7,135**	**$7,345**	**$7,563**	**$7,786**	**$8,016**

(1) Cash balances are from GL032 SSRS Report; Munis Balance sheet report
(2) Ongoing annual target, but not an annual contribution.
(3) Goal of 20% of 11.69% of Point Loma WWTP Upgrade by 2024/25
(4) Based on prior study projection for FY 2018-19 escalated in future years for system growth
(5) Annual depreciation target is based on FY 2019-20 CAFR plus annual CIP expenditures
(6) Note: Values are rounded to nearest $1,000

As noted in Table 4-3, under the current scenario, expenditures in Fund 414 exceed revenues for FY 2020-21 through FY 2024-25 (see line 10), and as a result, the projected cash balance continues to decline, (see line 12). In comparing the projected end of year cash balance in line 12 with the minimum target reserve balance in line 18, the cash balance falls below minimum target reserves beginning in FY 2020-21. In examining the financials of Fund 428, the allocation of service charges for facility replacement (line 22) does not meet the annual depreciation funding target (line 28) for any year of the study period.

4.1.9.4. Revenue Sufficiency Analysis

After a review of the abovementioned data elements and the completion of the initial Revenue Sufficiency Analysis, recommendations were developed to achieve a more stabilized sewer fund. As indicated in Table 4-4 there are rate revenue increases projected for the 5-year period ending FY 2025-26 based on the current projections of revenues and expenses. Revenue increases of 4.5% to 5.5% per year are anticipated to be necessary throughout the period. However, as mentioned previously, the assumptions used in the development of the financial plan herein will change in the future, so the City may want to conduct another comprehensive study in 3 to 5 years to ensure that rate revenue is sufficient to meet ongoing costs.

The City is recommended to review the financial results and cash balances at least annually and make adjustments as needed to maintain the financial integrity and viability of the sewer utility. In addition to the revenue increases are proposed through FY 2029-30 a shift in the allocation of service charge revenue between the sewer operating fund (Fund 414) and the sewerage facility replacement fund (Fund 428) is proposed and discussed in greater detail in the balance of this report. The proposed financial plan incorporating non-rate increase recommendations is presented in Table 4-5.

Table 4-4
Projected Rate Revenue Increases and Cash Balances
Fiscal Years Ending June 30

Fiscal Year	Sewer Rate Revenue Increases	Target Balance [(1)] SSR Fund 414	Actual Ending Balance SSR Fund 414	Target Revenues SFR Fund 428	Actual Revenues SFR Fund 428	Actual Ending Balance TSC Fund 413
		(In Thousands)				
2021-22	0.0%	$21,535	$37,661	$7,135	$1,801	$64,837
2022-23	4.5%	22,055	33,503	7,345	2,306	64,837
2023-24	5.0%	22,579	30,016	7,563	2,871	64,837
2024-25	5.0%	23,108	33,721	7,786	3,536	58,837
2025-26	5.5%	24,324	31,720	8,016	4,303	58,837

(1) It is assumed that in FY 2021-22 the recommendations are implemented. One recommendation is the removal of the EPA Liability Reserve which is why the actual ending balance for Fund 414 appears to be large compared to the target balance in Fund 414.

Table 4-5
Proposed Financial Plan FY 2019-20 Through FY 2024-25
Fiscal Years Ending June 30 ($ thousands)

		Budget	Projected				
Line		20-21	21-22	22-23	23-24	24-25	25-26
	Charges for Service Rate Increase (per customer)	**0.0%**	**0.0%**	**4.5%**	**5.0%**	**5.0%**	**5.5%**
	SERVICE REVENUE FUND – FUND 414						
	Expenditures						
	Operations and Maintenance Expenses (OE)						
1	Personnel Services	$4,860	$5,005	$5,156	$5,310	$5,470	$5,862
3	Capital (Vehicle Replacement & Other Capital)	1,730	1,764	1,799	1,835	1,872	1,910
3	Regional Wastewater Disposal/ Metro Costs [1]	25,595	24,595	25,195	25,795	26,394	27,978
4	Other Expenses	6,740	6,876	7,013	7,154	7,297	7,443
5	**Total Expenditures**	**38,925**	**38,240**	**39,163**	**40,094**	**41,033**	**43,193**
	Projected Revenue						
6	Charges for Service Revenue	$32,520	$32,564	$34,060	$35,704	$37,858	$40,238
7	Other Revenue	605	991	945	904	880	864
8	**Total Revenue Under New Rates**	**33,125**	**33,555**	**35,004**	**36,608**	**38,738**	**41,192**
9	**Difference Rev. Over/(Under) Exp.**	**(5,800)**	**(4,686)**	**(4,159)**	**(3,486)**	**(2,295)**	**(2,001)**
10	Transfers in From Fund 413 [2]	0	0	0	0	6,000	0
11	Net Cashflow after Transfers In	**(5,800)**	**(4,686)**	**(4,159)**	**(3,486)**	**3,705**	**(2,001)**
12	**Cash Balance at the Beginning of the Year [3]**	$48,147	$42,347	$37,661	$33,503	$30,016	$33,721
13	**Cash Balance After Rev. - Exp. + Transfers**	**$42,347**	**$37,661**	**$33,503**	**$30,016**	**$33,721**	**$31,720**
	Minimum Reserve Targets						
14	Working Capital (90 Days of OE)	$9,598	$9,429	$9,657	$9,886	$10,118	$10,650
15	Rate Stab. (90 Days of OE)	9,598	9,429	9,657	9,886	10,118	10,650
16	Emergency (5% of OE)	1,946	1,912	1,958	2,005	2,052	2,160
17	Vehicle Replace, (2% of OE)	779	765	783	802	821	864
18	**Total Minimum Reserve Targets**	**$21,921**	**$21,535**	**$22,055**	**$22,579**	**$23,108**	**$24,324**
	SEWERAGE FACILITY REPLACEMENT FUND – FUND 428						
	Expenditures						
19	Capital Improvement Program (Escalated)	$3,887	$2,350	$3,798	$3,404	$3,505	$3,715
20	Expenses	150	153	156	159	162	125
21	**Total Expenditures**	**4,037**	**2,803**	**3,954**	**3,563**	**3,667**	**4,428**
	Revenue Under New Rates						
22	Sewer Facility Replacement Charge [4]	$1,405	$1,801	$2,306	$2,871	$3,536	$4,303
23	Other Revenues (Interest Earnings)	52	151	132	124	121	125
24	**Total Revenue Under New Rates**	**1,457**	**1,953**	**2,438**	**2,995**	**3,657**	**4,428**
25	**Difference Rev. Over/(Under) Exp.**	(1,343)	(1,998)	(1,122)	(669)	(114)	547
26	**Cash Balance at the Beginning of the Year [1]**	$13,606	$12,263	$10,265	$9,142	$8,473	$8,359
27	**Cash Balance After Rev. Less Exp.**	**$12,263**	**$10,265**	**$9,142**	**$8,473**	**$8,359**	**$8,906**
28	**Annual Depreciation Funding Target**	**$6,930**	**$7,135**	**$7,345**	**$7,563**	**$7,786**	**$8,016**

(1) Reflects "true up" costs from FY 2018-19 and forms the basis for future year values
(2) Transfers from the Trunk Sewer Capital Reserve (Fund 413) are shown for simplicity. It will be used to pay the capital portions of Metro expenses directly.
(3) Cash balances are from GL032 SSRS Report; Munis Balance sheet report
(4) Allocation of Fund 428 increases annually to match the annual system depreciation by FY 2029-30
(5) Annual depreciation target is based on FY 2019-20 CAFR escalated by the annual CIP inflation rate of 2.95%
(6) Note: Values are rounded to nearest $1,000

Table 4-5 provides a summary of the projected annual revenue requirements for the sewer utility under the proposed financial plan. As was the case in Table 4-3, the proposed scenario results in a deficit between anticipated revenues and anticipated expenses (see line 9) of an average of $3.7 million per year between FY 2020-21 and FY 2025-26. Following the end of the prior rate study period in FY 2018-19, no rate increases were implemented, and budgeted expenditures outpaced revenues. As an example, for the FY 2020-21 budget, expenditures exceeded revenues by $5.8 million (line 9), with a reliance on the existing cash balance to absorb the deficit between revenues and expenditures.

The annual deficit is less pronounced in the recommended plan (Table 4-5 line 9) compared to the current scenario (Table 4-3 line 10) as a result of the recommended rate revenue increases. The deficit is higher than otherwise would be as a result of the recommended change in the allocation of service charge revenue between the Sewer Services Revenue Fund (Fund 414) and the Sewerage Facility Replacement Fund (Fund 428) as described above in Section 4.1.7.4. Table 4-6 illustrates the recommended gradual shift in the allocation of revenues between the Sewer Services Revenue and Sewerage Facility Replacement Funds (Funds 414 and 428).

The current (FY 2020-21) and proposed (FY 2021-22 through FY 2025-26) fees are shown in Table 4-7. The proposed allocation of charges to the Service Revenue Fund (414) and Sewerage Facility Replacement Fund (Fund 428) respectively are detailed below in Figure 1. The change in allocation of charges and in turn revenue, is intended to move closer to meeting the goal of collecting annual revenue equal to annual depreciation (current depreciation escalated by the CIP escalation factor of 2.95% per year) into Fund 428 and is discussed in the following section: Recommendations Based on the Revenue Sufficiency Analysis. An examination of line 22 demonstrates a gradual increase in Sewer Facility Replacement Charge revenue towards the target of matching annual depreciation over a ten-year period.

The decrease in revenue into the Sewer Services Revenue Fund (Fund 414) means more money is needed to meet the minimum reserve target (line 18) in FY 2023-24 and FY 2024-25. Since Trunk Sewer Capital Reserve Fund (Fund 413) can be used to fund regional capital projects with City Council approval, it is recommended to be used to pay a portion of the capital expenses charged by Metro as shown in line 10. Although it is shown as a transfer, the amount will be paid directly from Trunk Sewer Capital Reserve Fund (Fund 413) without a formal transfer. With these actions as described in the Recommendations section the adjusted cash balance (line 13) meets the Minimum Reserve Targets (line 18).

Table 4-6
Fund Allocation for Sewer Service Charges
Fiscal Years Ending June 30

	Budget	Projected					
	19-20	20-21	21-22	22-23	23-24	24-25	25-26
Sewer Service Revenue Fund 414	96%	96%	95%	94%	93%	91%	90%
Sewerage Facility Replacement Fund 428	4%	4%	5%	6%	7%	9%	10%
Total	100%	100%	100%	100%	100%	100%	100%

The proposed rates for customers during the five-year Study period are shown in Table 4-7. Note that rates may vary if the wholesale wastewater treatment charges change from San Diego and the Metro Pass Through is applied. The fund distribution for the monthly fixed sewer charge in the top half of Table 4-7 is detailed further in Figure 4.1 below. All of the revenue collected from the volumetric charge goes into the Sewer Service Revenue Fund (Fund 414).

Table 4-7
Proposed Rates
Fiscal Years Ending June 30

Meter Size	$/Month					
	20-21	21-22	22-23	23-24	24-25	25-26
Monthly Fixed Service Charge						
Single Family	$14.53	$14.53	$15.18	$15.94	$16.74	$17.66
All Others						
5/8-inch	14.53	14.53	15.18	15.94	16.74	17.66
¾-inch	14.53	14.53	15.18	15.94	16.74	17.66
1-inch	28.49	28.49	29.77	31.26	32.82	34.63
1 ½-inch	51.77	51.77	54.10	56.80	59.64	62.93
2-inch	79.68	79.68	83.27	87.43	91.80	96.85
3-inch	154.15	154.15	161.08	169.14	177.59	187.36
4-inch	237.91	237.91	248.62	261.05	274.10	289.17
6-inch	470.61	470.61	491.79	516.38	542.20	572.02
8-inch	936.01	936.01	978.13	1,027.04	1,078.39	1,137.70
Volume Charge $/HCF (1)						
Residential						
Single Family	$4.26	$4.26	$4.45	$4.67	$4.91	$5.18
Multi-Family	4.26	4.26	4.45	4.67	4.91	5.18
Mobile Homes	4.26	4.26	4.45	4.67	4.91	5.18
Non-Residential						
Commercial - Low	4.26	4.26	4.45	4.67	4.91	5.18
Commercial – Med	6.02	6.02	6.29	6.61	6.94	7.32
Commercial – High	9.59	9.59	10.02	10.52	11.05	11.66
Special Users	Varies	Varies	Varies	Varies	Varies	Varies

(1) HCF – Hundred Cubic Feet

Note – Rate include the Sewer Service Charge and Sewer Facilities Replacement Fee. The rates do not include the Storm Drain Fee.

While Table 4-7 presents the proposed rates through FY 2025-26, Table 4-8 provides an illustration of the impact to a typical residential monthly bill (assuming 7 HCF of water flow).

Table 4-8
Residential Monthly Bill impacts

Fiscal Year	Monthly Bill	Difference From Prior Year
2021-22	$41.37	n/a
2022-23	43.22	1.85
2023-24	45.36	2.15
2024-25	47.67	2.32
2025-26	50.29	2.62

As noted in Table 4-8, the typical residential monthly bill over the 5-year period FY 2021-22 through FY 2025-26 is projected to increase from $41.37 to $50.29 a total increase over the five-year study period of $8.93 per month or an average annual increase of $1.79 per month. As discussed previously, this study recommends both increases in the City's service charges to customers as well as a reallocation of the portion of service charge allocated to Fund 414 and to Fund 28.

Figure 4-1 – Existing and Recommended Monthly Fixed Service Charge

Fixed Charge per Month	Fixed Charges - Existing to FY 2020-21 Sewer Service Charge (Fund 414)	Sewer Facilities Replacement Fee (SFR) (Fund 428)	Total	Fixed Charges - FY 2021-22 Sewer Service Charge (Fund 414)	Sewer Facilities Replacement Fee (SFR) (Fund 428)	Total	Fixed Charges - FY 2022-23 Sewer Service Charge (Fund 414)	Sewer Facilities Replacement Fee (SFR) (Fund 428)	Total
Single Family	$9.43	$5.10	$14.53	$8.94	$5.59	$14.53	$9.23	$5.95	$15.18
All Others									
5/8-inch	$9.43	$5.10	$14.53	$8.94	$5.59	$14.53	$9.23	$5.95	$15.18
3/4-inch	9.43	5.10	14.53	8.94	5.59	14.53	9.23	5.95	15.18
1-inch	15.74	12.75	28.49	14.92	13.57	28.49	18.10	11.68	29.77
1 1/2-inch	26.27	25.50	51.77	24.89	26.88	51.77	32.88	21.21	54.10
2-inch	38.88	40.80	79.68	36.85	42.83	79.68	50.61	32.65	83.27
3-inch	72.55	81.60	154.15	68.75	85.39	154.15	97.91	63.17	161.08
4-inch	110.41	127.50	237.91	104.63	133.28	237.91	151.12	97.49	248.62
6-inch	215.61	255.00	470.61	204.33	266.28	470.61	298.93	192.85	491.79
8-inch	426.00	510.01	936.01	402.77	533.24	936.01	594.56	383.57	978.13

Fixed Charge per Month	Fixed Charges - FY 2023-24 Sewer Service Charge (Fund 414)	Sewer Facilities Replacement Fee (SFR) (Fund 428)	Total	Fixed Charges - FY 2024-25 Sewer Service Charge (Fund 414)	Sewer Facilities Replacement Fee (SFR) (Fund 428)	Total	Fixed Charges - FY 2025-26 Sewer Service Charge (Fund 414)	Sewer Facilities Replacement Fee (SFR) (Fund 428)	Total
Single Family	$9.58	$6.36	$15.94	$9.94	$6.80	$16.74	$10.36	$7.30	$17.66
All Others									
5/8-inch	$9.58	$6.37	$15.94	$9.94	$6.80	$16.74	$10.36	$7.30	$17.66
3/4-inch	9.58	6.37	15.94	9.94	6.80	16.74	10.36	7.30	17.66
1-inch	18.78	12.48	31.26	19.48	13.34	32.82	20.31	14.32	34.63
1 1/2-inch	34.12	22.68	56.80	35.40	24.24	59.64	36.90	26.02	62.93
2-inch	52.52	34.91	87.43	54.49	37.31	91.80	56.80	40.05	96.85
3-inch	101.60	67.53	169.14	105.41	72.18	177.59	109.87	77.49	187.36
4-inch	156.81	104.23	261.05	162.70	111.40	274.10	169.58	119.59	289.17
6-inch	310.19	206.18	516.38	321.83	220.36	542.20	335.45	236.57	572.02
8-inch	616.96	410.08	1,027.04	640.11	438.28	1,078.39	667.19	470.51	1,137.70

NOTE 1: All volume rate revenue is captured in Fund 414 Sewer Service Charge

NOTE 2: Storm fees are a separate charge and are not discussed in this report or included in the fee structure

4.1.9.5. Proposition 218 Compliance

In conducting the study, the City's current sewer rate structure developed through the cost-of-service analysis in the prior report[6] appear reasonable and meet the requirements of Proposition 218. They are based upon relative strengths and flows from specific customer categories in the City of Chula Vista, and the proportional costs of serving those customers based upon these factors. The current study relied upon the assumptions and data of volume of discharge (flow) and strength characteristics as was identified in the prior report. This includes maintaining the existing customer classes:

- Single Family
- Multifamily
- Commercial – Low
- Commercial – Medium
- Commercial - High

It should, however, be noted that the City's Low-Income Policy with respect to rates was not evaluated as part of this study or this report.

[6] City of Chula Vista Sewer Cost-of-Service Rate Study November 2013 Prepared by FCS Group. The report is available at: https://www.chulavistaca.gov/departments/public-works/services/sewer/sewer-rate

Section 5 – Conclusions and Recommendations

5.1 Conclusions

The study was comprised of a longer-term 10-year financial analysis but focused on the shorter-term 5-year period. Based on current assumptions rate revenue increases are projected to be necessary in fiscal year 2021-22. While no new rate revenue increases are needed in the first year, the analysis described in this report indicates that the City's existing charges for service revenue alone will not be sufficient to meet the ongoing operations and maintenance expenses on an annual basis. Rate increases are projected for years 2 through 10 of the study period, in addition to the use of Trunk Sewer: Capital Reserve Fund (413) funds to pay for some of the regional capital costs billed by Metro. A revised allocation of service charge revenues between the Sewer Service Revenue Fund and the Sewerage Facility Replace Fund (428), will help to provide the opportunity for rate increases to be phased in over time in smaller increments while still achieving the City's financial policies rather than the need for more immediate larger increases.

5.2 Recommendations

The following recommendations were incorporated into the proposed financial plan (Table 4-5) in order to meet the outlined goals of Funds 414 and 428.

Elimination of the EPA Reserve

As previously discussed in the Financial Management Goals of the City section, it is recommended that the City eliminate the current EPA reserve. The assumptions that were made at the time the reserve was established (primarily the City of San Diego's cash funding of treatment upgrades) have changed. The City of San Diego is projected to finance its capital upgrade costs through borrowing and has factored the financing costs into the Metro Cost projections for the City of Chula Vista and other participating agencies. The City's share of upgrade costs is therefore projected to be paid through annual charges assessed by the City of San Diego eliminating the need for a large cash reserve to pay a one-time lump sum fee for the City's proportionate share of the upgrades. If the EPA reserve were to remain in place the total minimum reserve target would be significantly higher than is being recommended. The higher reserve would place additional pressure on future rate increases to achieve the higher target reserve.

Allocation of Service Charge Revenue

As identified in the Financial Management Goals of the City section, it is recommended that the City's Sewer Facility Replacement Charge revenue on an annual basis be at a minimum, equivalent to annual depreciation of system assets. The allocation of service charge revenue to Fund 428 is recommended to increase incrementally over time in order to match annual system depreciation by FY 2029-30 (the current plan achieves the goal in FY 2029-30). An adequately funded repair and replacement program helps to ensure a well-functioning and more reliable system. An annual replacement and rehabilitation program also helps to minimize costly unanticipated major repairs. The recommended allocation was shown previously in Table 4-6.

Stabilize Revenues and Expenses

In both Tables 4-3 and 4-5, the expenditures of Fund 414 exceed revenues on an annual basis. As noted in Table 4-5, the difference between revenues and expenditures increases as a result of the updating the allocation of service charge revenue to Fund 428 to meet industry standards. While expenses exceed revenues initially, by FY 2029-30, with the proposed recommendations, revenues exceed expenditures while meeting the minimum reserve policies and goals. Revenue increases are currently projected in 9 years of the financial plan, based on current assumptions. As assumptions become clearer (for example the direction on Metro funding) a more comprehensive update should be undertaken in the next 3 to 5 years. The ongoing draw down of cash balance requires the use of additional funds in FY 2024-25. The Trunk Sewer Capital Fund (Fund 413) had a balance of $64.8 million as of June 30, 2020, which can be used for sewer treatment or collection capital costs with City Council approval. A portion of this cash balance could be used to pay Metro capital costs. If City Council approves the use of Fund 413 to pay for the portion of Metro capital costs, the draw down from Fund 414 would be less, allowing the stated goals to meet the reserve targets in later years.

Metro Cost Pass Through

The Metro Costs projections used in the development of the financial plan were provided to the City by the City of San Diego. The City of San Diego Public Utilities Department which operates the Metro facilities, provided projected contributions for the Participating Agencies in January 2019, and an update of the projections at the May 2020 Metro Technical Advisory Committee Meeting. The increases equate to approximately 2.5% per year through FY 2024-25 and are reflected in the financial plan.

While the financial plan incorporates the best available Metro Cost data as provided by the City of San Diego there is the potential that the actual costs assessed to the City may change in the future. This could be the result of a change in the City of San Diego's operating costs or a result of a change in flows and strength transmitted by the City to Metro for treatment. Every year the City receives a "true up" of Metro costs based on the projected flows and Metro Costs compared to the actual flows and strength and costs incurred by the City. These costs could be materially different from what was projected in the financial plan, which would have an adverse effect on cashflows and reserves. While the best available information has been incorporated, if actual costs increase or decrease from projections, we recommend the implementation of a pass-through adjustment for the costs to City customers in order to maintain the financial integrity of the utility. The fixed and volume rates should be increased appropriately, commensurate with the increase or decrease in Metro Costs. As noted previously, a portion of the fixed charge provides funding for the Sewerage Facility Replacement (Fund 428), and this portion of the charge would not change based on Metro costs. California Government Code Section 53756 allows agencies to authorize automatic adjustments that pass-through increases or decreases in wholesale wastewater treatment charges when the wholesaler is a public agency (i.e. the City of San Diego). The City of Chula Vista, as the agency implementing the pass through, must initially go through the Proposition 218 process and authorize the pass through which can remain in effect for a maximum of five years. Notice of any adjustment within the approved period shall be given not less than 30 days before the effective date of the adjustment and follow subdivision (a) of Section 53755 of the California Government Code.

Financial Reviews

It is recommended that the City update the revenue sufficiency analysis portion of this study each year to ensure projected revenue continues to be sufficient to fund projected expenses going forward as assumptions made during this analysis may change and have a material impact upon the analysis.

APPENDIX A

Financial Plan

Table 1
Summary of Annual Cash Balance and Target Reserve Policy

Line No	Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Sewer Service Revenue (Fund 414)										
1	Balance at the Beginning of the Fiscal Year	$48,147,276	$42,347,015	$37,661,464	$33,502,711	$30,016,240	$33,721,373	$31,720,461	$30,291,340	$29,494,572	$29,394,584
2	Annual Revenues	33,125,000	33,554,797	35,004,444	36,607,538	38,738,118	41,191,977	43,805,391	46,589,104	49,553,261	52,285,598
3	Annual Expenses	38,925,261	38,240,348	39,163,197	40,094,008	41,032,986	43,192,890	45,234,511	47,385,872	49,653,249	52,043,287
4	Transfers In	-	-	-	-	6,000,000	-	-	-	-	-
5	Policy Target Reserve	21,920,787	21,535,078	22,054,781	22,578,968	23,107,754	24,324,105	25,473,846	26,685,387	27,962,261	29,308,213
6	Policy Reserve Maximum	27,206,358	26,727,646	27,372,661	28,023,240	28,679,527	30,189,167	31,616,135	33,119,804	34,704,560	36,375,050
	Sewerage Facilities Replacement Fund (Fund 428)										
7	Balance at the Beginning of the Fiscal Year	$13,605,982	$12,262,708	$10,264,651	$9,142,391	$8,472,914	$8,359,024	$8,905,985	$10,216,119	$12,403,430	$15,594,800
8	Annual Revenues	1,456,726	1,952,624	2,438,105	2,994,598	3,656,931	4,427,650	5,303,906	6,297,478	7,421,336	9,269,922
9	Annual Expenses	2,800,000	3,950,682	3,560,365	3,664,075	3,770,820	3,880,689	3,993,772	4,110,166	4,229,967	4,174,010
	Trunk Sewer Capital Reserve Fund (Fund 413)										
10	Balance at the Beginning of the Fiscal Year	$64,836,569	$64,836,569	$64,836,569	$64,836,569	$64,836,569	$58,836,569	$58,836,569	$58,836,569	$58,836,569	$58,836,569

Table 2
Projected Operating Results - Sewer Service Revenue Fund (Fund 414)

Line No.	Description	Budget	Projected							
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Sources of Funds										
1	**Beginning-of-Year Cash** [1]	$48,147,276	$42,347,015	$37,661,464	$33,502,711	$30,016,240	$33,721,373	$31,720,461	$30,291,340	$29,494,572	$29,394,584
	Sewer Utility Related Revenues (Table 3)										
2	Charges for Services Revenue - Fund 414	$32,520,000	$32,563,766	$34,059,562	$35,703,782	$37,858,393	$40,328,352	$42,953,089	$45,741,707	$48,703,784	$51,271,232
3	Revenues Not From Charges for Services	605,000	991,031	944,882	903,757	879,725	863,626	852,302	847,397	849,476	868,165
4	**Total Sewer Utility Related Revenues**	**$33,125,000**	**$33,554,797**	**$35,004,444**	**$36,607,538**	**$38,738,118**	**$41,191,977**	**$43,805,391**	**$46,589,104**	**$49,553,261**	**$ 52,139,397**
5	**Total Sewer Revenues**	**$33,125,000**	**$33,554,797**	**$35,004,444**	**$36,607,538**	**$38,738,118**	**$41,191,977**	**$43,805,391**	**$46,589,104**	**$49,553,261**	**$ 52,285,598**
	Operating Expenses (Table 4)										
6	Administration	$38,925,261	$38,240,348	$39,163,197	$40,094,008	$41,032,986	$43,192,890	$45,234,511	$47,385,872	$49,653,249	$ 52,043,287
7	**Total Operating Expenses (OE)**	**$38,925,261**	**$38,240,348**	**$39,163,197**	**$40,094,008**	**$41,032,986**	**$43,192,890**	**$45,234,511**	**$47,385,872**	**$49,653,249**	**$ 52,043,287**
8	**Net Result of Operations**	**($5,800,261)**	**($4,685,551)**	**($4,158,753)**	**($3,486,470)**	**($2,294,867)**	**($2,000,912)**	**($1,429,120)**	**($796,768)**	**($99,988)**	**$242,311**
	Non-Operating Expenses										
9	Existing Debt Service	0	0	0	0	0	0	0	0	0	0
10	Other Miscellaneous	0	0	0	0	0	0	0	0	0	0
11	**Total Non-Operating Expenses**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$ -**
12	**Net Available After Operations**	**($5,800,261)**	**($4,685,551)**	**($4,158,753)**	**($3,486,470)**	**($2,294,867)**	**($2,000,912)**	**($1,429,120)**	**($796,768)**	**($99,988)**	**$242,311**
	Other Cash Inflows/(Uses of Funds)										
13	New Debt Service	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
14	Transfers In From Fund 413 - Trunk Sewer: Capital Reserve Fund [2]	0	0	0	0	6,000,000	0	0	0	0	0
15	**Total Other Cash Inflows/(Uses of Funds)**	**$0**	**$0**	**$0**	**$0**	**$6,000,000**	**$0**	**$0**	**$0**	**$0**	**$0**
16	**Net Available After Other Uses**	**($5,800,261)**	**($4,685,551)**	**($4,158,753)**	**($3,486,470)**	**$3,705,133**	**($2,000,912)**	**($1,429,120)**	**($796,768)**	**($99,988)**	**$242,311**
17	**End-of-Year Cash**	$42,347,015	$37,661,464	$33,502,711	$30,016,240	$33,721,373	$31,720,461	$30,291,340	$29,494,572	$29,394,584	$29,636,895
18	**Target Cash - Working Capital and Rate Stabilization (180 Days of OE)**	19,196,019	18,858,254	19,313,358	19,772,388	20,235,445	21,300,603	22,307,430	23,368,375	24,486,534	25,665,183
19	**Target Cash - Emergency Reserve (5% of OE)**	1,946,263	1,912,017	1,958,160	2,004,700	2,051,649	2,159,644	2,261,726	2,369,294	2,482,662	2,602,164
20	**Target Cash - Vehicle Replacement Reserve (2% of OE)**	778,505	764,807	783,264	801,880	820,660	863,858	904,690	947,717	993,065	1,040,866
21	**Target Cash - Reserve**	21,920,787	21,535,078	22,054,781	22,578,968	23,107,754	24,324,105	25,473,846	26,685,387	27,962,261	29,308,213
	Max Cash Reserve - 125% of Working Capital, Rate Stabilization and Emergency Reserves + Vehicle Replacement	**$27,206,358**	**$26,727,646**	**$27,372,661**	**$28,023,240**	**$28,679,527**	**$30,189,167**	**$31,616,135**	**$33,119,804**	**$34,704,560**	**$36,375,050**

Table 3
Revenues - Sewer Service Revenue Fund (Fund 414)

Line No.	Description	Budget [1]	Future Year Escalation	Projected (2021 Dollars Escalated for Growth & Revenue Increases)								
		2021	Factors	2022	2023	2024	2025	2026	2027	2028	2029	2030
	SEWER OPERATING FUND REVENUES											
	Charges for Services											
1	Charges for Services Revenue - Fund 414	$32,520,000	(2)	$32,563,766	$34,059,562	$35,703,782	$37,858,393	$40,328,352	$42,953,089	$45,741,707	$48,703,784	$51,271,232
	Revenue Other Than Charges for Services											
2	Licenses and Permits	40,000	2.00%	40,519	41,031	41,451	42,363	43,295	44,247	45,221	46,215	47,232
3	Use of Money & Property [2]	-	(3)	378,184	324,283	276,814	238,990	208,794	183,064	163,436	150,468	153,779
4	Reimb CIP Projects	-	2.00%	-	-	-	-	-	-	-	-	-
5	Transfers In - Other	150,000	2.00%	151,945	153,868	155,440	158,860	162,355	165,927	169,577	173,308	177,121
6	Other	415,000	(2)	420,383	425,700	430,052	439,513	449,182	459,064	469,163	479,485	490,034
		-		-	-	-	-	-	-	-	-	-
	Transfers In											
7	Transfers In From Fund 413 - Trunk Sewer: Capital Reserve Fund [4]	-		-	-	-	6,000,000	-	-	-	-	-
8	**Total Sewer Operating Fund Revenues**	**$ 33,125,000**		**$33,554,797**	**$35,004,444**	**$36,607,538**	**$44,738,118**	**$41,191,977**	**$43,805,391**	**$46,589,104**	**$49,553,261**	**$ 52,285,598**

(1) FY 2020-21 values are from Munis Report; Budget to Actuals (GL003)
(2) Revenues Other Than Charges for Services are assumed to increase at the rate of growth after FY 2019-20. Growth projections are included in Table 7
(3) Includes Investment Earnings City Pool and Change in Fair Value of Investments. Interest is calculated by applying a 1.0% interest rate to the average beginning and ending (beginning fund balance plus revenues excluding interest less use of funds) annual fund balance
(4) A transfer from the Trunk Sewer Capital Reserve Fund (Fund 413) is shown for simplicity. It will be used to pay the capital portion of the Metro expenses directly.

Table 4
Expenses - Sewer Service Revenue Fund (Fund 414)

Line No.	Description	Budget [1]	Future Year Escalation [2]	Projected (2019 Dollars Escalated for Inflation)								
		2021	Factors	2022	2023	2024	2025	2026	2027	2028	2029	2030
	OPERATING EXPENSES											
	Administration											
1	Personnel Services [2]	$4,859,667	3.00%	$5,005,457	$5,155,621	$5,310,289	$5,469,598	$5,633,686	$6,038,316	$6,219,465	$6,406,049	$6,598,231
2	Additional Salaries	0	3.00%	0	0	0	0	228,757	0	0	0	0
3	Supplies and Services	2,986,179	8.00%	3,045,903	3,106,821	3,168,957	3,232,336	3,296,983	3,362,923	3,430,181	3,498,785	3,568,760
4	Regional Wastewater Disposal Metro Costs [3]	23,994,998	6.00%	24,594,873	25,194,748	25,794,623	26,394,498	27,978,168	29,656,858	31,436,269	33,322,446	35,321,792
5	Reconciliation of Regional Wastewater Disposal Metro Costs	1,600,000	2.38%	-	-	-	-	-	-	-	-	-
6	Other Expenses	75,000	2.00%	76,500	78,030	79,591	81,182	82,806	84,462	86,151	87,874	89,632
7	Capital (Vehicle Replacement & Other Capital)	1,729,547	2.00%	1,764,138	1,799,421	1,835,409	1,872,117	1,909,560	1,947,751	1,986,706	2,026,440	2,066,969
8	Utilities	331	5.00%	348	365	383	402	422	444	466	489	513
9	Internal Services Charges	316,705	2.00%	323,039	329,500	336,090	342,812	349,668	356,661	363,794	371,070	378,492
10	Transfers Out	3,298,234	2.00%	3,364,199	3,431,483	3,500,112	3,570,115	3,641,517	3,714,347	3,788,634	3,864,407	3,941,695
11	Project Expenditures (Non-CIP and CIP)	64,600	2.00%	65,892	67,210	68,554	69,925	71,324	72,750	74,205	75,689	77,203
12	**TOTAL OPERATING EXPENSES**	**$38,925,261**		**$38,240,348**	**$39,163,197**	**$40,094,008**	**$41,032,986**	**$43,192,890**	**$45,234,511**	**$47,385,872**	**$49,653,249**	**$52,043,287**

(1) FY 2020-21 Budget from Munis Report (GL001 FY 2020)
(2) Escalation factor for personnel services reflects weighted average escalation factors for salaries, health benefits and pensions as provided by the City's finance department and calculated below
(3) Projections for FY 2021 through FY 2025 are based on the City of San Diego low cost projections as summarized in the PUD Wastewater Rate Model May 2020, and can be found in the Metro Technical Advisory Committee meeting minutes for May 2020. Projections beyond FY 2025 assume an annual 6% increase.

Table 5
Revenues - Sewerage Facility Replacement Fund (Fund 428)

Line No.	Description	Budget [1]	Future Year Escalation	Projected (2021 Dollars Escalated for Growth & Revenue Increases)								
		2021	Factors	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Charges for Services											
1	Charges for Services Revenue - Fund 428	$1,405,000	(2)	$1,801,238	$2,306,126	$2,870,501	$3,535,669	$4,303,140	$5,169,032	$6,144,045	$7,239,952	$9,047,864
2	Use of Money & Property	51,726	(3)	151,387	131,979	124,097	121,262	124,509	134,874	153,432	181,384	222,057
3	Other Revenue	-	(4)	-	-	-	-	-	-	-	-	-
4	**Total Sewerage Replacement Fee Revenue**	**1,456,726**		**1,952,624**	**2,438,105**	**2,994,598**	**3,656,931**	**4,427,650**	**5,303,906**	**6,297,478**	**7,421,336**	**9,269,922**

(1) FY 2020-21 values are from Munis Report; Budget to Actuals (GL003)
(2) Represents SRF component of Charges for Services - 2021 based on allocation to meet a $19 mill fund balance in FY 2025. Allocaton for FY 2021-2 and beyond were adjusted to match annual system depreciation by FY 2028-29
(3) Includes Investment Earnings City Pool and Change in Fair Value of Investments. Interest is calculated by applying a 1.0% interest rate to the average beginning and ending (beginning fund balance plus revenues excluding interest less use of funds) annual fund balance
(4) Revenues Other Than Charges for Services are assumed to increase at the rate of growth after FY 2019-20. Growth projections are included in Table 7

Table 6
Capital Improvement Plan

Line No.	Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Wastewater Identified Projects										
1	J Street Junction Box Sewer Study	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Parkside Drive Lift Station Upgrades	-	-	-	-	-	-	-	-	-	-
3	Sewer Pipe Rehabilitation Program	-	1,550,000	1,550,000	1,550,000	1,550,000	1,550,000	1,550,000	1,550,000	1,550,000	1,550,000
4	Manhole Inspection Program	-	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
5	Sewer Manhole Rehabilitation Program	-	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
6	Sewer Access Road Rehabilitation Program	-	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000
7	Police Department Sewer Pump Station Relocation	-	450,000	-	-	-	-	-	-	-	-
8	City Hall Emergency Storage	-	-	-	-	-	-	-	-	-	-
9	Salt Creek Community Pump Station	-	-	-	-	-	-	-	-	-	-
10	Salt Creek interceptor Condition Assessment (Portions)	-	-	-	-	-	-	-	-	-	-
11	Poggi Canyon Sewer Improvements on Olympic Parkway at Concord Way	-	-	-	-	-	-	-	-	-	-
12	Sewer Pipeline Rehab	-	-	-	-	-	-	-	-	-	-
13	Agua Vista Pump Station Upgrades	-	-	-	-	-	-	-	-	-	-
14	J Street Sewer Junction Structure Improvement	-	-	-	-	-	-	-	-	-	-
15	Major Pump Maintenance or Upgrade (est. 1 PS every 5 years), based on Parkside ($1.5M), Yrs. 5-10	-	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
16	CIP Advanced Planning	-	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
17	Identified CIP	2,650,000	-	-	-	-	-	-	-	-	-
17	**Total Capital Project Costs**	**$2,650,000**	**$3,480,000**	**$3,030,000**	**$3,030,000**	**$3,030,000**	**$3,030,000**	**$3,030,000**	**$3,030,000**	**$3,030,000**	**$3,030,000**
18	**Esclation Factor**	**0.00%**	**0.00%**	**0.00%**	**2.95%**	**2.95%**	**2.95%**	**2.95%**	**2.95%**	**2.95%**	**2.95%**
19	**Total Escalated Capital Project Costs**	**$2,650,000**	**$3,797,682**	**$3,404,305**	**$3,504,894**	**$3,608,455**	**$3,715,076**	**$3,824,848**	**$3,937,863**	**$4,054,218**	**$4,174,010**

Table 7
Projected Growth Rate

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Population	281,344	284,993	288,598	291,548	297,962	304,517	311,217	318,063	325,061	332,212
Increase in Population	4,245	3,649	3,605	2,950	6,414	6,555	6,699	6,847	6,997	7,151
System Growth for Charges for Services Revenues [1] [2]	1.53%	1.30%	1.26%	1.02%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%

(1) System growth is linked to estimated population growth and is assumed to directly translate to revenue growth. In other words a 1% increase in population is assumed to translate to a 1% increase in charges for services revenue. This may change as rates are revised and refined.
(2) Growth rates are from the Annual Residential Forecast 2020 - 2024 (Sept 2019)

APPENDIX B

Reserve Fund Policies

SUBJECT: Sewer Service Revenue Fund Reserve Policy	POLICY NUMBER	EFFECTIVE DATE	PAGE
	220-04	12/17/13	1 of 4

ADOPTED BY: 2013-265	DATED: December 17, 2013

PURPOSE:

Public entities accumulate and maintain adequate reserves levels to help ensure both financial stability and the ability to provide core services during difficult times. Adequately funded reserves allow for: 1) funding infrastructure replacement, 2) economic uncertainties and other financial hardships, 3) future debt and capital obligations, 4) cash flow requirements, 6) improved credit ratings, 5) unfunded mandates including costly regulatory requirements.

BACKGROUND:

The City's Sewer Enterprise Funds account for specific services funded directly by fees and charges users of the City's sewer system. These funds are intended to be self-supporting as well as restricted and cannot be used for other City services. They account for revenues and expenses related to the City's sewer programs, including maintenance and expansion of the City's conveyance system and payment of San Diego Metro wastewater treatment costs.

The Sewer Service Revenue Enterprise Fund accounts for revenue collected from monthly sewer service charges for all properties that are connected to the City's sewer system. These funds can only be used for sewer related operations and maintenance. The primary use of these funds is payment for the City's annual San Diego Metropolitan Sewer Capacity and to fund maintenance and operational costs associated with the sewer collection system.

The Government Finance Officers Association (GFOA), an international organization that promotes the professional financial management of governments for the public interest, recommends maintaining minimum reserve balances. A government's particular situation may require levels of reserves significantly in excess of their recommended minimum levels. Cities with higher reserve levels are better positioned to protect public services during economic downturns.

GFOA recommends that in establishing a policy governing the level of reserves or working capital in enterprise funds, a government should consider a variety of factors, including but not limited to the following:

- The predictability of its revenues and the volatility of its expenditures (i.e. higher levels of reserves may be needed if significant revenue sources are subject to unpredictable fluctuations or if operating expenditures are highly volatile.)

- Liquidity (i.e. a disparity between when financial resources actually become available to make payments and the average maturity of related liabilities may require that a higher level of resources be maintained).

- Designations (i.e. governments may wish to maintain higher levels of reserves to compensate for any portion of available fund balance already designated for a specific purpose).

SUBJECT: Sewer Service Revenue Fund Reserve Policy	POLICY NUMBER	EFFECTIVE DATE	PAGE
	220-04	12/17/13	2 of 4

ADOPTED BY: 2013-265	DATED: December 17, 2013

POLICY:

This Policy establishes four distinct reserves within the Sewer Service Revenue Fund:

1. Working Capital and Rate Stabilization Reserve
2. Emergency Reserve
3. Vehicle Replacement Reserve
4. U.S. Environmental Protection Agency (USEPA) Permit Renewal Liability Reserve

Working Capital and Rate Stabilization Reserve

Working Capital and Rate Stabilization reserves in the Sewer Service Revenue Fund will be restricted to maintaining and operating the wastewater collection system and paying treatment charges to City of San Diego Metropolitan Wastewater ("Metro"). The reserve will be funded from revenues accumulated in the Sewer Service Revenue Fund. It is intended to accommodate any natural variability in revenues and expenditures, including potential disruptions of cash flows due to varied billing methodology, short term fluctuations and annual cycles. The reserve will also assist in addressing shortfalls which may occur due to unanticipated cost increases in labor or energy and other consumption based goods and services, such as wastewater treatment services provided by Metro. The reserves represent unrestricted resources available for appropriation by the City Council addressing unforeseen needs for sewer services.

The Working Capital and Rate Stabilization Reserves will assist the City in addressing the following items:

- Rate Stabilization – the reserves will allow the City the flexibility to "smooth" rates and phase increases in over multiple years, which is prudent given the potential variability in the City's payments to Metro.
- Revenue Collection Fluctuations - the reserves will be used to protect the City from natural fluctuations in revenue and expenditure cycles which is prudent given that the City bills customers at different points in time but incurs expenses continuously throughout the year.
- Rates of delinquencies – delays in collection of outstanding revenues.
- Payroll cycles – the timing of a fixed cash requirement for payroll, as related to the timing of revenue cycles.
- Unanticipated expenses - expenses whose characteristics make accurate estimation difficult, such as increases in wastewater treatment services provided by the City of San Diego, energy costs, labor benefits and other consumption based goods and services.

The City shall maintain a Sewer Revenue reserve equivalent to 90 days of operating expenditures and a Rate Stabilization reserve equivalent to 90 days of operating expenditures for a minimum combined total of 180 days and a maximum reserve balance of 125% of the minimum balance.

If funds are appropriated from the Sewer Revenue Working Capital and Rate Stabilization Reserves, the funds should be replenished in the budget process during subsequent fiscal years to the minimum reserve balance. If the magnitude of the event caused the Sewer Revenue Working Capital and a Stabilization Reserves to be less than 30 days of the operating and maintenance budget, the Finance Director shall provide the City Council with a plan to incrementally replenish the reserves to the 180 days minimum reserve balance.

Emergency Reserve

The Sewer Service Revenue Fund Emergency Reserve is necessary to secure funding for insurance deductibles, unforeseen liabilities/litigation and settlement costs related to the City's wastewater system.

The City shall maintain a minimum Sewer Service Revenue Fund Emergency Reserve target level of 5% of the operating and maintenance budget and a maximum reserve balance of 125% of the minimum balance. If funds are appropriated from the Sewer Revenue Emergency Reserves due to unanticipated needs, the Finance Director shall provide the City Council with a plan to incrementally replenish the reserves to the minimum reserve balance.

Vehicle Replacement Reserve

The Sewer Service Revenue Fund Vehicle Replacement Reserves represents monies set aside to fund the replacement of aging vehicles. The allocation is funded from revenues accumulated in the Sewer Service Revenue Fund.

The City shall maintain a minimum Sewer Service Fund Vehicle Replacement Reserve target of 2% of the operating and maintenance budget. This reserve will ensure that vehicles utilized for sewer operations are replaced as scheduled and available to deploy as needed.

To achieve a minimum impact to cost of services and rates, funds will be included in the proposed budget on an annual basis as identified in the City's Vehicle Replacement schedule. The cost of replacing all the vehicles will be averaged over the lifespan of the existing fleet. This will generate a more normalized cost of services by evenly distributing revenue requirements on a year-to-year basis offsetting temporary cash flow deficiencies and avoid significant increases in rates charges to customers in the years the replacement cost are incurred.

USEPA Permit Renewal Liability Reserve

The Sewer Service Revenue Fund USEPA Permit Renewal Liability Reserve will account for monies set aside to fund the City of San Diego Metropolitan Wastewater costs related to the potential upgrade of the Point Loma Wastewater Treatment Plant (PLWTP) or other alternative for secondary treatment. The reserve will be funded from revenues accumulated in the Sewer Service Revenue Fund.

SUBJECT: Sewer Service Revenue Fund Reserve Policy	POLICY NUMBER	EFFECTIVE DATE	PAGE
	220-04	12/17/13	4 of 4

ADOPTED BY: 2013-265	DATED: December 17, 2013

Metro's USEPA waiver expires in FY 2015 and may not be renewed. If denied, Metro would need to develop and implement improvements to achieve secondary treatment level at PLWTP. Current cost estimates to establish full secondary treatment at PLWTP as well as possible alternatives are all significant (>$1Billion). As a contributing member to the regional treatment plant, the City of Chula Vista's share in the cost of any upgrade would be approximately 10 percent for the capital improvements and any increase in the overall treatment cost. It is expected that Metro will have 10 years after the expiration of the USEPA waiver to institute secondary treatment or alternative. This reserve establishes a dedicated fund that will offset a portion of the City's share of any obligation related to the PLWTP USEPA waiver. By actively planning for the PLWTP upgrade or alternative, the City will be in a stronger financial position to afford such costs while mitigating impacts to ratepayers.

The Permit Renewal Liability Reserve will be funded through annual contributions with the intent to reach a target balance of 20% of Chula Vista's share of the upgrade cost by FY 2024/25 (10 years after the expiration of the waiver). If substantial increases in Metro-related costs occur sooner than expected, the City may draw down reserve levels prior to FY 2024/25 to manage impacts to ratepayers. To be consistent with the City's policy for managing balances for its other utility reserves, if funds are appropriated from the reserve before its intended use, the funds should be replenished in subsequent fiscal years. If the magnitude of the withdrawal is material, the Finance Director shall provide the City Council with a plan to incrementally replenish the reserves.

If the actual costs for the PLWTP upgrade or alternative are less than anticipated, any unspent reserves will be rolled into the Working Capital and Rate stabilization reserve and utilized to fund City sewer programs, including maintenance and expansion of the City's conveyance system and payment of San Diego Metro wastewater treatment costs.

APPENDIX C

Fund Balances

Fiscal Year 2019-2020

	Fund 411	Fund 413	Fund 414	Fund 428	Notes
	Sewer Fund	Trunk Sewer Capital Reserve	Sewer Service	Sewer Facility Replacement	
End of Year Cash Balance	$ 2,231,746	$ 64,836,569	$ 48,147,276	$ 13,605,982	GL032 GL Actuals - 202000 to 202013 SSRS Report;Munis Balance Sheet Report

APPENDIX D

System Growth Estimates

ANNUAL RESIDENTIAL GROWTH FORECAST

2020 through 2024

September 2019

INTRODUCTION

As a component of the City of Chula Vista's ("City") Growth Management Program, the City's Development Services Department provides annual residential growth forecasts looking out five years. This year's growth forecast covers the period from January 2020 through December 2024.

The growth forecast is provided to assist City departments and other service providers in assessing potential impacts that growth may have on maintaining compliance with threshold standards for each of the quality of life threshold topics established in Chula Vista Municipal Code Chapter 19.09, Growth Management, as listed below:

1. Air Quality and Climate Protection
2. Drainage
3. Fire and Emergency Medical Services
4. Fiscal
5. Libraries
6. Parks and Recreation
7. Police
8. Schools
9. Sewer
10. Traffic
11. Water

The Chula Vista Growth Management Oversight Commission (GMOC) sends out on an annual basis the growth forecast and compliance questionnaires to City departments and service providers, soliciting information regarding past, current, and projected compliance with the quality of life threshold standards for the facilities and services listed above. The responses to the questionnaires form a basis for the GMOC's annual report, which includes a set of recommendations to the City Council regarding threshold compliance and/or revisions to any of the City's threshold standards. Recommendations may include such actions as adding or accelerating capital projects; hiring personnel; changing management practices; or slowing the pace of growth (such as a moratorium). The City Council ultimately decides what course of action to take.

To prepare the growth forecast, the City requests that developers and builders provide residential projections for projects that have been or are undergoing the entitlement process, and that could potentially be approved and permitted for construction within the next five years. The numbers reflect consideration of the City's standard entitlement process and permitting time frames, but do not reflect market or other economic conditions outside the City's control. Therefore, the growth forecast is characterized as follows:

- It does not represent a goal or desired growth rate;
- It represents what may occur given a set of assumptions listed below under "Forecast Methods";
- It is produced by the City and is not necessarily endorsed by home builders; and
- It assumes that market and economic conditions, as well as developer funding and resources, will consistently be synchronized to support the projections. This is a more liberal estimate to assess possible effects to the City's threshold standards.

As shown in Table A, below, last year's growth forecast estimated that 2,117 residential building permits would be issued in 2019. However, actual permits issued fell below projections, particularly for single-family units. Overall, permits to date, plus current fourth quarter projected permits are approximately 42% lower than the projections in last year's Growth Forecast. Permits for single-family units fell more drastically, 72% below the 800 units projected. The majority of building activity in 2019 is occurring in the master planned communities east of Interstate 805.

Table A

Residential Land Use Type	2019 Projections from Previous Growth Forecast	2019 Actual and Updated Projection			Difference
		Actual Permits Issued 1.1.19 Through 8.22.19	Fourth Quarter 2019 Projections	Total	%
Single-family	800	149	79	228	-72%
Multi-family	1,317	379	625	1,004	-24%
TOTAL	2,117	528	704	1,232	-42%

FORECAST SUMMARY

In the forecast period covering calendar year 2020 through calendar year 2024, **6,077** residential units are projected to be permitted **citywide**, with an annual average of 1,215 housing units permitted per year (see Figure 1 and Tables 1 and 2). Building activity will continue to be concentrated in the master planned communities east of Interstate 805, with 93% of residential permits to be issued in eastern Chula Vista. Refer to Figure 2 for a map of the anticipated developments in the City during the forecast period.

Table B

Description	Residential Unit Forecast		
	Five Year (2020-2024)		Per Year
	No. of Units	% of Units	No. of Units
Western Chula Vista	406	7%	81
Eastern Chula Vista	5,671	93%	1,134
TOTAL	**6,077**	**100%**	**1,215**

These above developer-provided projections were averaged with the projected 10-year moving average of permits issued to present a growth forecast that "smooths out" annual fluctuations (Tables 3 and 4). Averaging the citywide developer projections and the 10-year moving average results in a blended projection of approximately **786** permits to be issued **in 2020**, increasing to **944 in 2024**. The data presented in Table 3 provides a historical context for assessing and validating the developer-generated projections contained in Tables 1 and 2.

The following discussion and figures describe the context, conditions and assumptions behind the forecast. It should be noted that this forecast is a planning tool and not a prediction or specific expectation.

FORECAST METHODS

With input from developers, projections are derived by reviewing the status of project entitlements, including estimated project processing schedules for plan reviews, subdivision maps, and building plans.

The forecast is predicated upon the following three assumptions:

1. Public policy regarding development remains unchanged;
2. The housing market remains stable; and
3. Projects follow normal project regulatory processing schedules.

To provide context for the forecasted units to be constructed, the City uses several analyses that illustrate the range of possibilities in which development in the City could proceed. These methods are a combination of simple statistics and market absorption estimates provided by developers with consideration for typical permit progression through the City's entitlement process.

Table C

Methodology	Five Year (2020-2024) Residential Unit Forecast Citywide
Developer Estimates and Permit Process Projection	6,077
Statistical (10-Year Simple Moving Average) Projection	4,741
Blended Projection (Average of Developer and Statistical Projections)	5,409

Developer Estimates and Permit Process Projection

As part of the Growth Forecast preparation process, the City solicits estimates from developers in the City based on their permitting and construction schedules coupled with their understanding of market absorption conditions. The City then incorporates the status and progression of the units in the entitlement process into the anticipated schedule. In doing so, any unanticipated regulatory impacts to the schedules of planned projects can be accounted for. Typically, this results in some minimal deviations from the developers' projected schedules. This projection indicates the permitting of a total of **6,077** residential units **citywide** between **2020 and 2024**.

Statistical (10-Year Simple Moving Average) Projection

As discussed above, the statistical method for projecting permitted units provides a readily-available estimate for future development accounting for the dynamics of approximately a full market cycle. Each future year's citywide projected completed units are the average of the citywide completed units for the ten prior years, representing a 10-year simple moving average for completed dwelling units. This projection indicates the permitting of approximately **4,741** residential units between **2020 and 2024.**

As shown on Table 3, the moving average includes data from the preceding 10 years, which includes a period when development was significantly slowed by the national financial crisis and its aftermath. Therefore, although there are some variations year-by-year, the overall five-year projection based on the moving average is approximately 10% lower than developer projections.

Blended Projection

As previously discussed, the statistical and developer projections form the lower and upper bounds of future trends, respectively. For the purposes of this analysis, the mean of these projections (the Blended Projection) is interpreted as the most likely outcome and is used as the forecasted permit activity and population growth. As discussed in the "Statistical (10-Year Simple Moving Average) Projection" section above, approximately 4,741 total permitted units are projected between 2020 and 2024, based on the moving average, while 6,077 would be permitted based on developer projections. **The average between the 10-year moving average and developer projections is 5,409 units between 2020 and 2024**. Additional details can be found in Tables 3 and 4, and the light blue lines on Figure 3.

Additional details can be found in Tables 3 and 4, and the light blue lines on Figure 3. Information regarding projected growth in the eastern and western portions of the City is presented in the paragraphs that follow.

Eastern Chula Vista

Most of the City's growth has been and will continue to be in eastern Chula Vista (see Figure 2) for the next several years. Development is projected to be most active in Otay Ranch Villages 2, 3, 8 West, Planning Area 12, and Millenia through 2024 (see Table 1).

Starting in **January 2020**, the **remaining capacity** for residential units projected to be permitted in eastern Chula Vista is approximately 16,897. If 6,077 units were to be permitted over the next five-year period, then **approximately 10,820 units** would remain. Assuming the continuation of the annual developer projection of 1,215 permits per year, the City's residential capacity would be fully built out in approximately nine years after the analysis period of this growth forecast (i.e., 2033). However, this is a projection of long-term future growth based on a five-year-projection; this buildout estimate is subject to revision resulting from changes in economic conditions, updated vacancy and occupancy estimates, and/or future revisions to development plans.

Western Chula Vista

Several projects in western Chula Vista are entitled but remain undeveloped, as indicated in Table D, below:

Table D

NAME/ADDRESS	NUMBER OF ENTITLED UNITS
MULTI-FAMILY	
1262 Third Avenue Apartments	6
201 Third Avenue	23
230 Church Avenue Apartments	29
268 I Street Apartments	6
288 Center Street	29
305 E Street Apartments	52
354 Moss Street Townhomes	16
577 Fourth Avenue Residences	10
Bayfront–Pacifica	450
The Colony Condominiums	162
Flower Street Apartments	18
Fourth Avenue 4-Plex	4
Industrial Townhomes	42
Limon Apartments	3
Urbana (385 & 395 H Street)	135
Villas Nuevos Apartments	4
Vistas Chulitas	9
Vistas Del Mar	71
Woodlawn Avenue Apartments	4
SUBTOTAL	**1,073** *(99%)*
SINGLE-FAMILY	
264-276 Palm Avenue Homes	4
635-641 E. Naples Homes	4
Date Street Residences	5
SUBTOTAL	**13** *(1%)*
TOTAL	**1,086**

The initial phase of development of the Bayfront–Pacifica units is projected to begin in 2021. It is assumed that buildout of Pacifica would occur after 2024. However, there is no clear indication when the other projects will move forward.

From January 1 through August 22, 2019, 19 building permits were issued for accessory dwelling units (ADUs). Approximately 20 ADUs are expected to be permitted each year between 2020 and 2024.

CONSTRUCTION HISTORY

Residential

Several market cycles, including recessions, have contributed to a broad range in the number of building permits issued each decade since 1980, as indicated in Table E, below:

Table E

Decade	Average Number of Building Permits Issued per Year
1980-1989	990
1990-1999	973
2000-2009	1,885
2010-2019*	913
* Existing permits through August 22, 2019 plus projections for fourth quarter of 2019	

The following are notable characteristics of residential construction since the 1980s:

- On an annual basis, the number of building permits issued for housing units in Chula Vista has fluctuated from a low of 195 in 1981 to a high of 3,525 in 2001.
- The average number between 1980 and 2018 was 1,188 (see Table 3 and Figure 3).
- Between 1984 and 1989, the average number of permits issued each year was 1,431.
- There was a ten-year period of at least 1,000 permits issued annually between 1997 and 2006, averaging 2,254 units per year.
- In 2001, 2003 and 2004, the annual permits issued exceeded 3,000.
- Between 2007 and 2015, the number of building permits issued each year never exceeded 1,000 per year, due to the lingering effects of the housing and financial crisis.
- Between 2016 and 2018, annual permits issued exceeded 1,000 and increased with each successive year.
- The projected number of annual permits for 2019 is 1,035, which is a reduction from previous years.

A significant cause of Chula Vista's growth was, and continues to be, development of the master planned communities in eastern Chula Vista, including Rancho del Rey, Eastlake, Rolling Hills Ranch, San Miguel Ranch, and Bella Lago, which are mostly built out; and Otay Ranch, which has several thousand more units to be constructed.

Commercial and Industrial

Commercial and industrial development in the City has been significantly outpaced by residential development but characterized by periodic upticks, typically due to the opening of retail centers. Commercial development in the City has recently accelerated with the development of the Millenia, Freeway Commercial, and Bayfront project areas. Approximately 1,600 hotel rooms are projected to be permitted in 2020 in the Chula Vista Bayfront Master Plan area.

FORECASTED POPULATION

This forecast focuses on the projected number of residential units as the primary indicator to measure future population increases. Western Chula Vista (as evidenced by U.S. Census data) has experienced growth in the form of demographic changes as the average household size increases. However, such growth is difficult to track on a year-to-year basis and is not reflected in this report's future population forecast.

The California State Department of Finance (DOF) estimated that Chula Vista had an average of 3.30 persons per household in 2019. Applying this rate to the residential units projected over the next five years using the City's 10-year moving average, and assuming a 2019 year-end population of 277,099 and the 2019 DOF vacancy rate of 5.3%, Chula Vista can expect a total population of approximately **288,844** persons by the end of 2024 (see Figure 3, solid red line). Applying the developer's projections to the same assumptions would result in a projected 2024 population of **294,252**. Assuming the Blended Projection, the City's population would be **291,548** by 2024. This represents an increase of approximately 14,450 residents, as compared to the estimated year-end population of **277,099** for 2019.

This is only a rough estimate for planning purposes, as the vacancy rate, persons per unit factors, and the number of actual units completed will vary over time.

Figure 1 - Residential Building Permits

Actual Issued 2004 - 2019* and Forecast 2020 - 2024

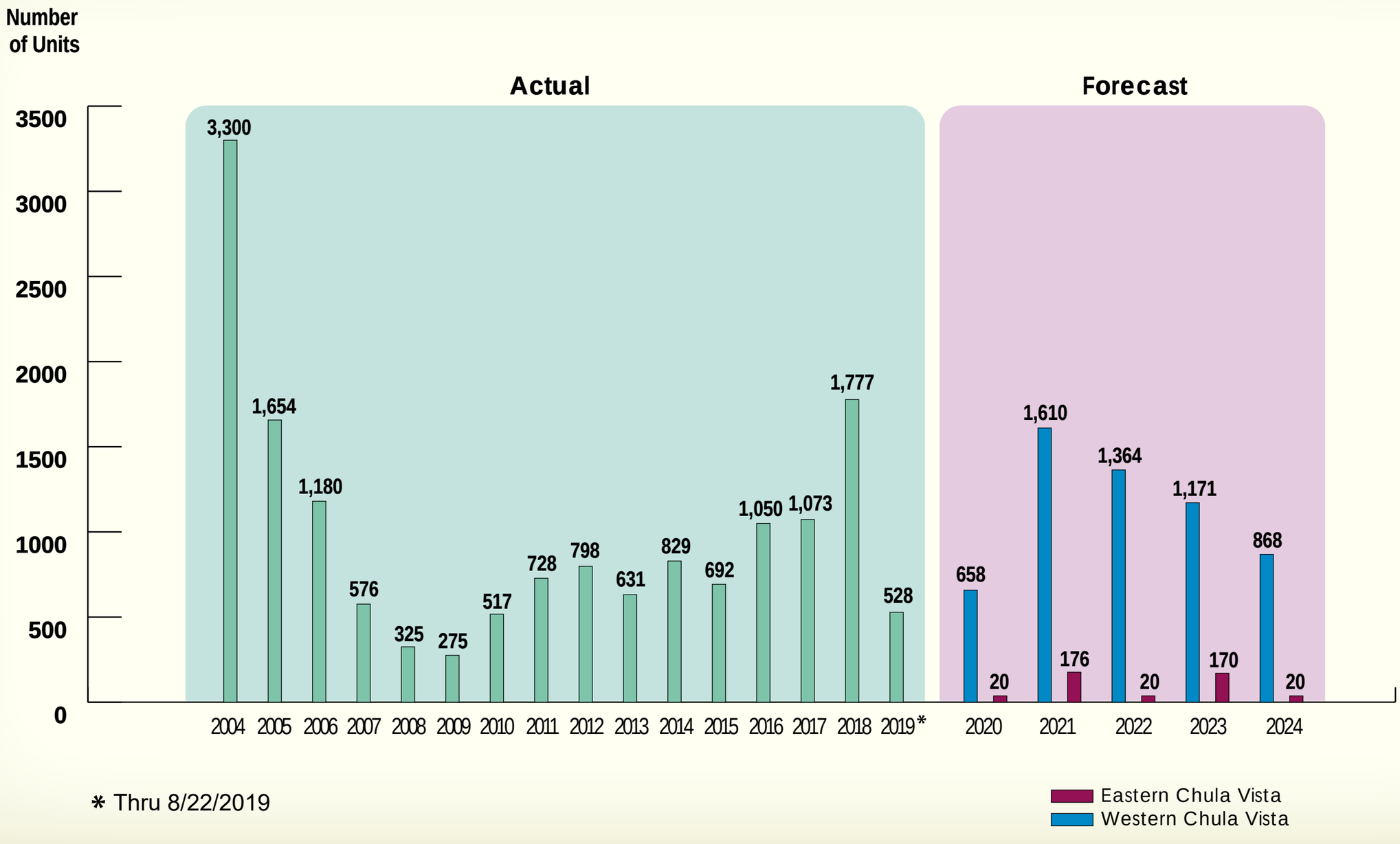
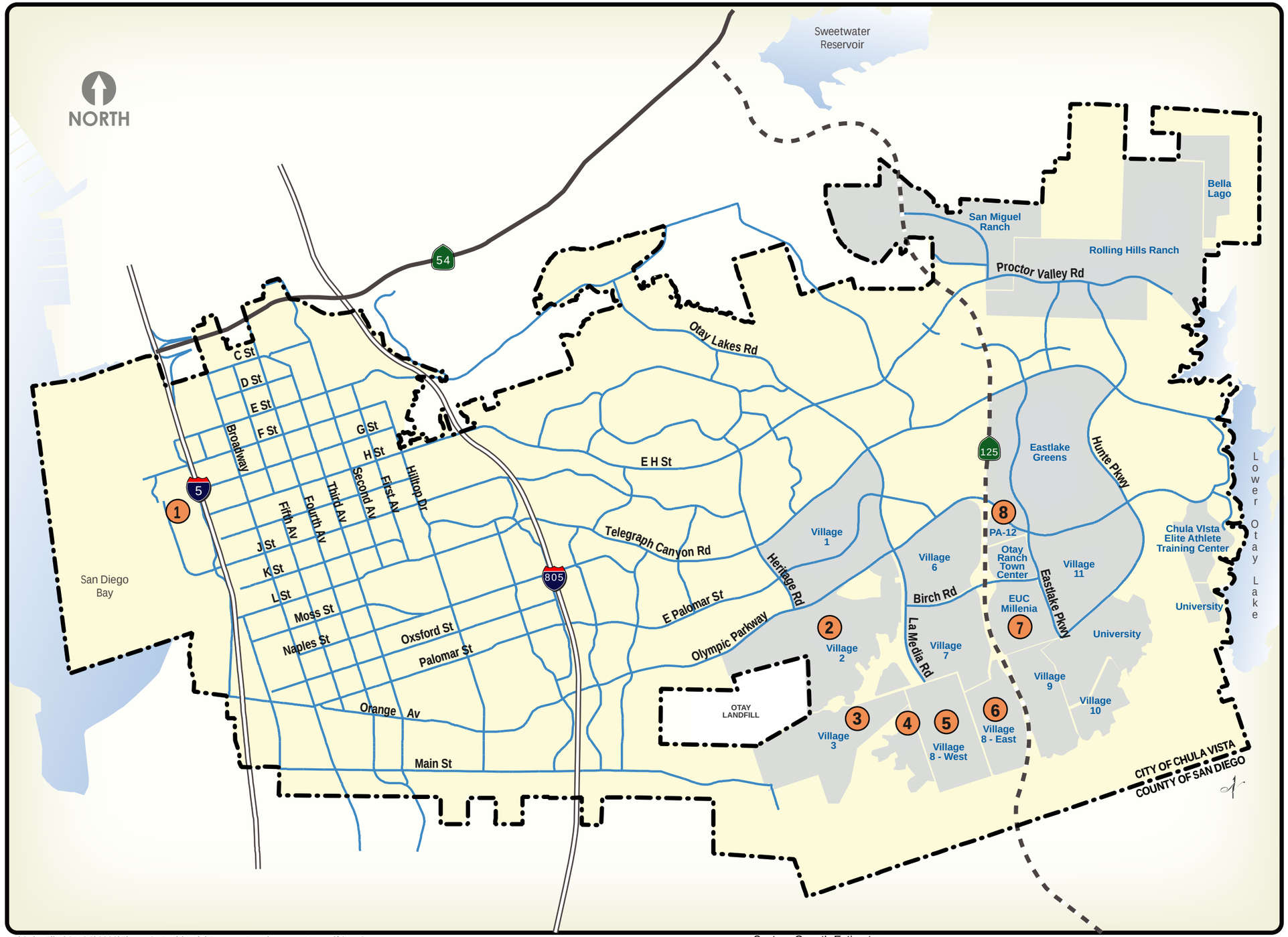


Figure 2 - Residential Development Forecast Map
2020- 2024



CITY OF CHULA VISTA

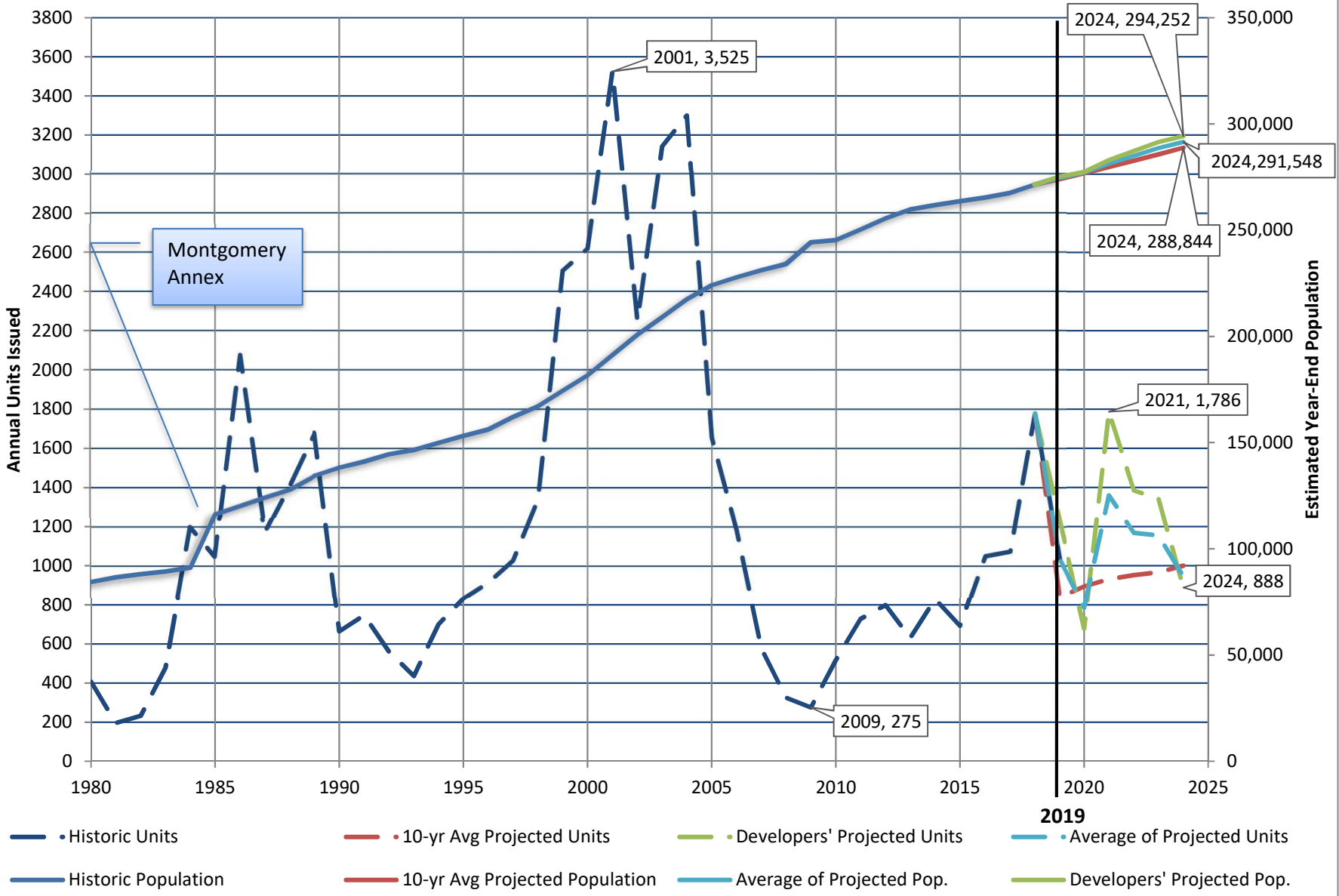
LIST OF CITYWIDE PROJECTS

1. Bayfront Pacifica
2. Village 2 - Otay Ranch
3. Village 3 North - Otay Ranch
4. Village 4 - Otay Ranch
5. Village 8 West - Otay Ranch
6. Village 8 East - Otay Ranch
7. EUC "Millenia" - Otay Ranch
8. PA-12 Freeway Commercial - Otay Ranch

City of Chula Vista Boundary

Toll Road

Figure 3 - Historic and Projected Population Growth



Note: Population increase assumed to occur at occupancy, which for the purposes of this analysis is assumed to lag issuance by one year.

Figure 4 - Historic and Projected Units Issued by Land Use

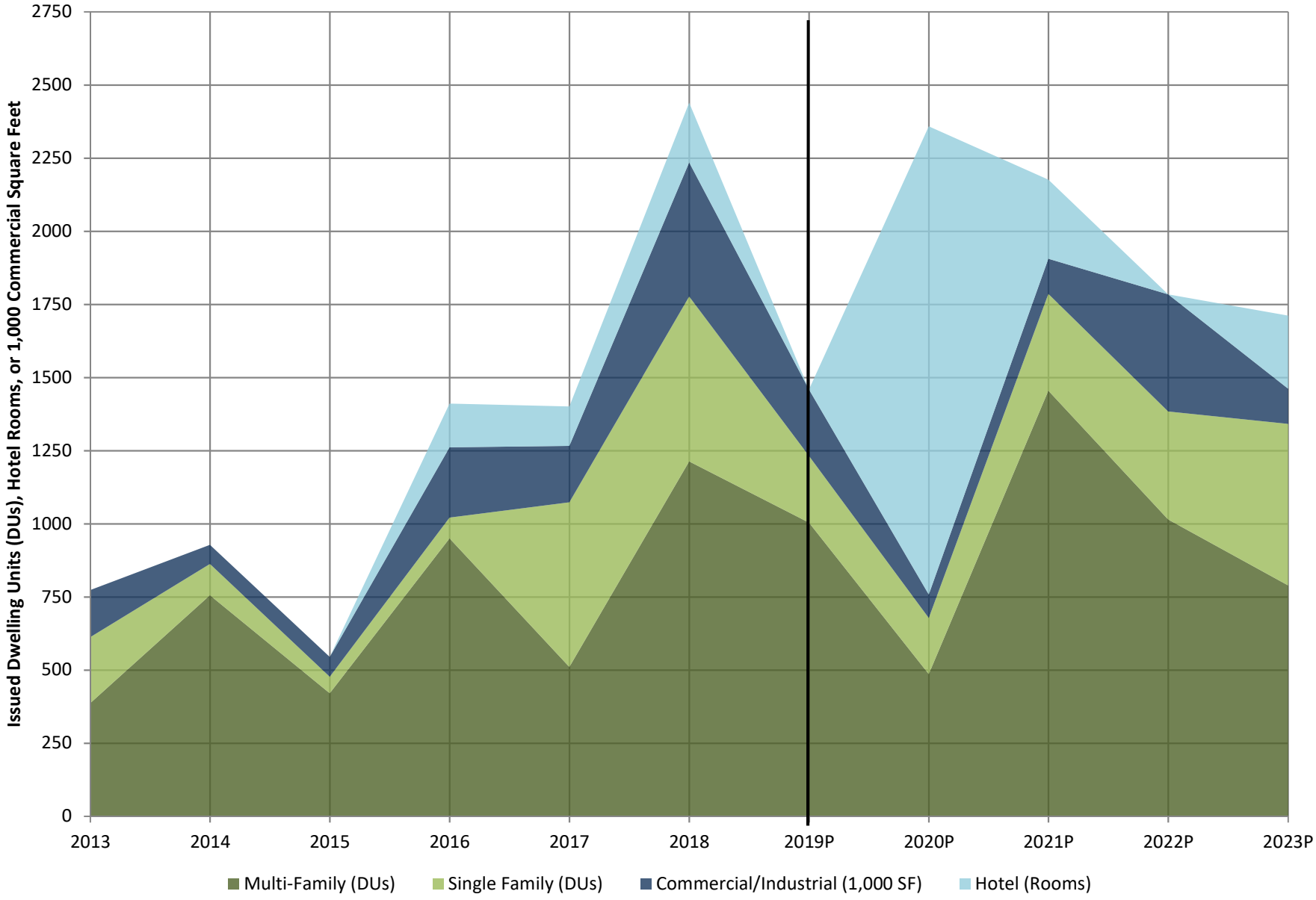


Table 1

EASTERN CHULA VISTA RESIDENTIAL DEVELOPMENT FORECAST

EASTERN PROJECTS	2019 4th Q		5-Year Forecast											
			2020		2021		2022		2023		2024		2020-2024	
	ISSUE		ISSUE		ISSUE		ISSUE		ISSUE		ISSUE		ISSUE	
	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF
OTAY RANCH														
Village 2 - Baldwin & Sons	21	12	83	180	35	258	50	427	47	350	91	332	306	1,547
Village 2 - HomeFed	0	0	0	0	0	0	62	0	10	0	0	0	72	0
Village 3 - Brookfield Homes (Alley Row Townhomes)	0	0	0	0	0	0	0	0	0	37	0	10	0	47
Village 3 - Brookfield Homes (Haciendas)	0	0	0	0	0	0	0	0	25	0	13	0	38	0
Village 3 - Brookfield Homes (Prado Front Load)	12	0	24	0	0	0	0	0	25	0	19	0	68	0
Village 3 - Lenna Homes (Castellena)	0	0	0	0	0	0	0	0	17	0	6	0	23	0
Village 3 - Lennar Homes (Indigo)	4	0	4	0	0	0	0	0	20	0	6	0	30	0
Village 3 - Lennar Homes (Valencia)	0	0	0	0	0	0	0	0	34	0	10	0	44	0
Village 3 - Shea Homes (Sierra)	8	0	12	0	0	0	0	0	36	0	12	0	60	0
Village 3 - Shea Homes (Seville)	6	0	37	0	0	0	0	0	36	0	12	0	85	0
Village 3 - TBD	0	0	0	0	24	0	20	120	0	0	0	164	44	284
Village 4 - Undetermined	23	25	0	100	0	100	0	27	0	0	0	0	0	227
Village 8 West - HomeFed	0	0	12	128	252	323	218	404	170	220	122	19	774	1,094
Village 8 East - Homefed	0	0	0	0	0	0	0	0	112	0	0	0	112	0
Village 10 - HomeFed	0	0	0	0	0	0	0	0	0	0	0	52	0	52
Planning Area 12 - Baldwin	0	0	0	78	0	618	0	36	0	32	0	0	0	764
Millenia Lot 15 (Vibe) - Lennar	0	92	0	0	0	0	0	0	0	0	0	0	0	0
Millenia Lot 17 (Boulevard) - Lennar	0	12	0	0	0	0	0	0	0	0	0	0	0	0
Millenia Lots 8 & 21 - Ryan Companies	0	480	0	0	0	0	0	0	0	0	0	0	0	0
Millenia (Element & Z) - Shea	0	4	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL BY UNIT TYPE	74	625	172	486	311	1,299	350	1,014	532	639	291	577	1,656	4,015
GRAND TOTAL	**699**		**658**		**1,610**		**1,364**		**1,171**		**868**		**5,671**	
													Annual Average (2020-2024):	**1,134**

ISSUE = Building permits projected to be issued

Table 2

WESTERN CHULA VISTA RESIDENTIAL DEVELOPMENT FORECAST

PROJECT	2019 4th Q		5-Year Forecast											
			2020		2021		2022		2023		2024		2020 - 2024	
	ISSUE		ISSUE		ISSUE		ISSUE		ISSUE		ISSUE		ISSUE	
	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF
Bayfront - Pacifica	0	0	0	0	0	156	0	0	0	150	0	0	0	306
Second Accessory Units	5	0	20	0	20	0	20	0	20	0	20	0	100	0
SUB-TOTAL	**5**	**0**	**20**	**0**	**20**	**156**	**20**	**0**	**20**	**150**	**20**	**0**	**100**	**306**
TOTAL	**5**		**20**		**176**		**20**		**170**		**20**		**406**	
											Annual Average (2020 - 2024):		**81**	

ISSUE = Building Permits Projected to be Issued

Table 3

HISTORIC AND PROJECTED HOUSING & POPULATION GROWTH

1980 - 2024

Calendar Year	Units Authorized for Construction (Issued)	Units Completed (Final)	Year End Population Estimate[1]	Annual Percentage Change
1980	407	374	84,364	-
1981	195	496	86,597	2.6
1982	232	129	88,023	1.6
1983	479	279	89,370	1.5
1984	1,200	521	91,166	2.0
1985	1,048	1,552	116,325	27.6 [2]
1986	2,076	1,120	120,285	3.4
1987	1,168	2,490	124,253	3.3
1988	1,413	829	128,028	3.0
1989	1,680	1,321	134,337	4.9
1990	664	1,552	138,262	2.9
1991	747	701	141,015	2.0
1992	560	725	144,466	2.4
1993	435	462	146,525	1.4
1994	700	936	149,791	2.2
1995	833	718	153,164	2.3
1996	914	820	156,148	1.9
1997	1,028	955	162,106	3.8
1998	1,339	1,093	167,103	3.1
1999	2,505	1,715	174,319	4.3
2000	2,618	2,652	181,613	4.2
2001	3,525	3,222	191,220	5.3
2002	2,250	2,923	200,798	5.0
2003	3,143	2,697	208,997	4.1
2004	3,300	3,043	217,512	4.1
2005	1,654	2,525	224,006	3.0
2006	1,180	1,448	227,850	1.7
2007	576	837	231,157	1.5
2008	325	518	234,011	1.2
2009	275	398	244,269	4.4
2010	517	422	245,309	0.4
2011	728	631	250,349	2.1
2012	798	847	255,607	2.1
2013	631	777	259,811	1.6
2014	829	394	261,801	0.8
2015	692	657	263,611	0.7
2016	1,050	607	265,357	0.7
2017	1,073	809	267,503	0.8
2018	1,777	1,319	271,411	1.5

Table 3

HISTORIC AND PROJECTED HOUSING & POPULATION GROWTH

1980 - 2024

Calendar Year	Units Authorized for Construction (Issued)	Units Completed (Final)	Year End Population Estimate[1]	Annual Percentage Change
2019 [4]	1,035		274,644	1.2
2020	786		277,099	0.9
2021	1,358		281,344	1.5
2022	1,168		284,993	1.3
2023	1,154		288,598	1.3
2024	944		291,548	1.0
Average, 1980-2018	**1,194**	**1,167**		**2.2** [3]

(1) Reflects Department of Finance (DOF) comprehensively revised population figures for the end of the referenced year. Projected future years reflect the average between developer projections and a rolling average of population growth.

(2) Annexation of unincorporated community of Montgomery.

(3) The annual average percentage is adjusted for the anomaly of the Montgomery Annexation.

(4) Permit data through 8/22/2019; remainder of calendar year projected. Population estimated based on permitted units x 3.30 persons per unit x 0.947 occupancy factor.

Table 4
POPULATION GROWTH PROJECTIONS
2020-2024

Calendar Year	Developer Unit Projections[1]		10-Year Moving Average Unit Projections[2]		Average of Developer Projections and 10-Year Moving Average	
	Permits	Year-end Population[3]	Permits	Year-end Population[3]	Permits	Year-end Population[4]
2020	678	277,380	893	276,818	786	277,099
2021	1,786	282,961	931	279,727	1,358	281,344
2022	1,384	287,287	951	282,699	1,168	284,993
2023	1,341	291,477	966	285,719	1,154	288,598
2024	888	294,252	1,000	288,844	944	291,548
TOTAL	**6,077**		**4,741**		**5,409**	

(1) Units estimated based on developer projections.
(2) Units estimated based on 10-year moving average of permitted unit trend.
(3) Year-end population includes the increase in population resulting from development during that year, based on a projected City population of 277,099 for the end of 2019. Annual growth is estimated based on the number of units x 3.30 persons per unit x 0.947 growth factor.
(4) Year-end population is an average of the population based on developer unit projections and 10-year moving average projections.

Table 5

HISTORIC/PROJECTED NEW CONSTRUCTION, BY LAND USE

Calendar Year	Multi-Family Units Permitted	Single Family Units Permitted	Commercial/ Industrial 1,000 SF Permitted	Hotel Rooms Permitted
2013	387	225	162	0
2014	755	107	65	0
2015	420	57	68	0
2016	950	71	240	150
2017	510	563	193	135
2018	1,213	564	458	205
2019P	1,004	228	227	0
2020P	486	192	80	1600
2021P	1,455	331	120	270
2022P	1,014	370	400	0
2023P	789	552	120	250
2024P	577	311	80	152
Annual Average	**797**	**298**	**184**	**230**

Note: (E) = estimated; (P) = projected

APPENDIX E

Interest Earnings Assumptions

Kevin Burnett

From: Beth Gentry <bgentry@chulavistaca.gov>
Sent: Thursday, November 21, 2019 6:02 PM
To: Kevin Burnett
Subject: FW: Rate Study - Review of Assumptions from Finance

Hi Kevin,

Please use the new interest rate provided by D. Bilby below.

Thank you,
Beth

Beth Gentry P.E., Senior Civil Engineer
City of Chula Vista
Engineering & Capital Projects Department
bgentry@chulavistaca.gov
276 Fourth Avenue
Chula Vista, CA 91910
Office: (619) 476-2402
Fax: (619) 691-5171

From: David Bilby <dbilby@chulavistaca.gov>
Sent: Thursday, November 21, 2019 4:55 PM
To: Beth Gentry <bgentry@chulavistaca.gov>; Robert Beamon <Rbeamon@chulavistaca.gov>; Frank Rivera <FRivera@chulavistaca.gov>; William Valle <WValle@chulavistaca.gov>; Edward Prendell <eprendell@chulavistaca.gov>
Subject: RE: Rate Study - Review of Assumptions from Finance

Hi Beth,

This email is specifically in response to item # 3 requested below.

My new interest earnings forecast for the next 5 years is 1%.

The following factors are included in this projection: the federal reserve has lowered the overnight rate 3 times in the last 6 months with the dot plot showing 2 additional reductions projected in 2020 (this would bring the fed rate to a range of 1-1.25%); investments from 5 months ago were yielding 3.2%, now they are at 1.7%; probabilities of a recession in the next 18 months have risen over the last 6 months; a high probability exists that the Fed will have to reduce rates further to combat any economic downturns over the next 5 years; 10 year and 30 year treasury bond rates are trading just above historic lows which puts pressure on short term securities; global yields have gone negative in several European and Asian markets over the last 6 months and the president of the United States has voiced his displeasure with our current interest rates and has demanded that we consider negative interest rates also.

Please let me know if you have any questions.

Thanks,

David Bilby, MSBA, CPFO
Director of Finance/Treasurer

City of Chula Vista
Office (619) 409-3818

From: Beth Gentry <bgentry@chulavistaca.gov>
Sent: Thursday, November 21, 2019 4:39 PM
To: Robert Beamon <Rbeamon@chulavistaca.gov>; Frank Rivera <FRivera@chulavistaca.gov>; William Valle <WValle@chulavistaca.gov>; Edward Prendell <eprendell@chulavistaca.gov>; David Bilby <dbilby@chulavistaca.gov>
Subject: Rate Study - Review of Assumptions from Finance

Hi David,

I appreciate your help in reviewing some of the assumptions for the Sewer Rate Study.

I am attaching the information electronically that I provided at the meeting.

In regards to the Item No. 1 on the Fund Balances, I understand that the audited numbers will be available in two weeks. For now, we will use the numbers previously provided by Ed Prendell but will look forward to having the information updated after the audit. But when the audited information is available, please provide the information by fund (similar to the previous email, attached).

For Items 2 through 4, as discussed, the numbers should be appropriate for the 5-year Rate Study not a snap shot in time. They will be used to project out 10-years but with the understanding that another rate study will be done to update the 5-year Study.

For Item No. 2, let me know what you are able to find from Meya regarding the historic delinquency rate.

For Item No. 3, please let me know what the interest assumption be, previous email attached with updated attachment.

For Item No. 4, please review and provide any updates to the previously provided escalation factors, previous email attached.

Thank you in advance for your help.
Beth

Beth Gentry P.E., Senior Civil Engineer
City of Chula Vista
Engineering & Capital Projects Department
bgentry@chulavistaca.gov
276 Fourth Avenue
Chula Vista, CA 91910
Office: (619) 476-2402
Fax: (619) 691-5171

APPENDIX F

Metro Cost Projections

The City *of*
SAN DIEGO

PUBLIC UTILITIES DEPARTMENT
FISCAL YEAR 2020-2024
FIVE-YEAR FINANCIAL OUTLOOK

Matthew Vespi
Interim Director

Lee Ann Jones-Santos
Assistant Director

Charles Modica
Deputy Director

Mark Gonzalez
Program Manager

JANUARY 2019

Disclaimer:
The City files its disclosure documents, including official statements, audited financial statements, comprehensive annual financial reports, annual financial information, material event notices, and voluntary disclosures with the Municipal Securities Rule Making Board's Electronic Municipal Market Access ("EMMA") system. The PUD Five-Year Financial Outlook is not filed on EMMA and investors should not rely upon the PUD Five-Year Financial Outlook to make any investment decisions. The City will provide the PUD Five-Year Financial Outlook to the rating agencies, its bond insurers and other interested parties, and welcomes and encourages their careful review of this document. Readers are cautioned that the numbers presented in this document are the City's best estimate for the next five years based on facts and factors currently known to the City and do not represent actual performance. No representation is made by the City that, as of the date this document is read, there is not a material difference between the City's actual performance as of such date and the financial data presented in the PUD Five-Year Financial Outlook. Certain statements in this document constitute forward-looking statements or statements which may be deemed or construed to be forward-looking statements. Forward-looking statements involve, and are subject to known and unknown risks, uncertainties and other factors which could cause the City's actual results, performance (financial or operating) or achievements to differ materially from the future results, performance (financial or operating) or achievements expressed or implied by such forward-looking statements. All forward-looking statements herein are expressly qualified in their entirety by the abovementioned cautionary statement. The City disclaims any obligation to update forward-looking statements contained in this document.

TABLE OF CONTENTS

MISSION STATEMENT

To provide reliable water utility services that protect the health of our communities and the environment

VISION STATEMENT

A world-class water utility for a world-class city

EXECUTIVE SUMMARY

The Public Utilities Department (PUD) Fiscal Year 2020-2024 Five-Year Financial Outlook (PUD Outlook) is provided to guide long-range planning and serve as the framework for the development of the Fiscal Year (FY) 2020 Proposed Budget for the Water and Sewer Revenue Funds. The purpose of this report is to provide an overview of the Public Utilities Department's long-range needs and to guide programmatic decisions.

The PUD Outlook focuses on the overall fiscal condition of the Water and Wastewater Systems, and assesses impacts to system revenues and expenditures from regional water and wastewater demands. It also lays out a funding strategy to finance major capital investments in water and wastewater system infrastructure and the construction of the Pure Water Program. The PUD Outlook quantifies new costs that are critical to accomplishing PUD's strategic goals over the next five-year period. These goals include:

Goal 1: Water Supply and Environmental Stewardship

- Water supply and conservation
- Carbon footprint and energy management

Goal 2: Organization Excellence

- Rate structure optimization
- Safety
- Training and development
- Excellent organizational culture

Goal 3: Community Engagement

- Stakeholder understanding and support
- Customer service strategies

Goal 4: Infrastructure Management

- Asset management
- Infrastructure investment

The PUD Outlook is not a budget. Its projections are consistent with those in PUD's bond offering statements, and largely use a budgetary basis.[1] Projected revenues and expenditures in any given year of the PUD Outlook may not correspond exactly to those in future Proposed Budgets. Nevertheless, the PUD Outlook can serve as a planning tool to assist in budget decisions and the allocation of resources to meet PUD's strategic goals that are critical to providing the community with a high quality and reliable water supply. The PUD Outlook also provides the City Council, key stakeholders, and the public with information in advance of the budget meetings to facilitate an informed discussion during the development of the FY 2020 Budget.

[1] Revenues, Operating Expenses, and Capital Expenses in the Outlook use a cash basis. Debt payments are based on a projected debt schedule.

SUMMARY OF KEY FINANCIAL DATA

This section presents a summary of the PUD FY 2020 through FY 2024 Outlook, and the overall financial condition of the Water and Wastewater System. Summary tables of revenues and operating expenses are provided along with expenses associated with PUD's Capital Improvement Program (CIP), debt service payments, and reserve contributions. Further detail on CIP expenses and sources of funds for those expenses is also provided.

Additional detail on each line-item in these summaries can be found in the corresponding sections of this report. Revenue projections include differing growth rates for each line-item. Baseline operating expenditures are those expenditures that are sufficient to allow PUD to continue maintaining its existing operations without expanding any operational programs. Critical operating expenditures are those associated with expanded operations for PUD; a significant portion of these critical operating expenditures are associated with Phase One of the Pure Water Program coming online.

Water System

Overall, the PUD Outlook for the Water System forecasts revenue to increase moderately over the next five years, primarily due to projected water rate increases in FY 2020 that have been approved by Council, as well as rate increases and that are expected to be needed in FYs 2021 through 2024 (see section on Water Systems Revenues). Other operating revenues are projected to increase slightly between FY 2020 and FY 2021 due to an increase in cash balances and associated interest earnings, but gradually decline over the following three years based on projected market fluctuations. PUD is projecting the receipt of approximately $11.5 million in Local Resource Program incentives from Metropolitan Water District for developing local water supplies, which accounts for the increase in other revenue in FY 2024.

Baseline operating expenditures are projected to grow modestly over the next five years, but increases in critical operating expenditures are expected as PUD begins operations and maintenance of Phase 1 of the Pure Water Program as reflected in the table 1.1 below. Conversely, capital improvement program expenditures (CIP) begin gradually decreasing starting in FY 2022, as Phase 1 of the Pure Water Program nears completion. Water purchase expenses in FY 2024 decline due to Phase 1 coming on-line.

PUD continues to pursue financing to fund the CIP, including the Pure Water Program, as illustrated on table 1.2 below.

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Table 1.1 - Water System Fiscal Year 2020-2024 Financial Outlook Summary of Operating & Maintenance Key Financial Data ($ in Millions)					
	Fiscal Year 2020	Fiscal Year 2021	Fiscal Year 2022	Fiscal Year 2023	Fiscal Year 2024
Water Sales	$598.1	$638.7	$678.4	$719.9	$761.1
Capacity Charges	$14.4	$14.4	$14.4	$14.4	$14.4
Revenue from Use of Property	$5.8	$5.8	$5.8	$5.8	$5.8
Other Revenue	$18.3	$19.3	$18.8	$18.4	$31.8
TOTAL SYSTEM REVENUES	**$636.6**	**$678.2**	**$717.4**	**$758.5**	**$813.1**
Salaries & Wages	$49.0	$49.3	$49.6	$49.4	$49.4
Fringe Benefits	$35.9	$36.8	$36.9	$37.0	$37.2
Water Purchases	$268.8	$285.3	$299.9	$315.2	$286.4
Other Non-Personnel Expenditures	$109.4	$113.6	$117.7	$121.8	$126.2
BASELINE OPERATING EXPENDITURES	**$463.2**	**$485.0**	**$504.1**	**$523.4**	**$499.1**
CRITICAL OPERATING EXPENDITURES	**$4.8**	**$4.5**	**$22.1**	**$28.2**	**$37.0**
Contribution to Capital Improvement Program (CIP)	$82.4	$61.4	$65.0	$60.6	$61.7
Debt Service	$90.6	$103.6	$122.3	$131.9	$148.5
(Use of) / Contributions to Reserves	$0.0	$1.0	$4.2	$2.8	$2.6
NON-OPERATING EXPENDITURES	**$173.0**	**$165.9**	**$191.5**	**$195.3**	**$212.7**
TOTAL EXPENDITURES	**$641.0**	**$655.4**	**$717.7**	**$746.9**	**$748.8**
Impact to Fund Balance	**($4.4)**	**$22.7**	**($0.3)**	**$11.7**	**$64.3**

Table 1.2 - Water System Fiscal Year 2020-2024 Financial Outlook Summary of Capital Improvement Program Key Financial Data ($ in Millions)					
	Fiscal Year 2020	Fiscal Year 2021	Fiscal Year 2022	Fiscal Year 2023	Fiscal Year 2024
Baseline CIP	$249.1	$182.7	$149.5	$144.3	$144.0
Pure Water CIP	$197.0	$281.5	$204.5	$106.0	$13.0
TOTAL CIP EXPENDITURES	**$446.1**	**$464.2**	**$354.0**	**$250.3**	**$157.0**
SOURCES OF FUNDS					
Commercial Paper / Revenue Bonds	$139.0	$111.6	$67.9	$135.0	$88.0
State Revolving Funds	$54.0	$54.8	$59.2	$38.7	$7.3
WIFIA	$170.7	$236.4	$161.9	$16.0	$0.0
Cash	$82.4	$61.4	$65.0	$60.6	$61.7
FINANCING SOURCES	**$446.1**	**$464.2**	**$354.0**	**$250.3**	**$157.0**

Wastewater System

Overall, the PUD Outlook for the Wastewater System forecasts revenue to increase moderately over the next five years, primarily due to projected rate increases related to sewer service charges (see section on Wastewater Systems Revenues). Other operating revenues are projected to increase slightly from FY 2019, primarily due to wastewater system charges to Participating Agencies of the Metropolitan Wastewater System (further described in the PUD Outlook overview below) to reflect anticipated increases in shared costs of Pure Water Program expenses. Additional growth in other revenues is associated with projected increases in pooled investments. The PUD Outlook also anticipates the transfer of funds from the Rate Stabilization Fund to mitigate potential fluctuations in the rates in FYs 2020 through 2024.

Baseline operating expenditures are projected to grow modestly over the next five years, but increases in critical operating expenditures are expected as PUD begins to prepare its operations and maintenance program for Phase 1 of the Pure Water Program as reflected in the table 1.3 below. Similar to the water system CIP, expenditures in the wastewater CIP begin decreasing in FY 2022, as Phase 1 of the Pure Water Program nears completion.

PUD continues to pursue financing to fund the CIP, including the Pure Water Program, as illustrated on table 1.4 below.

Table 1.3 - Wastewater System Fiscal Year 2020-2024 Financial Outlook
Summary of Operating & Maintenance Key Financial Data
($ in Millions)

	Fiscal Year 2020	Fiscal Year 2021	Fiscal Year 2022	Fiscal Year 2023	Fiscal Year 2024
Sewer Service Charges	$271.4	$280.2	$295.0	$310.5	$328.4
Capacity Charges	$16.3	$17.5	$17.5	$17.5	$17.5
Other Revenue	$103.7	$107.6	$109.8	$113.3	$118.6
TOTAL SYSTEM REVENUES	**$391.4**	**$405.3**	**$422.3**	**$441.3**	**$464.5**
Salaries & Wages	$58.3	$58.9	$58.9	$58.9	$58.8
Fringe Benefits	$42.2	$43.1	$43.3	$43.4	$43.6
Other Non-Personnel Expenditures	$134.8	$140.2	$145.0	$149.8	$155.1
BASELINE EXPENDITURES	**$235.3**	**$242.2**	**$247.2**	**$252.1**	**$257.5**
CRITICAL OPERATING EXPENDITURES	**$6.3**	**$7.0**	**$21.3**	**$23.1**	**$29.8**
Contributions to Capital Improvement Program (CIP)	$66.8	$97.1	$96.4	$34.3	$20.0
Debt Service	$106.1	$105.3	$113.6	$124.0	$118.9
(Use of) / Contributions to Reserves [1]	($5.0)	($5.0)	($11.7)	($13.7)	$2.3
NON-OPERATING EXPENDITURES	**$168.0**	**$197.4**	**$198.2**	**$144.6**	**$141.1**
TOTAL EXPENDITURES	**$409.5**	**$446.6**	**$466.7**	**$419.8**	**$428.4**
Impact to Fund Balance	**($18.2)**	**($41.3)**	**($44.5)**	**$21.5**	**$36.1**

[1] Reflects use of Rate Stabilization Reserve to mitigate potential flucuations in rates and contributions to the Operating Reserve.

Table 1.4 - Wastewater System Fiscal Year 2020-2024 Financial Outlook Summary of Capital Improvement Program Key Financial Data ($ in Millions)					
	Fiscal Year 2020	**Fiscal Year 2021**	**Fiscal Year 2022**	**Fiscal Year 2023**	**Fiscal Year 2024**
Baseline CIP	$167.7	$125.5	$142.8	$128.4	$120.1
Pure Water CIP	$190.0	$220.2	$124.5	$38.4	$5.9
TOTAL CIP EXPENDITURES	**$357.7**	**$345.7**	**$267.2**	**$166.8**	**$126.0**
SOURCES OF FUNDS					
Revenue Bonds	$0.0	$0.0	$145.0	$116.0	$90.0
State Revolving Funds	$262.2	$232.6	$9.9	$0.6	$0.0
Capacity Fees	$16.0	$16.0	$16.0	$16.0	$16.0
Grants	$12.7	$0.0	$0.0	$0.0	$0.0
Cash	$66.8	$97.1	$96.4	$34.3	$20.0
FINANCING SOURCES	**$357.7**	**$345.7**	**$267.2**	**$166.8**	**$126.0**

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Report Outline

The PUD Outlook is organized into two main sections: Water System and Wastewater System. The water system is comprised of the Water Utility Fund and the wastewater system is comprised of the Metropolitan and Municipal Sewer Funds, collectively known as the "Sewer Revenue Fund".

The PUD Outlook provides a brief overview of the water and wastewater systems and the impacts of the Pure Water Program. Each section also provides a discussion of baseline projections for revenues and expenditures, and upcoming critical operational expenditures that will require additional resources. Projected Capital Improvement Program (CIP) needs and financing options are also discussed.

The Water System and Wastewater System sections of the PUD Outlook include projections for the next five years of ongoing revenues and expenditures, as displayed in Table 1.1 – Water System Fund Fiscal Year 2020-2024 Financial Outlook, and Table 1.3 Wastewater System Fiscal Year 2020-2024 Financial Outlook, respectively. 'Baseline' projections include expenditure adjustments necessary to support current service levels provided by PUD. Actual FY 2018 unaudited expenditures serve as the starting point for non-personnel baseline projections unless otherwise noted; personnel expenditure projections use the FY 2019 Adopted Budget as a starting point. As noted earlier, Outlook projections in any given year may not correspond exactly to the revenues and expenditures in future Proposed Budgets.

Critical Operating Expenditures are largely associated with implementation of the Pure Water Program, but also include expenditures that have been preliminarily identified as necessary in meeting core water and wastewater service levels and PUD's strategic goals. They are discussed within each expenditure category. All expenditures discussed in this report will be further refined during the FY 2020 budget development process.

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Overview of the Water and Wastewater System

The City of San Diego is a major metropolis and is ranked the eighth largest City in the United States and the second largest city in California. The City's total population is estimated at 1.4 million. The City's climate is semiarid with cycles of multi-year droughts. Average rainfall does not provide adequate local water supplies for the City, and is supplemented with water imported from outside the region.

The City's water and wastewater systems are maintained and operated by the City's Public Utilities Department. The City provides water to not only the City of San Diego but to the cities of Del Mar, Coronado and Imperial Beach, primarily from two water sources: (1) local supplies, which provide on average 10 - 15% of water needs, and (2) the San Diego County Water Authority (CWA), which provides 85 - 90% of water needs. The City's water system extends over 404 square miles, with average potable water deliveries of 155 million gallons per day (mgd), or 174,000 acre-feet per year (AFY). PUD's extensive raw water system includes nine reservoirs, which capture local runoff from rainfall and store purchased imported water that is sent to the City's three water treatment plants for treatment and distribution. Based on statistics provided by the San Diego Association of Governments (SANDAG), the City's population is projected to increase by 22% over the next 20 years. PUD expects that this projected growth will increase demand for potable water by 18% to 22%, depending on the variables of future weather and conservation level assumptions.

The City's wastewater system owns and operates wastewater treatment plants that serve the City as well as other the agencies of other cities and districts outside San Diego City boundaries (Participating Agencies). The wastewater system serves over 2.2 million customers by providing wastewater collection, treatment, and disposal services. The wastewater system processes an average of 156 million gallons of sewage daily via a vast network of facilities which include an extensive collection system, regional wastewater treatment, cogeneration, and a biosolids production center. The wastewater system is comprised of two subsystems, the Municipal Sub-System and the Metropolitan Sub-System. The Municipal Sub-System is a municipal sewage collection system for the City's residents and consists of all elements required for the collection and conveyance of wastewater generated by the service area, which currently consists of more than 275,000 accounts. The Metropolitan Sub-System is a regional sewage treatment and disposal system that serves the City and twelve other Participating Agencies near the City. The wastewater system covers approximately 450 square miles, including most of the City, and stretches from Del Mar and Poway to the north, Alpine and Lakeside to the east, and San Ysidro to the south. The communities and agencies served by the wastewater system form the third largest metropolitan area in the State, surpassed only by the Los Angeles and San Francisco metropolitan areas. The Point Loma Wastewater Treatment Plant serves as a regional treatment facility handling sanitary waste from both Muni and Metro customers. Additionally, the wastewater system operates and maintains two water reclamation plants (North City and South Bay), and a solids management facility (Metropolitan Biosolids Center).

Regional Water Supply

In any given year, the City will use local water supplies to meet 10 - 15% of demand, and relies on imported water from the County Water Authority (CWA) to meet the other 85 - 90% of demand. The CWA is a wholesale water agency that provided approximately 400,000 AF of imported and desalinated water to its member agencies in Fiscal Year 2018, including 155,000 AF supplied to PUD. CWA currently acquires the majority of its water from three main sources: conserved water from the Imperial Irrigation District, water from the Metropolitan Water District (MWD), and desalinated water. MWD obtains its water from the Colorado River through the United States Bureau of Reclamation, and from northern California via the State Water Project through the California Department of Water Resources (DWR). MWD is one of 29 public water agencies that have long-term contracts for water service from DWR, and it is the largest agency in terms of the number of people it serves (approximately 19 million). The CWA is MWD's largest customer, responsible on average for 19.5% of MWD's annual revenues. Both CWA and MWD are developing storage and additional supplies, such as water transfers, to augment their imported water.

PUD also maintains a recycled water system that supplies a portion of the San Diego region. That system is supplied by two water reclamation plants – the North City Water Reclamation Plant (NCWRP) and South Bay Water Reclamation Plant (SBWRP). The City supplies recycled water to retail customers and to three wholesale customers: the City of Poway, the Olivenhain Municipal Water District, and the Otay Water District. Recycled water usage is seasonal and is primarily used for irrigation. Customers also use the water for dust suppression or soil compaction at construction sites, in cooling towers, ornamental fountains, and for office building toilet and urinal flushing (dual plumbing).

Participating Agencies

Pursuant to the Regional Wastewater Disposal Agreement, the Metropolitan Sub-System provides "wholesale" treatment and disposal services, including some sewage transportation, to the cities of Chula Vista, Coronado, Del Mar, El Cajon, Imperial Beach, La Mesa, National City and Poway, the Lemon Grove Sanitation District, the Otay Water District, the Padre Dam Municipal Water District, and the County of San Diego (on behalf of Winter Gardens Sewer Maintenance District and the Alpine Lakeside and Spring Valley Sanitation Districts). These cities and districts are collectively referred to as the "Participating Agencies".

The Regional Wastewater Disposal Agreement requires the Participating Agencies to pay their respective share of planning, design and construction of Metropolitan Sub-System facilities, as well as costs relating to the operation and maintenance of the Metropolitan Sub-System. Since Fiscal Year 2011, these aggregate costs have consistently constituted approximately 33% of the total Metropolitan Sub-System costs. Between Fiscal Years 2014 and 2018, the department received, on average, approximately $65 million in System Revenues per fiscal year from the Participating Agencies.

Pure Water Program

The Pure Water Program will provide a safe, secure, and sustainable local drinking water supply for San Diego. Advanced water purification technology will be used to produce potable water from recycled water. The City and its regional partners face significant issues with water supply and

wastewater treatment. The region's reliance on imported water causes the water supply to be vulnerable to shortages and susceptible to price increases beyond the control of PUD.

The Pure Water Program is a 20-year (2015-2035) multi-phased water and wastewater capital improvement program that is expected, upon full implementation by the end of calendar year 2035, to create 83 mgd of locally controlled water, which will provide one-third of the City's total potable water needs. The Pure Water Program will divert treated water from the Point Loma Wastewater Treatment Plant's outfalls and recycle a valuable and limited resource that is currently discharged to the ocean. Phase 1 of the program is expected to produce 30 mgd of purified drinking water by February 2024. This will allow the City to reduce the amount of water purchased in FY 2024 and beyond.

In 2010, the City received a renewal of the Modified Permit for the Point Loma Plant and agreed to identify opportunities to maximize recycling wastewater for potable and non-potable uses. That permit expired in July 2015 and was administratively continued while the regulatory agencies completed work on the renewal application. In 2017 the Environmental Protection Agency (EPA), in conjunction with the California Regional Water Quality Control Board (RWQCB), issued the final approval renewing the Modified Permit (5th Renewal) and a waiver from secondary treatment standards for another five years. The permit took effect October 1, 2017 and expires on September 30, 2022. The 5th Renewal was based on compliance with Clean Water Act requirements, progress of the Pure Water Program, and a reduction in permitted emissions from the previous permit level. The Pure Water Program is designed to reduce discharge into the ocean from the Point Loma Plant while providing a new local source of potable water for the City. It is anticipated that continuation of the Pure Water Program will be reflected in future permits, which will eliminate the need for the City to make over $1.8 billion in upgrades to the Point Loma Plant that would otherwise be necessary.

Phase 1 of the Pure Water Program includes the construction of the North City Pure Water Facility and the expansion of the existing North City Water Reclamation Plant. The designs for the North City Pure Water Phase 1 Projects are complete, and in November 2018 the City Council authorized PUD begin advertising for construction. Future phases include the potential expansion of the South Bay Water Reclamation Plant, as well as proposed Central Area facilities that would include both reclamation and purified water facilities.

Phase 1 is estimated to cost approximately $1.48 billion. The Water and Wastewater Funds will share in these expenditures according to a cost allocation based on completed design and engineering studies. Based on the cost allocation between the water and wastewater systems, approximately $865 million is allocated to the Water Utility Fund and approximately $612 million is allocated to the Sewer Revenue.

Phase 1 costs extends through FY 2024; water rates for Fiscal Year 2021 and beyond were not part of the 2016 Rate Case (discussed below). Projected Pure Water Program expenditures for both the Water and Sewer Utility Funds will be dependent on future rates, and PUD anticipates that additional rate capacity from each Fund will be necessary after Fiscal Year 2020.

WATER SYSTEM

This section discusses baseline revenue and expenditure projections, upcoming critical operational expenditures, projected capital improvement program needs and financing options for the next five years for the Water Utility Fund.

Water System Revenues

The primary revenue sources of the Water Utility Fund are generated from water sales, capacity fees, interest earnings, and rental income. This section discusses each revenue category, and includes a description of revenue sources, projected growth rates, and a discussion of future revenue streams and how they impact the Water Utility Fund.

Water Sales

Background. The majority of Water Utility Fund revenue is generated from water sales: water sales revenue makes up approximately 94% of the Water Utility Fund's total revenue. City utility bills include water and sewer charges and storm drain fees, but only receipts from water sales are revenues to the Water Utility Fund. The water component is comprised of two parts: a fixed monthly service charge and a commodity charge that is based on the volume of water used. The fixed service charge is determined by the size of a customer's meter, which provides an approximation of the amount of water the customer could have delivered to the customer's property.

The commodity charge is determined using a set rate based upon each hundred cubic feet (HCF) of water consumed. The City has a tiered commodity charge structure for single family residential (SFR) customers that is broken down by water usage within each rate block. The remaining retail customers – multi-family residential (MFR), Non-Residential, Temporary Construction and Irrigation – are billed under a uniform commodity charge for their respective customer classification.

Cost of Service Study. The PUD last conducted a Cost of Service (COS) analysis in 2015, which produced a five-year rate case (the 2016 Rate Case). The 2016 Rate Case was based on comprehensive forecasted annual operations and maintenance costs, capital costs expenditures including the Pure Water Program, and purchased water costs from CWA that become effective in January during each fiscal year. The 2016 Rate Case covered Fiscal Years 2016 through 2020 and was approved by the City Council in November 2015. The rate case included projected rate increases of 9.8% on January 1, 2016, 6.4% on July 1, 2016, 6.4% on July 1, 2017, 5.0% on July 1, 2018 and 7.0% on July 1, 2019.[2]

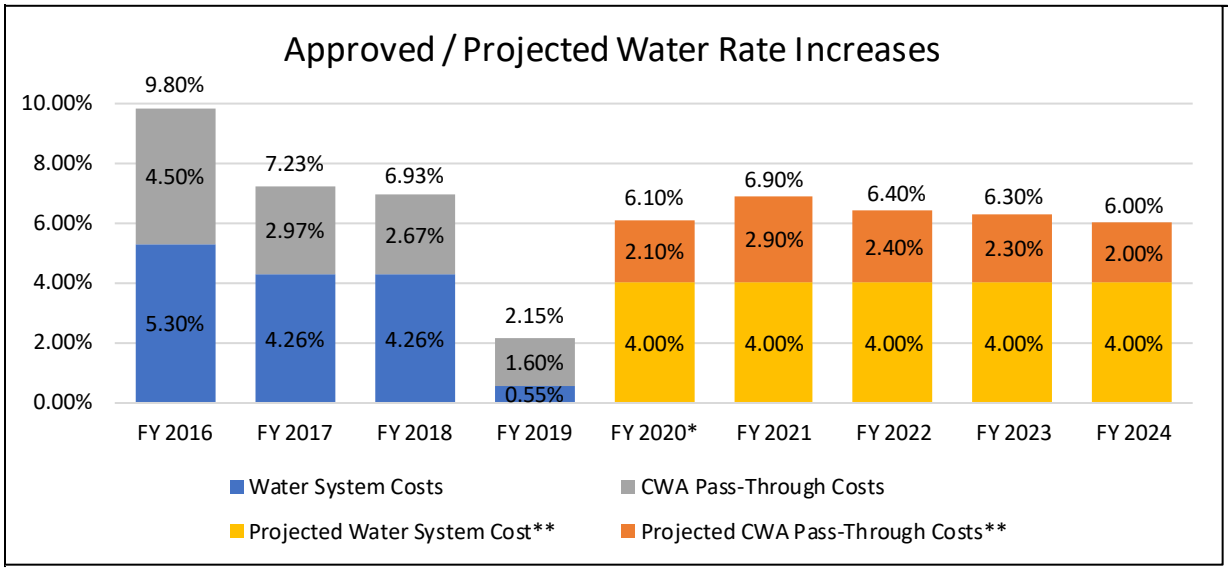
The City is in the preliminary stages of reviewing the rate impacts of revenues and expenditures that are projected to begin in Fiscal Year 2021. The City has engaged Raftelis Financial Consultants, Inc. to assist in the preparation of the COS analysis. The analysis and Proposition 218 process are expected to be undertaken and completed in Fiscal Year 2020. New rates would be proposed to become effective in Fiscal Year 2021. This Outlook assumes preliminary water rate increases of 6.9% in FY 2021, 6.4% in FY 2022, 6.3% in FY 2023, and 6.0% in FY 2024 as detailed on Figure 2.1 below. Actual

[2] These projected rate increases included both PUD's costs as well as increases in CWA water rates. The approved 2016 Rate Case allowed PUD to pass through CWA rate increases up of up to 7.0% each year. Projected and actual CWA rate increases were lower than this 7.0% maximum, though CWA rate increases in FY 2017 and FY 2018 were higher than they were projected to be in the 2016 Rate Case. Actual CWA pass-through costs through FY 2019 are reflected on Figure 2.1 below.

rate increase will be determined through a cost of service study and presented to the City Council for review and approval.

CWA rate increase impacts to the City were projected to be 2.5% in Fiscal Year 2019, and 3.0% in Fiscal Year 2020. Because actual CWA pass through increases are lower than the projections for those years, PUD only passes through the actual CWA costs to its ratepayers. The actual pass through impacts are shown in Figure 2.1 below. The CWA pass through impact for Fiscal Year 2020 is currently projected to be 2.1%.

Figure 2.1 – Water Service Charge Rate Increases.



* The 2016 Rate Case projected an increase of 7.00% for FY 2020, but Public Utilities is only projecting a 6.1% increase based on CWA pass-through costs and Water System costs.

** Projected rates for FY 2021-2024 are *preliminary* projections that include forecasts for CWA pass-through costs, Water System Needs, and revenue necessary to comply with debt service covenants. Detailed forecasts and projections will be prepared in a full cost of service study.

As discussed above, a portion of the projected rate adjustments are attributable to CWA pass-through costs. The remaining 4% is associated with increased PUD operating and capital costs. Roughly half of those needs – and half (2%) of the projected rate adjustments – are associated with capital and operational expenditures necessary for Phase 1 of Pure Water.

Over the Outlook period, $806.1 million, or 48%, of Water Fund CIP needs are attributed to the Pure Water program (see "Water System Capital Improvement Program" section). $80.4 million, or 83%, of Critical Operating Expenditures are attributed to Pure Water program needs. Non-Pure Water Critical Operating Expenditures and increases in baseline expenditures total $104.0 million (see "Water System Expenditures" section).

The following table displays the existing water rates for FY 2019.

Table 2.2 - Fiscal Year 2019 Water Rates (Effective August 1, 2018)			
Service Charge ($/month)		Commodity Charge ($/HCF)	
Meter	Rate	Customer Class	Rate
5/8"	$24.74	Single Family[1]	
3/4"	$24.74	Tier 1 (0-4 HCF)	$4.95
1"	$32.77	Tier 2 (5-12 HCF)	$5.54
1.5"	$51.13	Tier 3 (13-18 HCF)	$7.92
2"	$74.07	Tier 4 (19+ HCF)	$11.13
3"	$127.98	Multi Family	$5.99
4"	$204.83	Non-Residential[2]	$5.84
6"	$395.23	Construction	$6.75
8"	$624.62	Irrigation	$6.64
10"	$893.02		
12"	$1,656.92		
16"	$2,880.76		

1. Bi-Monthly Tiers = 2 x Monthly Tiers.
2. Non-Residential customers include Commercial, Industrial, and Outside City.

Forecast. The following table presents FY 2018 actuals, year-end projections for FY 2019 and the forecast for FY 2020 through FY 2024 for revenue from water sales. The FY 2019 projection includes the rate increase of 2.15% that went into effect August 1, 2018. The growth rates as shown in table 2.3 reflect overall revenue growth, and not actual water rate increases which were presented in Figure 2.1. Additionally, the financial projections in Table 2.3 below assume the proposed rate increases shown in Figure 2.1.

Table 2.3 - Water Sales Revenue Five-Year Forecast ($ in Millions)							
	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Potable Water							
Growth Rate	N/A	2.7%	6.2%	6.9%	6.3%	6.2%	5.8%
Projection	$538.6	$550.4	$584.6	$625.2	$664.9	$706.3	$747.5
Other Water Sales [(1)]							
Growth Rate	N/A	2.4%	4.1%	0.4%	0.4%	0.4%	0.0%
Projection	$12.6	$12.9	$13.4	$13.5	$13.5	$13.6	$13.6

[(1)] Revenue figures for "Other Water Sales" include recycled water sales revenue figures.

Economic Trends. Although PUD continues to promote water conservation, the demand for water within the City's service area is projected to increase as the population continues to grow and development expands. According to the City's 2015 Urban Water Management Plan (2015 UWMP), single-family residential water use is projected to increase by 39 percent over the period of 2020 to

2040. Multifamily residential water use is forecasted to increase at 69 percent over the projection period of 2020 to 2040.

The City's Pure Water Program is expected to be crucial in meeting the City's water demands and to reduce the impact of increases in the cost of imported water purchased from CWA. Over the past ten years, CWA's water prices have more than doubled.

Sensitivity Analysis. While these projections represent PUD's best estimate of water sales revenues throughout the PUD Outlook period, actual results will depend on the factors discussed above. Assuming the above rates, declines or increases in water demand of just 1% can impact water sales revenue by approximately $4.5 million. The impact in revenue from potential rate increases ranges from $5.7 to $6.5 million for each percent added or subtracted from projected rate increases depending on the year in which rates are adjusted. Adjustments to projected rates in earlier years would compound this amount.

Note that these factors may also impact each other: declines in water demand may necessitate larger rate increases, while increases in demand may partially offset the need for rate increases. The Department is also currently in the process of evaluating potential alternative water rate structures and expects to bring a report summarizing those alternatives to the City Council in early 2019.

Water Capacity Charges

Background. Capacity charges are development fees imposed on permits for new or expanded water connections, and are based on an estimate of the increase in water consumption as measured by equivalent dwelling units (EDUs). Capacity charge proceeds are used to construct, improve and expand the Water System to accommodate the additional business of such added dwellings or commercial or industrial units.

Pursuant to State law, capacity charges can be used only to pay costs associated with capital expansion, bonds, contracts, or other indebtedness of the Water System related to expansion. Because capacity charges are primarily collected on the issuance of new construction permits within the City, revenues obtained from such charges vary based upon construction permitting activity.

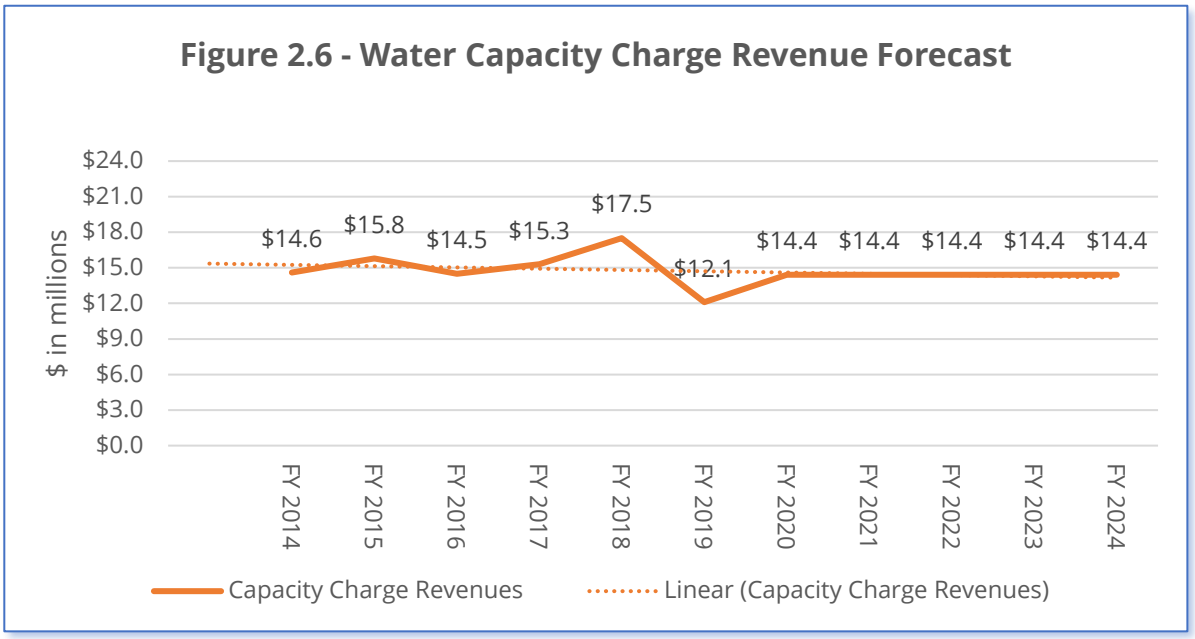
In February 2007, the City Council and Mayor approved increasing the capacity charge by 19.5% to $3,047 per EDU, which was estimated to provide full cost recovery for Water System expansion projects. The City will be undertaking a cost of service study to review existing capacity charge rates in calendar year 2019.

Forecast. The following table presents average capacity charge revenue received between FY 2014 to FY 2018, FY 2019 Budget, and the forecast for FY 2020 through FY 2024. This revenue source represents 2.4 percent of the Water System's overall revenue receipts.

Table 2.5 - Capacity Charges Five-Year Forecast
($ in Millions)

	FY 2014-2018 Average	FY 2019 Budget	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%
Projection	$15.5	$12.1	$14.4	$14.4	$14.4	$14.4	$14.4

Projected revenues for capacity charges use conservative growth estimates based on historical spending trends from FY 2014 through FY 2018 as shown in Figure 2.6 below. Average capacity fee revenue between FY 2014 and FY 2018 was approximately $15.5 million. Water capacity charges in FY 2019 were budgeted historically low and will be adjusted to reflect historical and projected revenue trends in the FY 2020 budget. Capacity charge revenue is conservatively projected at $14.4 million for FY 2020 through FY 2024.



Economic Trends. As previously mentioned, water capacity charges are primarily based on new water connections related to new construction, and are directly influenced by population growth and residential and commercial development. The current population for the City of San Diego is 1.4 million. San Diego's population grew by approximately seven percent between the 2000 Census and the 2010 Census, for an aggregate increase of 84,000. As population continues to increase in the region, the demand for new single and multi-family housing is also expected to increase in order to meet population demands. Table 2.7 presents projected regional population and housing growth for the next 50 years.

Table 2.7 - Preliminary 2050 Regional Growth Forecast

	2000	2020	2030	2040	2050	% Change 2000-2050
Population	1,223,400	1,542,324	1,690,232	1,819,810	1,947,184	49%
Housing	469,689	577,416	629,694	675,928	722,718	44%
Jobs (incl. military)	777,600	874,678	928,189	982,476	1,042,649	26%

According to SANDAG, multi-family units will make up over half of the new housing that will need to be built over the next 30 years. As a result, SANDAG forecasts that 40 percent of the total units in the region will be multi-family by 2030. These trends are reflected in the City's experiences: multi-family units approved and permitted in 2018 were up 150 percent in 2018, while single-family units permitted increased by 47 percent. Similarly, PUD saw significant increases in capacity charge revenues in FY

2018 - approximately 15% above FY 2017 amounts - largely related to residential developments. Though FY 2018 experienced an increase in building permits associated with multi and single-family units, the California Association of Realtors (C.A.R) is forecasting a modest decline in single family units due to a combination of high home prices and eroding affordability. Likewise, multi-family housing is expected to continuing growing until it reaches a peak in 2019 and then to level off as multi-family units under construction near completion. As a result, water capacity charge revenue is projected to remain flat for the next five years.

Revenue from Use of Property

Revenue from Use of Property includes revenues from non-agricultural lease of land, such as the San Diego Zoo Safari Park; storage by private companies on utility-owned lands; agricultural leases of land in San Pasqual Valley; and telecom leases for cell towers on utility-owned properties.

The following table presents average revenue received from use of property between FY 2014 to FY 2018, FY 2019 year-end projections, and forecasted revenue for FY 2020 through FY 2024. This revenue source represents 0.8 percent of the Water Utilities overall revenue receipts.

Table 2.8 - Revenue from Use of Property Five-Year Forecast ($ in Millions)

	FY 2014-2018 Average	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	N/A	3.6%	0.0%	0.0%	0.0%	0.0%
Projection	$5.8	$5.6	$5.8	$5.8	$5.8	$5.8	$5.8

Revenues in this category can vary slightly each year as new lease agreements are entered into while other lease agreements expire. Overall, revenue in this category has declined slightly since FY 2014, and has remained relatively flat at $5.8 million since FY 2016. As a result, $5.8 million in Revenues from Use of Property is projected throughout the PUD Outlook period.

Other Revenue

The Other Revenue category includes refunds or reimbursements from private parties for damages to utility-owned equipment, buildings, or fire hydrants; refunds from vendors; reimbursements from services provided to other City departments / funds, receipts from the sale of recycled materials or equipment (paper, computers, metal); grant revenue, and interest earnings on pooled investments.

The following table presents FY 2018 actuals, the FY 2019 year-end projection and forecasted revenue for FY 2020 through FY 2024. This revenue source represents 2.0 percent of the Water Utilities overall revenue receipts.

Table 2.9 - Other Revenue Five-Year Forecast ($ in Millions)

	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	0.0%	-1.4%	26.2%	5.5%	-2.6%	-2.1%	72.8%
Projection	$14.7	$14.5	$18.3	$19.3	$18.8	$18.4	$31.8

Other revenue in FY 2020 is projected to increase by 26.2% from FY2019 primarily due to an increase in unrestricted balances and associated interest earnings. Interest earnings are projected to slightly increase between FY 2020 and FY 2021, and then gradually decline over the next three years based on projected fluctuations in the market. However, the Department is projecting to receive approximately $11.5 million in Local Resource Program incentives from Metropolitan Water District for developing local water supplies, which accounts for the increase in revenue in FY 2024.

WATER SYSTEM EXPENDITURES

Water Utility Fund expenditures are comprised of both personnel and non-personnel expenditures including debt service and other non-discretionary payments. The largest single expenditure of the Water Utility Fund is for water purchases, representing approximately 50 percent of 2018 actual expenditures. These expenditures are therefore discussed separately. The following sections discuss in detail each expenditure category and include a description of the category, projected growth rates, and a discussion of critical strategic expenditures.

Water Purchases

The City currently imports approximately 85-90% of its water through the CWA. Water purchases contribute to the largest expense in the Water Utility Fund and make up approximately 50 percent of the Water Utility Fund's expenditure budget. CWA charges a volumetric rate that includes both a commodity rate and a transportation rate. In addition to the volumetric charges the City pays for imported water, both CWA and MWD also levy fixed charges on their member agencies.

The following table presents projected costs for purchasing water from CWA, and assumes that 5 percent of demand will be met with local water supplies in FY 2019, and 10 percent for FY 2020 through FY 2024.[3] The decrease in growth rates beginning in FY 2021 reflects a decline in CWA's projected pass through. Though the projected rate remains constant through FY 2024, the cost and amount of water purchased declines in FY 2024 as Phase 1 of the Pure Water Program is expected to be on line and providing 30 mgd of water by February 2024.

Table 3.1 - Water Purchases - Baseline Expenditures ($ in Millions)

	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Projection	$230.7	$269.2	$268.8	$285.3	$299.9	$315.2	$286.4
Acre Feet Purchased	161,348	185,081	174,326	174,614	174,900	175,183	141,864

Personnel Expenditures

Personnel expenditures include salaries and wages and fringe benefits. Salaries and wages are comprised of regular salaries and wages, special pay, overtime, step increases, and vacation pay in lieu. Fringe benefits include pension payments or Actuarially Determined Contribution (ADC), flexible benefits, retiree health or Other Post-Employment Benefits (OPEB), workers' compensation,

[3] Rainfall in water year 2018 (October 1, 2017 – September 30, 2018) totaled 3.34 inches, 7 inches below San Diego's historical average of 10.34 inches, and in FY 2019 the Department projects supplying only 5% of its water demand from local sources. Fiscal Years 2020 and thereafter assume more normal rainfall.

Supplemental Pension Savings Plan (SPSP), and other fringe benefits. The FY 2019 Adopted Budget for Water Fund salaries and wages was $46.6 million and included 784.18 full-time equivalents (FTE). The following table displays the FY 2019 through FY 2024 personnel expenditure projections by category.

Table 3.2 - Personnel Expenditures - Baseline Expenditures ($ in Millions)							
	FY 2018 Actuals	FY 2019 Budget	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Salary & Wages Projection	$43.2	$46.6	$49.0	$49.3	$49.6	$49.4	$49.4
Fringe Benefits Projection	$34.6	$34.2	$35.9	$36.8	$36.9	$37.0	$37.2

Adjustments within the salary and wages category incorporate only those expenditures associated with staff included in the FY 2019 Adopted Budget. Position adds identified for FY 2020-2024 to support critical expenditures are discussed below. Personnel expenditures are projected to increase through the PUD Outlook period primarily due to general salary and special pay increases, retiree healthcare benefits or OPEB, pension payments or ADC, and workers' compensation expenditure increases. The PUD Outlook does not project for any impact of future MOUs with REOs, and therefore salary and wages forecasts are fixed to the last negotiated amounts. The City of San Diego Fiscal Year 2020-2024 Five-Year Financial Outlook for the General Fund includes a more detailed discussion of the various personnel expenditure components including projection methodologies and assumptions.

Critical Operating Expenditures

Table 3.3 - Critical Strategic Expenditures - Personnel						
Request	**FTE/Exp**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Customer Services Office Program Support	FTE	4.00	4.00	4.00	4.00	4.00
	Expense	$311,918	$311,918	$311,918	$311,918	$311,918
Pure Water Program Support	FTE	3.00	7.00	44.50	45.00	45.00
	Expense	296,911	624,407	5,678,266	5,706,387	5,706,387
Facilities Maintenance Consolidation	FTE	(3.50)	(3.50)	(3.50)	(3.50)	(3.50)
	Expense	(270,029)	(270,029)	(270,029)	(270,029)	(270,029)
EAM Support	FTE	0.47	0.47	0.47	0.47	0.47
	Expense	47,521	47,521	47,521	47,521	47,521
Supply Chain Warehouse Staffing	FTE	1.88	1.88	1.88	1.88	1.88
	Expense	220,165	220,165	220,165	220,165	220,165
	Total FTE	**5.85**	**9.85**	**47.35**	**47.85**	**47.85**
	Total Expense	**$606,485**	**$933,981**	**$5,987,840**	**$6,015,961**	**$6,015,961**

Table 3.3 above identifies additional personnel expenditures, including fringe benefits, for the addition of staff to support enhancements to the Customer Services Office Program, expansion of the Pure Water Program, expansion of Enterprise Asset Management (EAM), and improvements to procurement processes. The PUD Outlook also identifies the transfer of 3.50 full-time equivalents from the Water Utility Fund to the General Fund beginning in FY 2020 to support the facilities maintenance consolidation efforts.

The identified funding needs for the Pure Water Program are for the operation and maintenance of new and expanding Pure Water facilities and staffing needs. A total of 45.00 full-time equivalent positions are anticipated to be required by Pure Water in FY 2023. Because most of the position

classifications identified by the Department's consultant do not yet exist within the City, projected salary costs were based on industry estimates.

Supplies

The Supplies category includes costs for chemicals, water meters, pipe fittings, asphalt road materials, machine parts, and low value assets. The following table displays FY 2018 actuals and FY 2019 through FY 2024 projections for the Supplies category.

Table 3.4 - Supplies - Baseline Expenditures ($ in Millions)

	FY 2018 Actuals[1]	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
Projection[1]	$13.5	$13.9	$14.3	$14.7	$15.2	$15.6	$16.1

1. Figures exclude expenditures associated with water purchases.

The Supplies category includes various components. Each component has a different growth rate. Growth rates for each category are based on historical analysis and include other adjustments based on known and anticipated events. As a result, the 2.9 percent growth rate that was applied to the Supplies category for FY 2020 through FY 2024 represents a weighted growth rate that was calculated after applying the corresponding growth rate for each component.

Critical Operating Expenditures

Table 3.5 - Critical Strategic Expenditures - Supplies

Request	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Pure Water Program Expansion	-	$25,000	$4,961,096	$7,218,534	$10,462,192
Total Expense	**-**	**$25,000**	**$4,961,096**	**$7,218,534**	**$10,462,192**

Table 3.5 above identifies increased expenditures associated with the expansion of the Pure Water Program. These expenditures will be necessary as Pure Water facilities come online, and include chemical costs, consumables, pumps, and other materials necessary for operation and maintenance of facilities and equipment.

Contracts

Contracts are a non-personnel expense category that include the cost of contractual services, professional consultant fees, general government services billing, City services billings, fleet vehicle usage and assignment fees, rental expenses, security services, and other contractual expenses. The table below displays PUD's FY 2018 actuals and FY 2019 through FY 2024 projections for the Contracts category.

Table 3.6 - Contracts - Baseline Expenditures ($ in Millions)

	FY 2018 Actuals[1]	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	3.7%	3.8%	3.8%	3.9%	3.9%	3.9%
Projection[1]	$72.8	$70.5	$73.2	$76.0	$79.0	$82.0	$85.2

1. Projection figures exclude contractual expenditure projections associated with water purchases.

The Contracts category includes various components that each has different applicable growth rates. Growth rates for each category are based on historical analysis and other adjustments based on known and anticipated events. As a result, the growth rate for the Contracts category represents a weighted growth rate that was calculated after applying the corresponding growth rate for each component.

Critical Operating Expenditures

Table 3.7 - Critical Strategic Expenditures - Contracts						
Request	**FTE/Exp**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Pure Water Program Expansion	Expense	$45,000	$150,000	$663,000	$1,612,200	$3,702,900
WIFIA Loan Service Fee	Expense	25,000	25,000	25,000	25,000	7,500
Pump Inspection and Maintenance Program	Expense	500,000	-	-	-	-
Morena Outlet Tower Safety Improvements	Expense	550,000	200,000	-	-	-
Cost of Service Study Consulting Services	Expense	42,000	-	-	300,000	387,887
	Total Expense	**$1,162,000**	**$375,000**	**$688,000**	**$1,937,200**	**$4,098,287**

Table 3.7 above identifies increased contractual expenditures associated with Phase 1 of the Pure Water Program, and the Water Infrastructure Finance Innovation Act (WIFIA loan annual service fee, as well as expenditures necessary for pump inspections and maintenance, Morena Reservoir outlet tower improvements, consulting services for financial review of the water services cost of service study.

Information Technology

The Information Technology category includes both discretionary expenses and non-discretionary allocations to the Water Utility Fund. The Information Technology category includes the costs related to hardware and software maintenance, help desk support, and other information technology (IT) services. Table 3.8 below displays the FY 2018 actuals and FY 2019 through FY 2024 projections for the Information Technology category.

Table 3.8 - Information Technology - Baseline Expenditures ($ in Millions)							
	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	8.9%	7.3%	6.4%	1.9%	0.3%	2.5%
Projection	$5.7	$6.2	$6.6	$7.0	$7.2	$7.2	$7.4

The projections include estimates of IT costs related to desktop support, networks, data-centers, applications, and systems critical to water treatment plant operations for FY 2019 through FY 2024. All other base IT costs are inflated by the California Consumer Price Index.

Critical Operating Expenditures

Table 3.9 - Critical Strategic Expenditures - Information Technology					
Request	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
LIMS Implementation	$182,900	$108,125	$108,125	$108,125	$108,125
EAM Tracking Software	141,000	141,000	235,000	235,000	235,000
IT Infrastructure Network and Cloud Services	121,050	121,050	31,050	31,050	31,050
IT Roadmap - Modernization of Legacy Systems	180,000	180,000	180,000	180,000	180,000
PC Refresh	-	-	-	675,000	-
SCADA Water Distribution System	1,011,827	1,024,727	955,727	955,727	955,727
Treatment Plant Processing System	735,200	447,200	947,200	497,200	497,200
Total Expense	**$2,371,977**	**$2,022,102**	**$2,457,102**	**$2,682,102**	**$2,007,102**

The Supervisory Control and Data Acquisition (SCADA) Water Distribution System monitors the water distribution facilities and detects and rectifies equipment malfunctions and operation problems. SCADA funding displayed above reflects upgrades needed to implement the next generation of SCADA in an enterprise environment. This is critical to ensuring that water treatment plant operations, public health and regulatory compliance are protected from any system vulnerabilities in older SCADA systems. Other major critical operating expenditures identified are PC replacements; the Treatment Plant Processing System, which is critical to managing and monitoring Water Treatment Plants; EAM Tracking software for costs associated with future maintenance and enhancements of the system, and Laboratory Information Management System (LIMS) which provides tracking and reporting of chemical and biological tests for compliance.

Energy & Utilities

The Energy and Utilities category includes the Water Fund's costs for electricity, water services, fuel, and other utility and energy expenses. The following table displays FY 2018 actuals, and FY 2019 through FY 2024 projections for the Energy and Utilities category.

Table 3.10 - Energy & Utilities - Baseline Expenditures ($ in Millions)							
	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	0.7%	3.2%	4.1%	3.9%	3.6%	3.9%
Projection	$13.5	$13.3	$13.7	$14.3	$14.9	$15.4	$16.0

The Energy and Utilities category includes various costs. Each cost component has a different applicable rate. Growth rates for energy are based on the Annual Energy Outlook 2018 report prepared by the U.S. Energy Information Administration.

Water rates are determined by the Public Utilities Department approved by City Council and reflect the growth rates for potable water sales as presented in Table 2.3 – Water Sales Five-Year Forecast. As a result, the growth rate for the Energy and Utilities category represents a weighted growth rate that was calculated after applying the corresponding growth rate for each component.

Critical Operating Expenditures

Table 3.11 - Critical Strategic Expenditures - Energy & Utilities					
Request	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Pure Water Program Expansion	-	-	$7,111,526	$9,956,136	$14,223,052
Total Expense	**-**	**-**	**$7,111,526**	**$9,956,136**	**$14,223,052**

Table 3.11 above identifies increased energy and utility expenditures associated with the expansion of the Pure Water Program. These expenditures are necessary as new and expanding Pure Water facilities come online and include increased electricity, water, and natural gas expenditures necessary for the daily operation of facilities.

Reserve Contributions

The City has established accounts within the Water Utility Fund for four reserve funds: The Emergency Operating Reserve (Operating Reserve), the Secondary Purchase Reserve, the Rate Stabilization Fund Reserve (Rate Stabilization Fund), and the Emergency Capital Reserve (Capital Reserve). The Department maintain these reserve funds in accordance with the City's reserve policy (the City Reserve Policy). As of June 30, 2018, the Water Utility Fund had estimated total reserves of approximately $130.5 million.

Table 3.12 below details reserve targets and projected funding levels. Reserves are projected to be fully funded throughout the PUD Outlook period. The Water Fund Rate Stabilization Reserve Fund is funded above targeted levels; it can be used to provide one-time operating revenue to offset or mitigate the need for sudden or dramatic rate increases. This Outlook does not project use of the Water Fund Rate Stabilization Reserve over its period, but the potential to use the Rate Stabilization Reserve Fund does exist, and will be evaluated as part of the Cost of Service Study that will be prepared in 2019.

Table 3.12 - Reserve Target Levels ($ in Millions)						
	FY 2019 Projection	**Fiscal Year 2020**	**Fiscal Year 2021**	**Fiscal Year 2022**	**Fiscal Year 2023**	**Fiscal Year 2024**
Operating Reserve Target ($)	$38.4	$38.2	$39.2	$43.4	$45.3	$47.9
Operating Reserve Level ($)	$40.1	$40.1	$40.1	$43.4	$45.3	$47.9
Secondary Purchase Reserve Target ($)	$16.4	$16.1	$17.1	$18.0	$18.9	$17.2 [(1)]
Secondary Purchase Reserve Level ($)	$16.1	$16.1	$17.1	$18.0	$18.9	$18.9
Rate Stabilization Fund Target ($)	$28.5	$29.2	$31.1	$33.2	$35.2	$37.2
Rate Stabilization Fund Level ($)	$70.1	$70.1	$70.1	$70.1	$70.1	$70.1
Capital Reserve Target ($)	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0
Capital Reserve Level ($)	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0

[(1)] The Secondary Purchase Reserve Target for FY 2024 reflects a decrease in water purchases as Phase 1 of the Pure Water Program nears completion.

Other Expenditures

Expenses included in this category are transfers out to other funds, capital expenses, estate taxes, and other miscellaneous expenditures. Debt service obligations, including bond, commercial paper, state revolving fund (SRF) loan and WIFIA payments, are excluded from this category and are discussed in the Water System Capital Improvement Program section of this report. The following table displays FY 2018 actuals and FY 2019 through FY 2024 projections for the Other Expenditures category.

Table 3.13 - Other Expenditures - Baseline Expenditures ($ in Millions)

	FY 2018 Actuals[1]	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Projection[1]	$3.4	$1.5	$1.5	$1.5	$1.5	$1.5	$1.5

1. Figures exclude debt service payments on bonds, commercial paper, and state revolving fund (SRF) loans, and Water Infrastructure Innovation Act (WIFIA).

Significant one-time expenditures identified and included in FY 2018 actuals include a one-time transfer to the Department's newly established inventory fund and a one-time transfer of funds to reflect accounting corrections associated with the Stadium Wetland Mitigation Fund.

Critical Operating Expenditures

Table 3.14 - Critical Strategic Expenditures - Other Expenditures

Request	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Pure Water Program Expansion	$155,000	$678,000	$892,800	$350,000	$150,000
Van Nuys Canyon Water Main Protection Project	500,000	500,000	-	-	-
Total Expense	**$655,000**	**$1,178,000**	**$892,800**	**$350,000**	**$150,000**

The table above identifies increased expenditures associated with the expansion of the Pure Water Program and the Van Nuys Canyon water main protection project. Pure Water Program expenditures include new laboratory equipment necessary for sampling analysis in support of the expanding program.

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Water System Capital Improvement Program

The Water System CIP is established to address current and future system needs in a cost-effective manner. The program's principal drivers are:

- implementation of the Pure Water Program;
- improving infrastructure to reduce pipeline breaks and emergency repairs;
- improving process technology;
- expansion of the Water System to accommodate growth; and
- compliance with the Federal Safe Drinking Water Act and the Division of Drinking Water (DDW) Compliance Order.

Infrastructure improvements generally consist of water treatment plants, pipelines, reservoirs and pump stations, projects related to anticipated growth within the City's service area, and projects required by or related to applicable State and Federal regulations and orders.

The following table shows categories of projects with the estimated cost of expenditures contained in the CIP for the period of Fiscal Years 2020 through 2024.

Table 4.1 - Summary of Projected CIP Projects[1][2][3]
FY 2020 through FY 2024
($ in Millions)

Water CIP Projects	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	TOTAL [7]
Pure Water Program [4]	$197.0	$281.5	$204.5	$106.0	$17.1	$806.1
Transmission Pipelines	$67.2	$55.7	$62.3	$63.7	$42.3	$291.3
Pipelines	$64.3	$71.3	$36.8	$33.8	$46.4	$252.7
Storage Facilities [5]	$9.4	$33.1	$38.3	$30.2	$35.0	$146.0
Water Treatment Plants	$18.3	$6.5	$0.5	$0.3	$0.0	$25.6
Pump Stations	$7.5	$2.7	$8.6	$7.9	$9.1	$35.8
SDG&E Relocation Advance [6]	$48.2	$0.0	$0.0	$0.0	$0.0	$48.2
Ground Water Projects	$0.5	$2.6	$0.0	$0.4	$1.2	$4.7
Recycled Water	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Miscellaneous Projects [7]	$33.6	$10.6	$2.9	$8.0	$5.9	$61.1
Total [8]	**$446.1**	**$464.2**	**$354.0**	**$250.3**	**$157.0**	**$1,671.6**

[1] Projections as of March 2018 for the Water System Baseline CIP and October 2018 for the Pure Water Program.

[2] Amounts reflect the aggregate costs of all CIP projects required to satisfy the DDW Compliance Order as well as projects related thereto or necessary for the operation thereof. It is the Department's expectation that the final awarding of cast iron distribution line replacement will be completed by Calendar Year 2021, thus fulfilling the requirements of the compliance order. For Fiscal Years 2020 through 2024, approximately 4% of the capital program is mandated by the DDW.

[3] The projected amounts in Fiscal Year 2020 and onward reflect an annual inflation rate of 3.1% due to anticipated increases in construction costs over time and the expected execution of the CIP.

[4] Projections are based on expected completion of the Pure Water Project Phase 1 by the end of February 2024 and include only the portion of the Pure Water Program attributable to the Water System.

[5] Storage Facilities include treated and untreated water reservoirs.

[6] Funding for the SDGE Relocation Advance in Fiscal Year 2020 will be provided by the Fiscal Year 2019 unallocated Fund Balance.

[7] Miscellaneous Projects include water security projects, solar projects, and the AMI Program.

[8] Figures may not add to total due to independent rounding.

Capital Improvement Financing Plan

Table 4.2 below describes the projected sources of funds to finance the Water System CIP for Fiscal Years 2020 through 2024.

As shown in Table 4.2, the PUD anticipates incurring approximately $658.0 million of additional debt obligations in Fiscal Years 2020 through 2024 for the Water System CIP and $683.0 million of additional obligations in Fiscal Years 2020 through 2024 for the Pure Water CIP. Capacity fees and cash are anticipated to fund an additional $331.0 million.

Table 4.2 - Sources of Funds for the Water Capital Improvement Program [1]
FY 2020 through FY 2024
($ in Millions)

Source of Funds	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	TOTAL
Pure Water CIP						
Commercial Paper/Revenue Bonds	$0.0	$0.0	$0.0	$85.0	$13.0	$98.0
WIFIA Loan [2]	$170.7	$236.4	$161.9	$16.0	$0.0	$585.0
Cash	$26.3	$45.1	$42.6	$5.0	$4.1	$123.1
Total	**$197.0**	**$281.5**	**$204.5**	**$106.0**	**$17.1**	**$806.1**
Baseline CIP						
Commercial Paper/Revenue Bonds	$139.0	$111.6	$67.9	$50.0	$75.1	$443.6
SRF Loans [3]	$54.0	$54.8	$59.2	$38.7	$7.3	$214.1
Capacity Fees/Cash	$56.1	$16.3	$22.3	$55.6	$57.5	$207.8
Total	**$249.1**	**$182.7**	**$149.5**	**$144.3**	**$139.9**	**$865.5**
Total Funding	**$446.1**	**$464.2**	**$354.0**	**$250.3**	**$157.0**	**$1,671.6**

[1] Projects are based on expected completion of the Pure Water Project by the end of February 2024.

[2] Assumes periodic draw on the WIFIA Loan. Instead of drawing on the WIFIA Loan, the City could also utilize bridge financing instruments (commercial paper notes and/or bond anticipation notes) for some or all of the construction expenses during this period.

[3] Includes proceeds from existing SRF loans (approximately $17 million), and additional proceeds through Fiscal Year 2023 (approximately $204 million) for SRF loans to be entered into.

The City anticipates to finance the costs of certain projects in the Water System Baseline CIP in the approximate amount of $214.1 million through SRF loans. This includes approximately $17 million from existing SRF loans for which the City has already applied and $204 million from loans for which the City plans to apply. The proceeds from additional SRF loans will provide funding in Fiscal Years 2020 through 2024. SRF loans are one of the least expensive sources of financing available to the City. If the City is not awarded the additional SRF loans projected over this PUD Outlook period, it will have to evaluate using other financing sources that carry higher interest rates – potentially impacting water rates – and/or postponing various CIP projects.

The City anticipates financing approximately $443.5 million of the Baseline Water System CIP through a combination of revenue bonds and commercial paper. It is expected that $14.4 million in funding for the Water System CIP per year will come from capacity fees in FYs 2020 through 2024. Any remaining costs of the Water System Baseline CIP are anticipated to be paid on a pay-as-you-go-basis.

The Department anticipates financing up to $614 million of the Pure Water Project through the WIFIA Loan which will provide funding in Fiscal Years 2019 through 2023. The remainder of the projects for Phase 1 of the Pure Water Program are expected to be financed through revenue bonds, commercial

paper, and cash, which includes a State funding allocation of $30 million that is anticipated to be allocated across both Water and Sewer funds in FY 2020.

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WASTEWATER SYSTEM

This section discusses baseline revenue and expenditure projections, upcoming critical operational expenditures, projected capital improvement program needs and financing options for the next five years for the Wastewater System. The Wastewater System is comprised of the Metropolitan and Municipal Utility Funds, collectively known as the "Sewer Revenue Funds". All revenue and expenditure projections, including CIP are presented as "Sewer Revenue Funds" in the following sections.

Wastewater System Revenues

The following section provides details of revenue projections for the Wastewater System Sewer Revenue Funds FY 2020-2024 Five-Year Financial Outlook. The primary revenue sources of the Wastewater System are generated from sewer service charges, capacity fees, interest earnings from the investments of available funds, and revenues from the Participating Agencies. This section will discuss in detail each revenue category and will include a description of the revenue source, projected growth rates, and a discussion of future revenue streams and how it impacts the Wastewater System.

Sewer Service Charges

The Department manages and operates the Sewer System with funds derived primarily from service charges that are deposited in the Sewer Revenue Funds and are used for the operation, maintenance and capital improvement of the Metropolitan Sub-System and the Municipal Sub-System.

The City establishes fees based upon the costs incurred by the City to collect, treat and discharge wastewater and pay for required capital improvements.

Sewer service charges are based on the characteristics of the wastewater discharged by each sewer user. All sewer users are charged based upon the amount of flow, solids and organic material which they discharge into the Sewer System. As sewage discharge is not metered, water consumption is used to approximate each customer's sewage flow.

Sewer service charge revenues are comprised of two parts: a base fee and a sewer service charge (flow charge). The base fee is a fixed monthly service fee charged to all customers to recover certain fixed and indirect costs. Since the indirect costs are common to all users, the costs are shared equally by all user meters. The flow charge is based on the amount (flow) and strength of the wastewater discharged to the sewer system, and incorporates allowances for system return that differs by customer class. This adjustment factor recognizes that not all water consumed discharges to the wastewater system. The flow charge for both Single Family Residential (SFR) and Multi Family Residential (MFR) customers include a 95% return to sewer, while Commercial/Industrial (C/I) customers average a 73% return to sewer and vary depending on the type of business. Additionally, the flow charge for SFR customers is based on the least amount of water used during the previous winter and includes a water usage cap of 20 HCF.

Table 5.1 below displays the existing sewer rates for FY 2019.

Table 5.1 - Fiscal Year 2019 Wastewater Rates		
Line #	**Customer Class**	**Rate**
	Single Family	
1	Base Sewer Fee ($/month)	$15.33
2	Flow Charge ($/HCF)	$3.60
	Multi Family	
3	Base Sewer Fee ($/month)	$15.33
4	Flow Charge ($/HCF)	$5.03
	Commercial / Industrial	
5	Base Sewer Fee ($/month)	$15.33
6	Flow Charge ($/HCF)	$3.77
7	COD Charge ($/lb)	$0.22
8	TSS Charge ($/lb)	$0.55

Forecast. The following table shows the budget and year-end projection for FY 2019 and the forecast for FY 2020 through FY 2024 for revenue from sewer service charges. This revenue source represents approximately 65 percent of the Sewer Revenue Funds overall revenue receipts. The forecast assumes a 0.25 percent increase in accounts and reflects projected rate increases beginning in FY 2021 through FY 2024.

Table 5.2 - Sewer Service Charge Five-Year Forecast ($ in Millions)							
	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	-1.4%	0.25%	3.26%	5.26%	5.25%	5.78%
Projection	$274.6	$270.7	$271.4	$280.2	$295.0	$310.5	$328.4

Discussion. The Department last presented a wastewater rate case in 2006 (the 2006 Rate Case). The 2006 Rate Case covered four years and was based on comprehensive forecasted annual operations and maintenance costs including capital costs expenditures. The 2006 Rate Case covered Fiscal Years 2007 through 2010 and was approved by the City Council in February 2007. The rate case included rate increases of 8.75% on May 1, 2007, 8.75% on May 1, 2008, 7.00% on May 1, 2009, and 7.00% May 1, 2010.

In May of 2018, The department conducted a FY 2018 Wastewater Financial Plan Study and Cost of Service Review Report (the Study) prepared by Raftelis Financial Consultants, Inc. (Raftelis). The objectives of the study were to review current wastewater rates and the cost of providing service to determine if rates need to increase or be adjusted based on revenue requirements and /or updated flow characteristics. The Study reviewed and developed a financial plan for the wastewater system to ensure financial sufficiency, meet operation and maintenance (O&M) costs, and ensure sufficient funding for capital improvements.

Based on the Study, Raftelis found that existing wastewater revenues were sufficient and additional rate adjustments are not necessary to meet operating fund requirements for FY 2019 and FY 2020.

However, construction of Phase 1 of the Pure Water Program is expected to begin in FY 2020 and projected rate increases are anticipated to be necessary to fund the Pure Water Program beyond FY 2020 in addition to the baseline CIP.

Accordingly, this PUD Outlook assumes preliminary wastewater rate increases of 3% in FY 2021, 5% in FY 2022 and 2023, and 5.5% in FY 2024. Actual rate increase will be determined through a cost of service study and presented to the City Council for review. For more details on projected financing for the CIP, refer the Wastewater Capital Improvement program section of this report.

Sensitivity Analysis. While these projections represent PUD's best estimate of wastewater revenues throughout the PUD Outlook period, actual results will depend on the factors discussed above. The impact in revenue from potential rate increases ranges from $2.8 to $3.2 million for each percent added or subtracted from projected rate increases depending on the year in which sewer service charges are adjusted. Adjustments to projected rates in earlier years would compound this amount.

Wastewater Capacity Charges

Background. Capacity charges are development fees imposed on permits for new or expanded wastewater connections, and are based on an estimate of the increase in wastewater consumption as measured by equivalent dwelling units. Capacity charge proceeds are used to construct, improve and expand the Wastewater System to accommodate the additional business of such added dwellings or commercial or industrial units.

As with water capacity charges, wastewater capacity charges can be applied only for the purpose of paying costs associated with capital expansion, bonds, contracts, or other indebtedness of the Wastewater System related to expansion. Because capacity charges are primarily collected on new construction within the City, revenues obtained from such charges vary based upon construction activity.

In February 2007, the City Council and Mayor approved raising the capacity charge to $4,124 per Equivalent Dwelling Unit ("EDU"), which was estimated to provide for full cost recovery for Wastewater System expansion projects. The City will be undertaking a cost of service study in FY 2020 to review existing capacity rates.

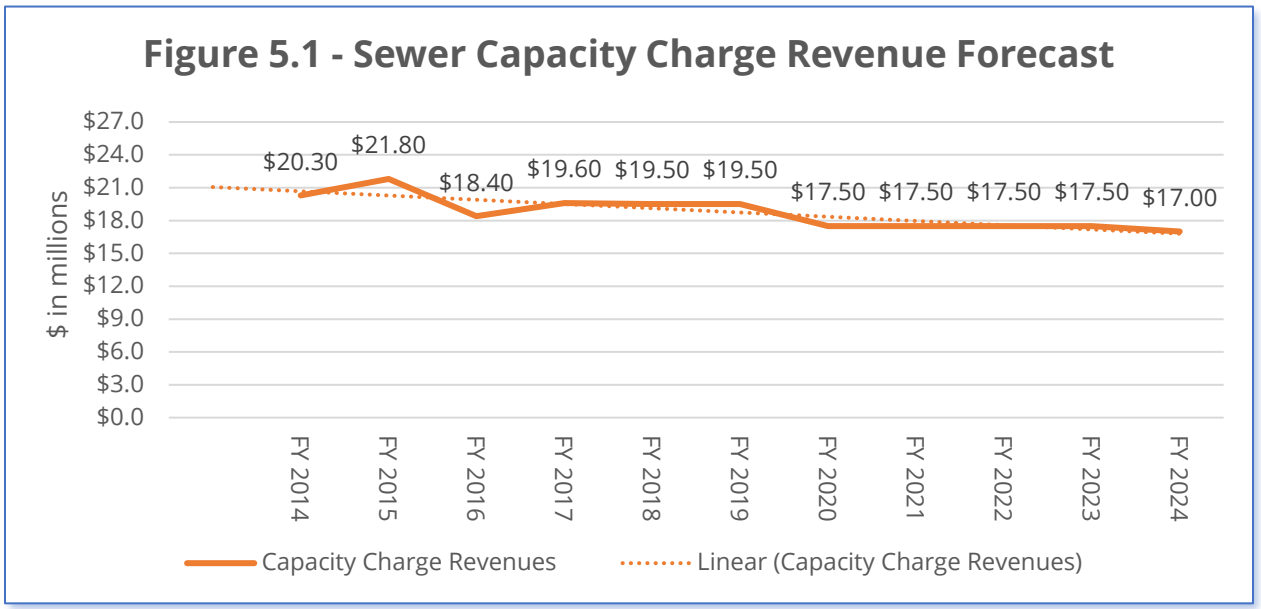
Forecast. The following table presents wastewater capacity charge revenue received between FY 2014 to FY 2018, FY 2019 Budget and the forecast for FY 2020 through FY 2024 for revenue from sewer capacity charges. This revenue source represents 5 percent of the Wastewater System's overall revenue receipts.

Table 5.3- Capacity Charges Five-Year Forecast
($ in Millions)

	FY 2014-2018 Average	FY 2019 Budget	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	N/A	7.4%	0%	0%	0%	-2.9%
Projection	$19.9	$16.3	$17.5	$17.5	$17.5	$17.5	$17.0

Projected revenues for wastewater capacity charges use conservative growth estimates based on spending trends from FY 2014 through FY 2018 as shown in Figure 1 below and projected construction

permitting activity. Average wastewater capacity fee revenue between FY 2014 and FY 2018 was approximately $19.9 million. However, due to a projected decrease in the housing market beginning in FY 2020, wastewater capacity charge revenue was conservatively adjusted downward. The wastewater capacity charge budget for FY 2019 has been budgeted historically low and may be adjusted to reflect historical and projected revenue trends in the FY 2020 budget.



Economic Trends. As previously mentioned, wastewater capacity charges are primarily based on new wastewater connections related to new construction and are directly influenced by population growth and residential and commercial development. As discussed in the Water Capacity Charges section of this report, San Diego's population has grown by approximately seven percent between the 2000 Census and the 2010 Census for an aggregate increase of 84,000. As population continues to increase in the region, the demand for new single and multi-family housing is also expected to increase in order to meet population demands. For a more detailed discussion on population and housing growth, refer to the Water Capacity Charges section of this report.

Other Revenue

The primary component of the Other Revenue category is revenues received from Participating Agencies for sewer system charges. These represent 70.1 percent of FY 2018 revenues in the Other Revenue category. The Other Revenue category also includes revenue received from the Water Utility Fund pertaining to the sales of reclaimed water, interest on pooled investments, reimbursements from services provided to other City departments / funds, grants revenue, and other miscellaneous revenues.

The following table displays the FY 2019 through FY 2024 projections for the Other Revenue category.

Table 5.4 - Other Revenue Five-Year Forecast ($ in Millions)							
	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Participating Agencies							
Growth Rate	N/A	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Projection	$70.1	$75.0	$80.0	$85.0	$90.0	$95.0	$100.0
Other Revenue							
Growth Rate	N/A	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Projection	$28.7	$17.5	$23.7	$22.6	$19.8	$18.3	$18.6

No growth rate is applied to the Other Revenue category for the PUD Outlook period. However, revenues are projected to increase from FY 2020 through FY 2024 based on historical analysis and other adjustments made on known and anticipated events. The projected increases primarily consist of sewer system charges to Participating Agencies to reflect anticipated increases in shared costs of Pure Water Program expenses, and projected increases in pooled investments. Per their agreement with the City, Participating Agencies pay their actual costs for service and capital expenses; if projected expenditures associated with the Participating Agencies increase or decrease, this will ultimately be offset by increased or decreased revenue from the Participating Agencies.

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WASTEWATER SYSTEM EXPENDITURES

The Wastewater System expenditures are comprised of both personnel and non-personnel expenditures including debt service and other non-discretionary payments. The following sections will discuss in detail each expenditure category and will include a description of the expenditure, projected growth rates, and a discussion of critical strategic expenditures.

Personnel Expenditures

Personnel expenditures includes the salaries and wages category as well as fringe benefits category. The salaries and wages category is comprised of regular salaries and wages, special pays, overtime, step increases, and vacation pay in lieu, whereas the fringe benefits category includes pension payments or Actuarially Determined Contribution (ADC), flexible benefits, retiree health or Other Post-Employment Benefits (OPEB), workers' compensation, Supplemental Pension Savings Plan (SPSP), and other fringe benefits. The FY 2019 Adopted Budget for the Sewer Funds salaries and wages was $55.3 million and included 871.74 full-time equivalents (FTE). The following table displays the FY 2019 through FY 2024 personnel expenditure projections by category.

Table 5.5 - Personnel Expenditures - Baseline Expenditures ($ in Millions)

	FY 2018 Actuals	FY 2019 Budget	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Salary & Wages Projection	$49.8	$55.3	$58.3	$58.9	$58.9	$58.9	$58.8
Fringe Benefits Projection	$39.0	$40.2	$42.2	$43.1	$43.3	$43.4	$43.6

Adjustments within the salary and wages category incorporate only those expenditures associated with staff included in the FY 2019 Adopted Budget. Position additions identified for FY 2020-2024 to support critical strategic expenditures are discussed below. Personnel expenditures are projected to increase through the Outlook period primarily due to general salary and special pay increases, retiree healthcare benefits or OPEB, pension payments or ADC, and workers' compensation expenditure increases. The PUD Outlook does not project for any impact of future MOUs with REOs, and therefore salary and wages forecasts are fixed to the last negotiated amounts.

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Critical Strategic Expenditures

Table 5.6 - Critical Strategic Expenditures - Personnel						
Request	**FTE/Exp**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Customer Services Office Program	FTE	4.00	4.00	4.00	4.00	4.00
Support	Expense	$311,918	$311,918	$311,918	$311,918	$311,918
Facilities Maintenance Consolidation	FTE	(4.50)	(4.50)	(4.50)	(4.50)	(4.50)
	Expense	(347,676)	(347,676)	(347,676)	(347,676)	(347,676)
EAM Support	FTE	0.53	0.53	0.53	0.53	0.53
	Expense	53,588	53,588	53,588	53,588	53,588
Supply Chain Warehouse Staffing	FTE	2.12	2.12	2.12	2.12	2.12
	Expense	248,271	248,271	248,271	248,271	248,271
Pure Water Program Expansion	FTE	-	-	13.00	13.00	13.00
	Expense	-	-	1,636,751	1,636,751	1,636,751
	Total FTE	**2.15**	**2.15**	**15.15**	**15.15**	**15.15**
	Total Expense	**$266,101**	**$266,101**	**$1,902,851**	**$1,902,851**	**$1,902,851**

Table 5.6 above identifies increased personnel expenditures, including fringe benefits, for the addition of staff to support enhancements to the Customer Services Office Program, expansion of inventory asset management (EAM), and improvements to procurement processes. The PUD Outlook also identifies the transfer of 4.50 full-time equivalents from the Water Utility Fund to the General Fund beginning in FY 2020 to support the facilities maintenance consolidation efforts.

The identified funding needs for the Pure Water Program are for the operation and maintenance of new and expanding Pure Water facilities and staffing needs. A total of 13.00 full-time equivalent positions were identified to be required by FY 2022. Because these position classifications identified by the Department's consultant do not yet exist within the City, projected salary costs were based on industry estimates.

Supplies

The Supplies category includes costs for chemicals, machine parts, electrical materials, laboratory supplies, and pipe fittings. The following table displays the FY 2019 through FY 2024 projections for the Supplies category.

Table 5.7 - Supplies - Baseline Expenditures ($ in Millions)							
	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	5.1%	3.7%	3.7%	3.7%	3.7%	3.7%
Projection	$23.6	$24.8	$25.7	$26.6	$27.6	$28.6	$29.7

The Supplies category includes various costs. Each cost component has a different applicable rate. Growth rates for each category are based on historical analysis, and other adjustments made on known and anticipated events. As a result, the growth rate for the Supplies category represents a weighted growth rate that was calculated after applying the corresponding growth rate for each component.

Critical Strategic Expenditures

Table 5.8 - Critical Strategic Expenditures - Supplies					
Request	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Pure Water Program Expansion	10,000	$5,000	$3,027,235	$4,327,993	$6,049,470
Total Expense	**10,000**	**$5,000**	**$3,027,235**	**$4,327,993**	**$6,049,470**

Table 5.8 identifies increased expenditures associated with the expansion of the Pure Water Program. These expenditures are necessary as new and expanding Pure Water facilities come online and include chemical costs, consumables, repair and replacement parts for equipment, and other materials necessary for operation and maintenance of facilities and equipment.

Contracts

Contracts are a non-personnel expense category that includes the cost of professional consultant fees, general government services billing, City services billings, fleet vehicle usage and assignment fees, contractual services, other contractual expenses. The following table displays the FY 2019 through FY 2024 projections for the Contracts category.

Table 5.9 - Contracts - Baseline Expenditures ($ in Millions)							
	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	3.5%	3.5%	3.5%	3.6%	3.6%	3.6%
Projection	$75.7	$74.4	$77.1	$79.8	$82.7	$85.6	$88.7

The Contracts category includes various costs. Each cost component has a different applicable rate. Growth rates for each category are based on historical analysis, and other adjustments made on known and anticipated events. As a result, the growth rate for the Contracts category represents a weighted growth rate that was calculated after applying the corresponding growth rate for each component.

Critical Strategic Expenditures

Table 5.10 - Critical Strategic Expenditures - Contracts						
Request	**FTE/Exp**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Pure Water Program Expansion	Expense	$ -	$ -	$3,060,560	$5,549,460	$8,442,569
Digester Cleanings	Expense	2,550,000	-	3,300,000	-	1,100,000
Participating Agencies - True-Up Payments	Expense	-	3,600,000	4,000,000	3,000,000	3,000,000
Cost of Service Study Consulting Services	Expense	-	-	-	300,000	377,881
Hale Avenue Resource Recovery Facility Payment	Expense	(600,000.00)	(600,000.00)	(600,000.00)	(600,000.00)	(600,000.00)
	Total Expense	**$1,950,000**	**$3,000,000**	**$9,760,560**	**$8,249,460**	**$12,320,450**

The table above identifies increased contractual expenditures associated with Phase 1 of the Pure Water Program, various wastewater digester cleanings, true-up payments to Participating Agencies for their proportionate costs of the sewer system, and consulting services for financial review of the water services cost of service study. The PUD Outlook also identifies expenditure reductions of $600,000 beginning FY 2020 for contractual costs associated with Hale Avenue Resource Recovery Facility due to the completion of the project.

Information Technology

The Information Technology category includes both discretionary expense and non-discretionary allocations to the Sewer Revenue Funds. The Information Technology category includes the costs related to hardware and software maintenance, help desk support, and other information technology (IT) services. Table 5.11 below displays the FY 2019 through FY 2024 projections for the Information Technology category.

Table 5.11 - Information Technology - Baseline Expenditures ($ in Millions)

	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	11.3%	7.7%	11.1%	2.2%	1.0%	2.7%
Projection	$7.3	$8.1	$8.7	$9.7	$9.9	$10.0	$10.3

The projections include estimates of IT costs related to desktop support, networks, data-centers, applications, and systems critical to wastewater treatment plant operations for FY 2019 through FY 2024, and all other base IT costs are inflated by the California Consumer Price Index.

Critical Strategic Expenditures

Table 5.12 - Critical Strategic Expenditures - Information Technology

Request	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
LIMS Implementation	$182,900	$108,125	$108,125	$108,125	$108,125
EAM Tracking Software	159,000	159,000	265,000	265,000	265,000
IT Infrastructure Network and Cloud Services	147,950	147,950	37,950	37,950	37,950
IT Roadmap - Modernization of Legacy Systems	220,000	220,000	220,000	220,000	220,000
PC Refresh	-	-	-	825,000	-
COMNET System Support	2,920,437	2,716,333	2,716,333	2,716,333	2,716,333
IT Run the Business & Enhancements	359,890	359,890	359,890	359,890	359,890
Total Expense	**$3,990,177**	**$3,711,298**	**$3,707,298**	**$4,532,298**	**$3,707,298**

Table 5.12 above identifies critical needs associated with maintaining and improving existing hardware and software. The expenditures identified in Table 5.12 primarily consist of costs associated with COMNET system support. COMNET serves as a communication network that utilizes a process control system to coordinate operations at different wastewater locations such as Point Loma Wastewater Treatment Plant, North City Reclamation Plant, and bio solid centers and pump stations. Other critical operating expenditures identified are PC replacements; funding to retire/modernize legacy systems (IT Roadmap) and for general IT needs/enhancements; EAM Tracking software for

costs associated with future maintenance and enhancements of the system, and Laboratory Information Management System (LIMS) which provides tracking and reporting of chemical and biological tests for compliance.

Energy & Utilities

The Energy and Utilities category includes the Water Fund's costs for electricity, water services, fuel, and other utility and energy expenses. The following table displays the FY 2019 through FY 2024 projections for the Energy and Utilities category.

Table 5.13 - Energy & Utilities - Baseline Expenditures ($ in Millions)							
	FY 2018 Actuals	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	2.0%	2.8%	3.5%	3.5%	3.3%	3.7%
Projection	$19.9	$20.3	$20.9	$21.6	$22.4	$23.1	$24.0

The Energy and Utilities category includes various costs. Each cost component has a different applicable rate. Growth rates for each category are based on the Annual Energy Outlook 2018 report prepared by the U.S. Energy Information Administration with the exception of sewer service charges, which are based on the 2006 cost of service study and projected rates. As a result, the growth rate for the Energy and Utilities category represents a weighted growth rate that was calculated after applying the corresponding growth rate for each component.

Critical Strategic Expenditures

Table 5.14 - Critical Strategic Expenditures - Energy & Utilities					
Request	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Pure Water Program Expansion	-	-	$2,897,397	$4,093,075	$5,794,794
Total Expense	**-**	**-**	**$2,897,397**	**$4,093,075**	**$5,794,794**

Table 5.14 above identifies increased energy and utility expenditures associated with the expansion of the Pure Water Program. These expenditures are necessary as new and expanding Pure Water facilities come online and include expenditures for the Morena pump station, North City Water Reclamation Plant, and Metro Biosolids Center facilities.

Reserve Contributions

The City has established accounts within the Sewer Revenue Fund for three reserve funds: The Emergency Operating Reserve (Operating Reserve), the Rate Stabilization Fund Reserve (Rate Stabilization Fund), and the Emergency Capital Reserve (Capital Reserve). The Department operates these reserve funds in accordance with the City's reserve policy (the City Reserve Policy). As of June 30, 2018, the Sewer Revenue Fund had estimated total reserves of approximately $114.5 million.

Table 5.15 below details reserve targets and projected fund levels. Reserves are projected to be fully funded throughout the Outlook period. The Sewer Fund's Rate Stabilization Reserve Fund is funded above targeted levels; it can be used to provide one-time operating revenue to offset or mitigate the need for sudden or dramatic rate increases. This PUD Outlook does project use of the Sewer Fund's

Rate Stabilization Reserve in FY 2020 ($5 million), FY 2021 ($5 million), FY 2022 ($15 million) and FY 2023 ($15 million) to absorb increasing costs. Actual use of the Rate Stabilization Reserve Fund will be evaluated as part of future Cost of Service Studies.

Table 5.15 - Reserve Target Levels ($ in Millions)

	FY 2019 Projection	Fiscal Year 2020	Fiscal Year 2021	Fiscal Year 2022	Fiscal Year 2023	Fiscal Year 2024
Operating Reserve Target ($)	$47.8	$46.4	$47.9	$51.6	$52.9	$55.2
Operating Reserve Level ($)	$48.3	$48.3	$48.3	$51.6	$52.9	$55.2
Rate Stabilization Fund Target ($)	$18.0	$17.3	$17.6	$18.3	$19.3	$20.3
Rate Stabilization Fund Level ($)	$75.3	$70.3	$65.3	$50.3	$35.3	$35.3
Capital Reserve Target ($)	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0
Capital Reserve Level ($)	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0

Other Expenditures

Expenses included in this category are transfers out to other funds, capital expenses, and other miscellaneous expenditures. Debt service obligations, including bond and state revolving fund (SRF) loan payments, are excluded from this category and are discussed in detail within the Wastewater System Capital Improvement Program section of this report. The following table displays the FY 2019 through FY 2024 projections for the Other Expenditures category.

Table 5.16 - Other Expenditures - Baseline Expenditures ($ in Millions)

	FY 2018 Actuals[1]	FY 2019 Projection	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Growth Rate	N/A	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Projection[1]	$4.3	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5

[1] Figures exclude debt service and state revolving fund (SRF) loan expenditure payments.

Significant one-time expenditures identified and included in the FY 2018 actuals include $2.0 million in expenditures for a one-time transfer to the department's newly established inventory fund as part of the EAM project.

Critical Strategic Expenditures

Table 5.17 - Critical Strategic Expenditures - Other Expenditures

Request	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Pure Water Program Expansion	$65,000	-	-	$17,000	-
Total Expense	**$65,000**	**-**	**-**	**$17,000**	**-**

The table above identifies increased expenditures associated with the expansion of the Pure Water Program. These expenditures include new laboratory equipment necessary for sampling analysis in support of the expanding program.

Wastewater System Capital Improvement Program

The Wastewater System CIP is established to address current and future system needs in a cost-effective manner. While operation and maintenance expenditures support day-to-day operations, the Wastewater System Capital Improvement Program (CIP) supports the infrastructure for reliable wastewater collection, treatment and replacement of existing wastewater assets. As a result, PUD has developed a long-term CIP that identifies future facility needs. Furthermore, in order to improve its aging infrastructure, the City works towards the replacement and rehabilitation of 45 miles of sewer pipeline each year. The Wastewater System's CIP for this Outlook period includes improvements to the Wastewater System infrastructure, as well as Phase 1 of the multi-year Pure Water Program.

The following table shows categories of projects with the estimated cost of expenditures contained in the CIP for the period of Fiscal Years 2020 through 2024.

Table 5.18 - Summary of Projected CIP Projects [1] [2]
FY 2020 through FY 2024
($ in Millions)

Wastewater CIP Projects	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total
Pure Water Program [3]	$190.0	$220.2	$124.5	$38.4	$5.9	$579.0
Trunk Sewers	$14.3	$32.4	$48.7	$37.9	$24.6	$157.9
Muni Pump Station	$0.3	$0.6	$7.6	$12.5	$29.9	$50.9
Sewer Pipelines	$57.8	$45.5	$63.1	$57.1	$54.7	$278.2
Miscellaneous Projects	$8.5	$3.2	$0.5	$4.1	$1.2	$17.5
SDG&E Relocation	$33.6	$0.0	$0.0	$0.0	$0.0	$33.6
Sewer Treatment Plants	$28.3	$32.5	$19.0	$8.3	$1.5	$89.7
Large Sewer Pump Station	$24.8	$11.3	$3.8	$8.4	$8.2	$56.6
Total [4]	**$357.7**	**$345.7**	**$267.2**	**$166.8**	**$126.0**	**$1,263.4**

[1] Projections as of March 2018 for the Wastewater System Baseline CIP and October 2018 for the Pure Water Program.

[2] The projected amounts in Fiscal Years 2019 and onward reflect an annual inflation rate of 3.1% due to anticipated increases in construction costs over time and the expected execution of the CIP.

[3] Projections are based on expected completion of the Pure Water Project by the end of February 2024 and include only the portion of the Pure Water Program attributable to the Wastewater System.

[4] Figures may not add to total due to independent rounding.

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The Capital Improvement Financing Plan

Table 5.19 below describes the projected sources of funds to finance the Wastewater System CIP for Fiscal Years 2020 through 2024.

Table 5.19 - Sources of Funds for the Wastewater Capital Improvement Program [1]
FY 2020 through FY 2024
($ in Millions)

Source of Funds	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	TOTAL
Pure Water CIP						
Revenue Bond Financing	$0.0	$0.0	$25.0	$8.0	$0.0	$33.0
State Grants	$12.7	$0.0	$0.0	$0.0	$0.0	$12.7
SRF	$239.9	$218.6	$5.7	$0.0	$0.0	$464.2
Cash	(62.6) [2]	$1.6	$93.8	$30.4	$5.9	$69.1
Total	**$190.0**	**$220.2**	**$124.5**	**$38.4**	**$5.9**	**$579.0**
Baseline CIP						
Revenue Bond Financing	$0.0	$0.0	$120.0	$108.0	$90.0	$318.0
SRF Loans [3]	$22.3	$14.0	$4.2	$0.6	$0.0	$41.0
Capacity Fees/Cash	$145.4	$111.5	$18.6	$19.9	$30.1	$325.4
Total	**$167.7**	**$125.5**	**$142.8**	**$128.4**	**$120.1**	**$684.5**
Total Funding	**$357.7**	**$345.7**	**$267.2**	**$166.8**	**$126.0**	**$1,263.4**

[1] Projects are based on expected completion of the Pure Water Project by the end of February 2024.

[2] The negative amount in the FY 2020 Cash line is offsetting SRF proceeds for prior year Pure Water expenditures

[3] Includes proceeds from existing SRF loans (approximately $41 million), and additional proceeds through Fiscal Year 2024 (approximately $464 million) for SRF loans to be entered into.

The Department anticipates financing up to $464 million for Wastewater's portion of the Pure Water Project through low-interest State Revolving Fund (SRF) loans which will provide funding in Fiscal Years 2020 through 2022. The remainder of the costs for Phase 1 of the Pure Water Program are expected to be financed through revenue bond financing (short-term and/or long-term), and cash, which includes a State funding allocation of $30 million that will be allocated to both Water and Wastewater fund costs. The State funding allocation is anticipated to be available for encumbrance or expenditure through June 30, 2021.

As noted in the discussion of the Water System CIP, SRF loans are one of the least expensive sources of financing available to the City. Financing from anticipated SRF loans represents a significant portion of funding for the Wastewater System CIP, and is anticipated to provide the majority of funding for Wastewater's Pure Water expenses. If the City is not awarded the SRF loans projected over this Outlook period, it will need to seek financing sources that carry higher interest rates. Such financing sources could impact projected sewer service charge increases.

The City has existing SRF loans which will be used to finance approximately $41 million of Wastewater System Baseline CIP in Fiscal Years 2020 through 2023. Additionally, the City anticipates financing approximately $318 million of the Wastewater System Baseline CIP through revenue bonds in Fiscal Years 2022 through 2024. It is expected that $16 million in funding for Wastewater System CIP will come from capacity fees in Fiscal Years 2020 through 2024. Any remaining costs of the Wastewater System Baseline CIP will be paid on a pay-as-you-go-basis. Projected funding for Wastewater's Pure Water and Baseline CIP is supported in Fiscal Years 2020 and 2021 by currently approved Wastewater rates, and by projected rates for Fiscal Years 2022 through 2024.

APPENDIX G

Cost Escalation Factors

General Cost Escalators

Non-Public Safety

These are the cost escalators included in the City's Long-term Financial Plan. The City does not have drafted policies for cost escalators.

Expenditure categories	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	
Personnel Costs							Notes:
Salaries	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	Assumes a 2% Increase beginning in FY2020 for all groups throughout forecast period
Health Insurance/Flex benefits	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	Assumes a 5% Miscellaneous Increase in Flex benefits
Pension							
Normal Costs (Personnel)	1.8%	9.8%	2.8%	2.7%	2.8%	2.7%	Projections based on 6/30/17 CalPERs Valuation Report. See Pension tab for calculations.
Unfunded Accrued Liability (UAL)	13.9%	8.5%	8.9%	6.8%	3.6%	4.9%	Projections based on 6/30/17 CalPERs Valuation Report. See Pension tab for calculations.
Supplies and Services							
Operating Supplies	8.0%	8.0%	7.0%	2.0%	2.0%	2.0%	Assumes large increases in FY2020 to FY2022 related to increase in hourly wages.
Contracts	8.0%	8.0%	7.0%	2.0%	2.0%	2.0%	Assumes large increases in FY2020 to FY2022 related to increase in hourly wages.
IT Expenses	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	Assumes a 2.0% increase per year, similar to assumption for Internal Service Funds.
Utilities							
Energy & Utilities	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	Assumes a 5.0% increase per year.
Capital							
Equipment (Capital not CIP)							
Miscellaneous							Assumes a 2.0% increase per year.
Other Expenses	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	

	CY_ORIGINAL_BUD	2021	2022	2023	2024	2025
Salaries	3,042,707.00	3,103,561	3,165,632	3,228,945	3,293,524	3,359,394
Health Insurance	735,443.00	772,215	810,826	851,367	893,936	938,632
pensions	1,218,578.00	1,338,266	1,375,068	1,412,883	1,451,737	1,491,660
Total	4,996,728.00	5,214,042.35	5,351,526.67	5,493,194.83	5,639,196.51	5,789,686.47
Percent Change - All Costs		4.35%	2.64%	2.65%	2.66%	2.67%

Salaries Escalation		2%	2%	2%	2%	2%
Health Insurance Escalation		5%	5%	5%	5%	5%
Pension Escalation		9.8%	2.8%	2.7%	2.8%	2.7%

APPENDIX H

ENR 20-Cities Index

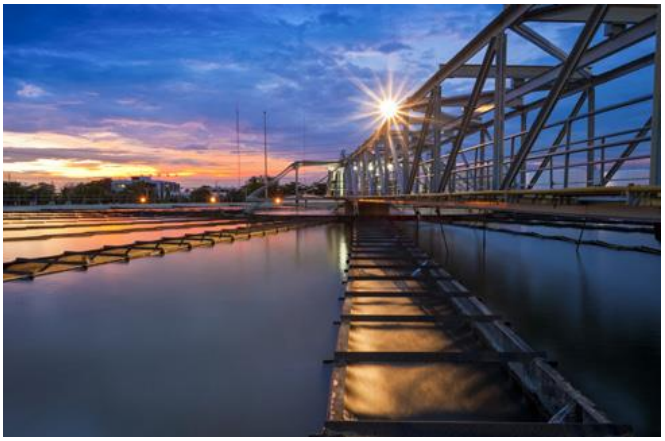
Cost Indices: ENR - 20 City
Annual Average

Year	Construction Cost Index
2000	6,221
2001	6,342
2002	6,538
2003	6,695
2004	7,115
2005	7,446
2006	7,751
2007	7,967
2008	8,310
2009	8,570
2010	8,799
2011	9,070
2012	9,308
2013	9,547
2014	9,806
2015	10,035
2016	10,338
2017	10,737
2018	11,062
2019	11,381

ENR Cost Indexes % Change

3 Year	2.95%	Compound Average Annual Change
5 Year	3.20%	Compound Average Annual Change
10 Year	2.90%	Compound Average Annual Change

11/1/2019



WILLDAN

27368 Via Industria, Suite 200
Temecula, California 92590-4856
800.755.6864 | Fax: 888.326.6864
951.587.3500 | Fax: 951.587.3510
www.willdan.com