

City of National City Sewer Rate Study

September 2017

Submitted To:

City of National City
1243 National City Boulevard
National City, CA 91950-4301

Submitted By:

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Appendix A – Wastewater Rate Study

Abbreviations

AWWA	American Water Works Association
BMP	Best Management Practices as Prescribed by the State of California
BOD	Biochemical Oxygen Demand – A Measure of Sewage Strength
CIP	Capital Improvement Program or Plan
EDU	Equivalent Dwelling Unit
ENR-CCI	Engineering News Record Construction Cost Index
FY	Fiscal Year Ending June 30
GPD	Gallons per Day
HCF	Hundred Cubic Feet
Metro	City of San Diego Metropolitan Wastewater System
mg/l	Milligrams per Liter
O&M	Operations and Maintenance
PA	Participating Agency in the San Diego Metro System
TSS	Total Suspended Solids – A Measure of Sewage Strength
US EPA	U.S. Environmental Protection Agency

1.0 Executive Summary

This report was prepared for the City of National City (City) to document the development of a wastewater multi-year financial plan, cost of service analysis, and rate design for the City (rate case).

The specific goals of the study were to:

- Evaluate the adequacy of projected revenues under existing sewer service charges to meet projected revenue requirements;
- Develop a wastewater cost of service and rate model for the City covering a five-year study (Fiscal Year 2019 through Fiscal Year 2023) period for both ongoing operations and planned capital improvements;
- Allocate the projected fiscal years revenue requirements to the various customer classes in accordance with the proportionate share of their wastewater contributions;
- Develop a five-year sewer service charge program that produces revenues adequate to meet financial needs of the City for both their required funding of the City of San Diego's Pure Water Program and the City's operations and capital needs, while recognizing customer costs of service, and local and state legal and policy considerations such as California Constitution Articles XIII C and D (Proposition 218), and Proposition 26; and
- Recommend appropriate reserve levels for operations and capital needs.

1.1 Findings

During the course of our analysis in relation to the specific goals of the study we made the following findings:

1. The City of National City last adjusted the sewer service charges in FY 2006.
2. Wastewater service charge revenues at current levels will not be sufficient over the next five years to meet the increasing cost of City operating and capital expenses without negatively affecting fund balance levels¹. In the absence of annual rate adjustments, projections show that the City would deplete the Net Fund Balance during FY 2022. Line 23 on **Table 1-1** on the next page illustrates the projected financial picture without recommended sewer service charge adjustments, and shows that the City's Fund Balance falls below recommended operating reserve target levels by FY 2019 and falls into a negative cash position by FY 2022.

¹The term "fund balance" refers to the remaining amounts available after short-term liabilities (monies owed) are paid off with the agency's available cash and other financial resources (such as receivables). The fund balance includes reserved and unreserved components. For the purposes of this Study, this term refers to "available cash excluding reserved monies" and the term "fund" refers to either the Operating or Capital account in which these monies reside.

Table 1-1 – Sewer Enterprise Fund Long Range Plan without Revenue Adjustments (Status Quo)

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023
1 Beginning Balance	\$15,530,261.00	\$ 15,014,450.61	\$ 11,750,911.22	\$ 6,037,241.24	\$ 1,128,996.22	\$ (1,707,433.63)
2 Revenue:						
3 Non-Operating Revenue	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00
4 User Fees	\$ 6,942,939.32	\$ 6,942,939.32	\$ 6,942,939.32	\$ 6,942,939.32	\$ 6,942,939.32	\$ 6,942,939.32
5 Total Revenue	\$ 6,957,939.32	\$ 6,957,939.32	\$ 6,957,939.32	\$ 6,957,939.32	\$ 6,957,939.32	\$ 6,957,939.32
6 Operations Expenses:						
7 Collection System Maintenance	\$ 1,935,415.00	\$ 2,015,522.43	\$ 2,099,213.62	\$ 2,184,253.96	\$ 2,263,206.29	\$ 2,341,467.45
8 Metro and JPA costs - Low Projection	\$ 5,538,334.71	\$ 6,205,956.28	\$ 8,572,395.68	\$ 7,681,930.38	\$ 5,531,162.87	\$ 5,807,325.16
9						
10 Total Operations Expenses	\$ 7,473,749.71	\$ 8,221,478.71	\$ 10,671,609.30	\$ 9,866,184.34	\$ 7,794,369.16	\$ 8,148,792.61
11						
12 Capital Improvement Program:						
13 Collection System CIP	\$ -	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00
14 Total Expenses	\$ 7,473,749.71	\$ 10,221,478.71	\$ 12,671,609.30	\$ 11,866,184.34	\$ 9,794,369.16	\$ 10,148,792.61
15 Fund Balance Prior to Reserves	\$ 15,014,450.61	\$ 11,750,911.22	\$ 6,037,241.24	\$ 1,128,996.22	\$ (1,707,433.63)	\$ (4,898,286.92)
16 Reserve Targets:						
17 Operations/Cash Flow	\$ 3,736,874.86	\$ 4,110,739.36	\$ 5,335,804.65	\$ 4,933,092.17	\$ 3,897,184.58	\$ 4,074,396.31
18 Metro Cash Flow	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00
19 Emergency/Nat. Disaster	\$ 1,245,624.95	\$ 1,370,246.45	\$ 1,778,601.55	\$ 1,644,364.06	\$ 1,299,061.53	\$ 1,358,132.10
20 Capital Expansion Reserve	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00
21 Capital Replacement Reserve	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00
22 Total Recommended Reserves	\$ 11,382,499.81	\$ 11,880,985.81	\$ 13,514,406.20	\$ 12,977,456.23	\$ 11,596,246.11	\$ 11,832,528.41
23 Fund Balance Over/(Under) Reserve Target	\$ 3,631,950.80	\$ (130,074.59)	\$ (7,477,164.96)	\$ (11,848,460.01)	\$ (13,303,679.73)	\$ (16,730,815.32)

3. The City does not have a formal reserve policy for their operations or capital funds.

4. The City does not have a mechanism to pass through wholesale treatment costs from the City of San Diego to customers should those costs rise beyond projections in the cost of service model, or beyond future year projections.
5. The City has an adequate system of sewer service charges to meet regulatory and industry standards, and their current rate schedule reflect the proper elements of a cost of service based rate structure. Thus we are not recommending any structural changes to the current system of charges.

1.2 Recommendations

The following lists NV5, Inc.’s (NV5) recommendations to address the findings listed above:

1. Per the cost-of-service analysis contained within this report, NV5 recommends City wastewater service charges be adjusted to reflect current costs of providing sewer service to customers within the City. This recommendation includes adjusting total revenue from rates by 9.8 percent per year beginning in FY 2018 and ending in FY 2023 as shown in **Table 1-2**.

Table 1-2 – Recommended Annual Revenue Adjustment

Fiscal Year	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Revenue Adjustment	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%
Effective Month	July	July	July	July	July	July

Based on the cost of service analysis, revenue adjustments per customer class will vary, however, in total, the City requires 9.8 percent more revenue from customer rates each year. Should the City approve these rate adjustments, the projected financial picture of the City should stabilize by FY 2022 as demonstrated in **Table 1-3**, Line 22.

Table 1-3 - Sewer Enterprise Fund Long Range Plan with Recommended Revenue Adjustments

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023
1 Beginning Balance	\$ 15,530,261.00	\$ 15,014,450.61	\$ 12,674,450.61	\$ 8,699,450.61	\$ 6,354,450.61	\$ 6,969,450.61
2 Revenue:						
3 Non-Operating Revenue	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00
4 User Fees	\$ 6,942,939.32	\$ 7,866,478.71	\$ 8,681,609.30	\$ 9,506,184.34	\$ 10,394,369.16	\$ 11,428,792.61
5 Total Revenue	\$ 6,957,939.32	\$ 7,881,478.71	\$ 8,696,609.30	\$ 9,521,184.34	\$ 10,409,369.16	\$ 11,443,792.61
6 Operations Expenses:						
7 Collection System Maintenance	\$ 1,935,415.00	\$ 2,015,522.43	\$ 2,099,213.62	\$ 2,184,253.96	\$ 2,263,206.29	\$ 2,341,467.45
8 Metro and JPA costs - Low Projection	\$ 5,538,334.71	\$ 6,205,956.28	\$ 8,572,395.68	\$ 7,681,930.38	\$ 5,531,162.87	\$ 5,807,325.16
9 Total Operations Expenses	\$ 7,473,749.71	\$ 8,221,478.71	\$ 10,671,609.30	\$ 9,866,184.34	\$ 7,794,369.16	\$ 8,148,792.61
10 Capital Improvement Program:						
11 Collection System CIP	\$ -	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00
12 Total Expenses	\$ 7,473,749.71	\$ 10,221,478.71	\$ 12,671,609.30	\$ 11,866,184.34	\$ 9,794,369.16	\$ 10,148,792.61
13 Fund Balance Prior to Reserves	\$15,014,450.61	\$ 12,674,450.61	\$ 8,699,450.61	\$ 6,354,450.61	\$ 6,969,450.61	\$ 8,264,450.61
14 Reserve Targets:						
15 Operations/Cash Flow	\$ 3,736,874.86	\$ 4,110,739.36	\$ 5,335,804.65	\$ 4,933,092.17	\$ 3,897,184.58	\$ 4,074,396.31
16 Metro Cash Flow	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00
17 Emergency/Nat. Disaster	\$ 1,245,624.95	\$ 1,370,246.45	\$ 1,778,601.55	\$ 1,644,364.06	\$ 1,299,061.53	\$ 1,358,132.10
18 Capital Expansion Reserve	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00
19 Capital Replacement Reserve	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00
20 Total Recommended Reserves	\$ 11,382,499.81	\$ 11,880,985.81	\$ 13,514,406.20	\$ 12,977,456.23	\$ 11,596,246.11	\$ 11,832,528.41
21 Fund Balance Over/(Unde)r Target	\$ 3,631,950.80	\$ 793,464.80	\$ (4,814,955.59)	\$ (6,623,005.62)	\$ (4,626,795.50)	\$ (3,568,077.80)
22 (Use)/Replacement of Reserves	\$ (515,810.39)	\$ (2,340,000.00)	\$ (3,975,000.00)	\$ (2,345,000.00)	\$ 615,000.00	\$ 1,295,000.00

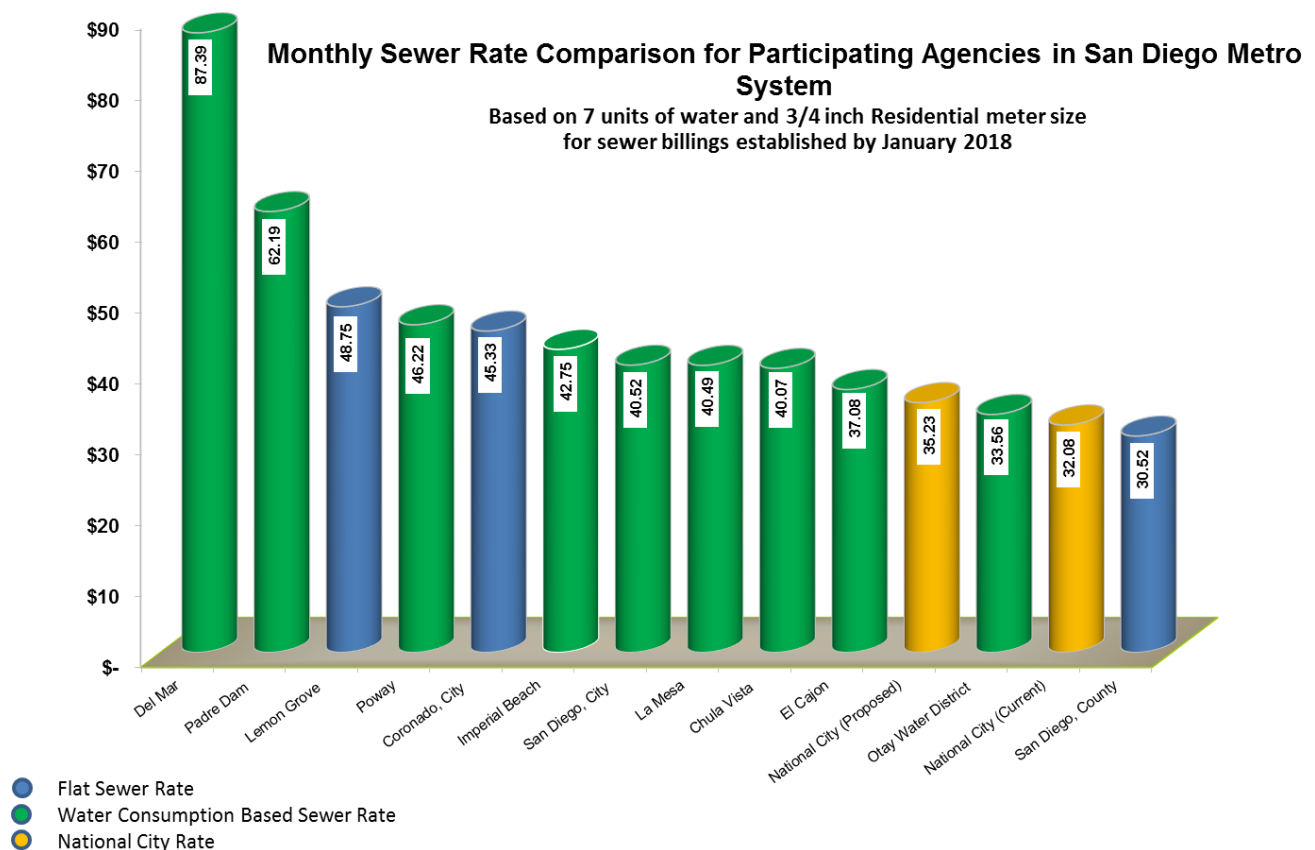
2. Based on cost of service and projected revenue requirements the City should adopt the following sewer service charges. **Table 1-4** shows the proposed sewer charges for FY 2019 through FY 2023 and compares them to existing charges.

Table 1-4: Recommended Annual Sewer Service Charges

User Class	Current	2019	2020	2021	2022	2023
Residential: \$ Per Month						
Single Family	\$ 32.08	\$ 35.23	\$ 38.68	\$ 42.47	\$ 46.61	\$ 51.18
Multi-family/Condo	\$ 25.00	\$ 27.48	\$ 30.17	\$ 33.13	\$ 36.36	\$ 39.92
Mobile Homes	\$ 19.50	\$ 21.49	\$ 23.60	\$ 25.91	\$ 28.43	\$ 31.22
Non-Residential: \$ Per HCF						
Commercial - Low	\$ 3.03	\$ 3.61	\$ 3.97	\$ 4.35	\$ 4.78	\$ 5.25
Commercial - Medium Low	\$ 3.12	\$ 3.89	\$ 4.33	\$ 4.73	\$ 5.13	\$ 5.66
Commercial - Medium	\$ 4.09	\$ 4.69	\$ 5.37	\$ 5.76	\$ 6.13	\$ 6.80
Commercial - Medium High	\$ 4.90	\$ 5.48	\$ 6.40	\$ 6.80	\$ 7.12	\$ 7.95
Commercial - High	\$ 6.12	\$ 6.82	\$ 8.14	\$ 8.55	\$ 8.79	\$ 9.88

Figure 1-1 summarizes all San Diego Metro Member Agencies comparative sewer user rates based on 7 HCF of water usage/sewer flow and a residential monthly base fee. It should be noted that the rates shown are those effective July 1, 2017. The figure also includes the City’s current monthly rate as well as the proposed FY 2019 rate of \$35.23 per EDU per month. The City’s first proposed rate adjustment will **not begin** until July 1, 2018. By that time the majority of these rates will be 5% to 10% higher as all agencies except San Diego either have adopted current rate cases or are in the process of updating their current rate cases to phase in the required Pure Water Program costs. Even with the proposed 5-year rate adjustments National City will still enjoy some of the lowest rates among the users of the San Diego Metro System. The proposed FY 2019 single family rate will be as low as 35.23 which is 37% **lower** than the **existing** (FY 2018) average Metro member agency rate of \$50.82.

Figure 1-1 Metro Member Agencies Sewer Rates Comparison



3. The City should establish a definitive reserve policy to protect the financial integrity of their sewer enterprise fund. The following operational and capital reserves are recommended:

Operations/Cash Flow Reserve	The operating reserve provides working capital for day-to-day operations and helps to absorb fluctuations in cash balances due to routine difference in revenue and expense cycles. The City of National City places their sewer service charges on the annual County of San Diego Property Tax Roll for cost effective and efficient collection of these charges. Therefore a 50% cash flow reserve is recommended.
Metro Cash Flow Reserve	In 2015 San Diego provided the City with a draft financing plan for the Pure Water Program which established National City's non-debt funded portion of the program to be \$4.4 million in estimated pay-go expenses. It is recommended that the City establish a Metro Cash Flow Reserve in this amount to be used to offset unplanned cost increases for this project
Emergency/Natural Disaster Reserve	Recent historic events such as Hurricanes Harvey & Irma have only emphasized the need for an agency to have additional monies set aside to pay for unforeseen events such a restoring service to flooded pump stations, etc. It is recommended that this reserve be established at a minimum of 60-days of operating cash. This would provide cash-flow until the City is able to secure outside funding and/or FEMA reimbursements.
Capital Expansion and Replacement Reserves	The expansion and replacement reserve provides funding for replacement, repair, or rehabilitation of wastewater infrastructure due to routine capital project planning or in the event of catastrophic failure of a major system asset. The City's current master plan estimates these needs to be \$2 million per year and thus we are recommending that the reserve be established at this level.

4. NV5 recommends that the City provide a provision to give the City the ability to pass through City of San Diego wholesale transportation, treatment, and disposal costs to customers should those costs rise beyond projections in the cost of service model or beyond what the City notices to customers at time of rate implementation. This action would obviate the need for the City to conduct another Proposition 218 mailed 45-day notice and public hearing requirement. The authority to provide this provision is located in California Government Code Section 53756. Specifically, the Government Code reads as follows:

An agency providing water, wastewater, sewer, or refuse collection service may adopt a schedule of fees or charges authorizing automatic adjustments that pass through increases in wholesale charges for water, sewage treatment, or wastewater treatment or adjustments for inflation, if it complies with all of the following:

(a) It adopts the schedule of fees or charges for a property-related service for a period not to exceed five years pursuant to Section 53755.

(b) The schedule of fees or charges may include a schedule of adjustments, including a clearly defined formula for adjusting for inflation. Any inflation adjustment to a fee or charge for a property-related service shall not exceed the cost of providing that service.

(c) The schedule of fees or charges for an agency that purchases wholesale water, sewage treatment, or wastewater treatment from a public agency may provide for automatic adjustments that pass through the adopted increases or decreases in the wholesale charges for water, sewage treatment, or wastewater treatment established by the other agency.

2.0 Introduction

This study (Study) takes a long-range planning approach to establishing wastewater service charges and fees. A discussion of the long-range plan and recommended sewer charge and fee adjustments are included in the following section of this report. The analyses contained herein include operation and maintenance (O&M) costs, City of San Diego Metropolitan Wastewater Department (Metro) transportation, treatment and disposal costs, reserve levels, and identified capital improvement projects (CIP). To that end, the Study examines the revenues generated by the City and makes recommendations for revenue adjustments, as needed. The City retained NV5 in 2017 to update a wastewater cost of service study previously developed by PBS&J in FY 2003. Karyn Keese of The Keze Group, LLC, is the lead rate consultant for this Study and was the rate consultant from PBS&J who prepared the FY 2003 study which established the City's sewer user charges from FY 2003 to FY 2006. As stated earlier, the FY 2006 sewer service charges are still in effect today.

For purposes of this report, the study period is the fiscal years beginning July 1, 2018 and ending June 30, 2023. Unless otherwise noted, references in this report to a specific year are for the City's fiscal year ending June 30. To avoid confusion between calendar and fiscal years, the term FY refers to the year beginning July 1 and ending June 30. Presented herein are the results of a Study of the City's projected revenues, revenue requirements, cost of service, and rates for service.

2.1 Background: City of National City

The City provides wastewater service to approximately 17,000 customers within the incorporated area of the City of National City. It owns and operates approximately 100 miles of pipeline, 2,000 manholes, and 2 lift stations. The collection, treatment, and disposal of wastewater in an environmentally safe and efficient manner promote healthy communities and increase the quality of life for local residents.

The City is responsible for collecting and conveying wastewater flows originating within the City to the City of San Diego's Point Loma Treatment Plant for treatment and disposal. The City's primary goals are operating the sewerage system safely and efficiently while meeting the needs of their customers.

To meet these goals, the City undertakes routine cleaning, inspections, and repairs and rehabilitates its facilities as needed. The wastewater system operates in an area subject to strict regulatory oversight by Federal and State agencies such as the U.S. Environmental Protection Agency (US EPA) and the California State Water Resources Control Board (SWRCB). The City must comply with a multitude of laws including, but not limited to, State Wastewater Discharge Requirements

(WDRs). Complying with these regulations and resulting mandates contributes to a large share of the cost burden on the City’s system.

The City completed a Wastewater Master Plan in 2011 which will be updated in the near future, this plan identified an average of \$2 million per year in required rehabilitation and expansion projects for the next 9 years following the Plan. These annual projected capital improvement costs (CIP) are incorporated into this Study and form the basis for the City’s annual capital requirements.

2.2 Background: City of San Diego Metropolitan Sewage Treatment System

The City of National City is one of thirteen participating agencies (PAs) who send their wastewater to the City of San Diego Metropolitan Sewage Treatment System (Metro) for treatment and disposal. Along with the other PAs the City entered into the Regional Disposal Agreement with San Diego in 1998. Due to positive financial negotiations with San Diego since that time and especially the establishment of the “Administrative Protocol on Allocation of Operating Reserves and Debt Service Coverage” during FY 2010 the City has enjoyed stable annual billings for the last 8 years from the City of San Diego. However, in 2015 the City of San Diego initiated a multi-billion dollar public works project entitled the Pure Water Program which will provide the double benefit of “secondary equivalency” to San Diego’s wastewater customers including National City as well as a significant new potable water supply for the City of San Diego.

In September 2016 the City of San Diego provided the PAs with a range of annual costs from FY 2016 through FY 2022 for Phase I of the Pure Water Program. These annual cost increases began with FY 2018 (current fiscal year) and are the basis for establishing the San Diego portion of the revenue requirement developed by this Study.

In September 2016 the City of San Diego provided the PAs with a range of annual costs from FY 2016 through FY 2022 for Phase I of the Pure Water Program. These projections provided both a low and a high end-of-range. **Table 2-1** below summarizes the range of costs provided to National City which are recommended by San Diego to be used in establishing this rate case. After discussions with City staff NV5 is recommending that the Metro low cost numbers be used for this rate analysis, and that a pass-through resolution should be adopted should the costs exceed the Metro low projections.

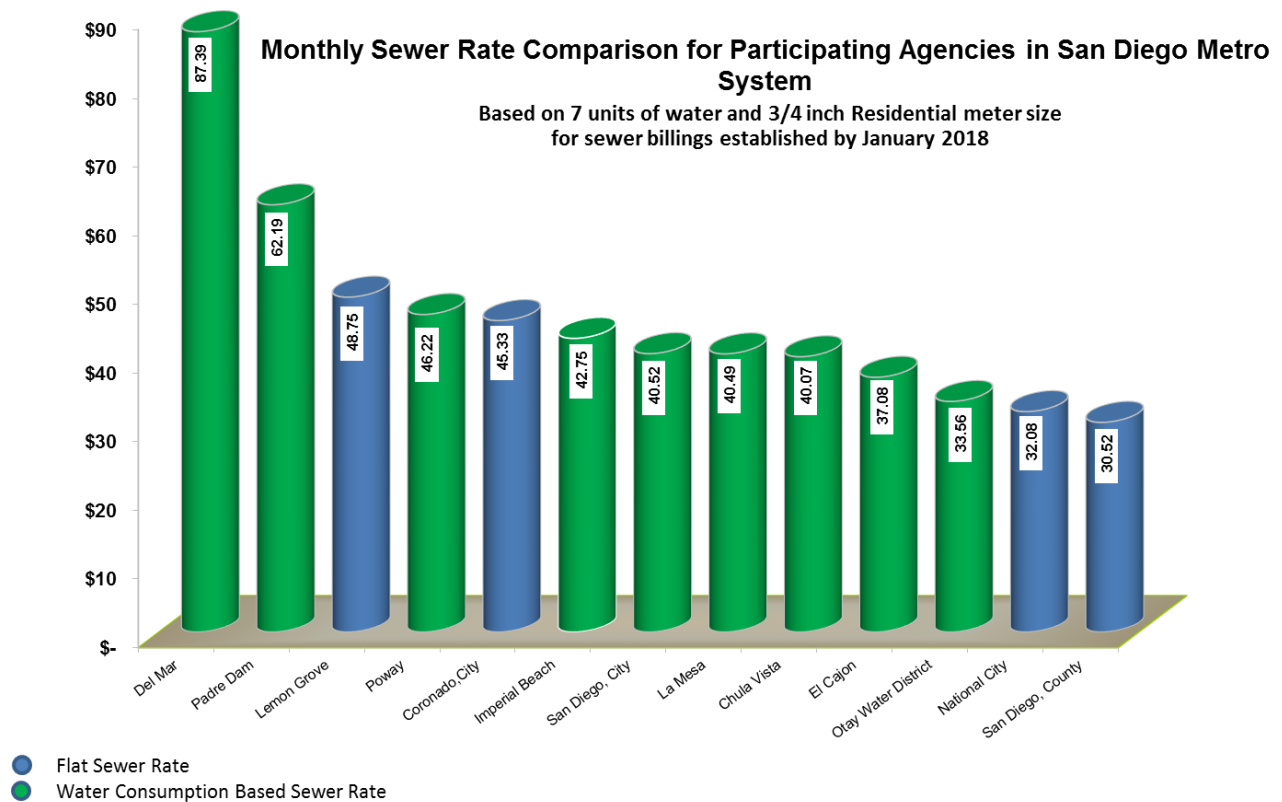
Table 2-1 Summary of Low and High Metro Cost Projections

	FY18	FY19	FY20	FY21	FY22	FY23
Metro Low Treatment Costs	\$5,520,749	\$6,187,843	\$ 8,553,739	\$7,662,714	\$5,511,370	\$5,786,939
Metro Transportation & JPA Costs	\$ 17,586	\$ 18,113	\$ 18,657	\$ 19,216	\$ 19,793	\$ 20,387
Total Metro Low Costs	\$5,538,335	\$6,205,956	\$ 8,572,396	\$7,681,930	\$5,531,163	\$5,807,325
Metro High Treatment Costs	\$6,101,880	\$6,839,195	\$10,264,486	\$9,195,257	\$6,613,645	\$6,944,327
Metro Transportation & JPA Costs	\$ 17,586	\$ 18,113	\$ 18,657	\$ 19,216	\$ 19,793	\$ 20,387
Total Metro High Costs	\$6,119,466	\$6,857,308	\$10,283,143	\$9,214,473	\$6,633,438	\$6,964,714

2.3 Rate Study Summary

The City of National City customers enjoy some of the lowest sewer service charges in the Metro System as shown in **Figure 2-1** and have for many years. The City last adjusted sewer service charges in FY 2006 and the FY 2018 charge is 38% lower than the average Metro PA rate of \$50.82 per month. However, the City's increased internal CIP requirements and the costs associated with the Pure Water Program require that the City adjust their sewer rates for the next five years at an average of 9.8% per year.

Figure 2-1 Sewer Rate Comparison for Participating Agencies in San Diego Metro System

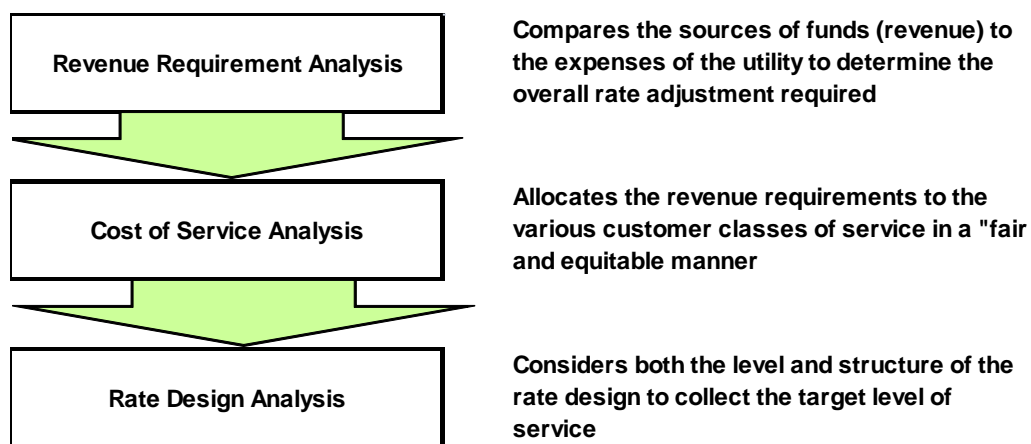


3.0 Wastewater Rate Study

3.1 Overview of the Sewer Service Charge Update Process

A comprehensive rate study typically utilizes three interrelated analyses to address the adequacy and equity of the utility's rates. These three analyses are a revenue requirement analysis, a cost of service analysis, and a rate design analysis. The process is illustrated in **Figure 3 -1**.

Figure 3-1 Overview of the Comprehensive Rate Study Analysis



The City's sewer utility was evaluated on a "stand-alone" basis. That is, no subsidies between the utility or other City funds occur. By viewing the utility on a stand-alone basis, the need to adequately fund both operations and maintenance (O&M) and capital infrastructure (CIP) must be balanced against the rate impacts on utility customers.

A detailed and comprehensive process was used to review the City's rates. As a part of the rate study process a number of on-site project meeting and conference calls were used to review the results with City management, staff, and the City Council. From this process, final proposed rates were developed and their development is reviewed in this section of the report. Following is a summary of each step in the process.

Revenue Requirement Analysis: The revenue requirement analysis revealed that several significant financial changes have occurred since the City’s 2003 rate study and subsequently adopted sewer user rates. The significant changes are:

- The 2011 Wastewater Master Plan contains an annual capital requirement of \$2 million needed in capital projects for the next 9 years. These costs were not included in the City’s FY 2018 adopted budget.
- The planning phase of the City of San Diego’s Pure Water Program has begun and during FY 2018 to FY 2023 additional Metro costs are anticipated for Phase 1 of this program. City of San Diego staff has identified the increased funding level for the participating agencies from the 2010 adopted Protocol level of \$65 million to \$128 million per year over the next four-years. The City’s portion of this budget is currently 7.4%. National City’s increased funding level for the Pure Water Program is included in this rate case.

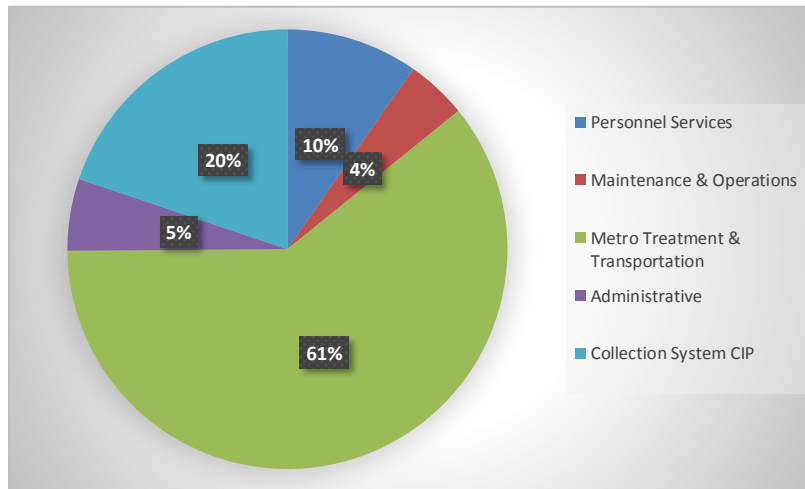
The largest component of the City of National City’s revenue requirement is the costs associated with transportation, treatment, and disposal of the City’s wastewater by the Metro facilities. A summary of the projected City collection system O&M and CIP, plus San Diego Metro expenses to be included in the City’s rate case, are included on **Table 3-1**.

Table 3-1: City of National City Revenue Requirements

	FY19	FY20	FY21	FY22	FY23
Personnel Services	\$ 991,191	\$ 1,044,152	\$ 1,097,540	\$ 1,143,891	\$ 1,188,573
Maintenance & Operations	\$ 457,423	\$ 471,146	\$ 485,280	\$ 499,838	\$ 514,834
Metro Treatment & Transportation	\$ 6,205,956	\$ 8,572,396	\$ 7,681,930	\$ 5,531,163	\$ 5,807,325
Administrative	\$ 540,349	\$ 556,560	\$ 573,257	\$ 590,454	\$ 608,168
Collection System CIP	\$ 2,026,560	\$ 2,027,356	\$ 2,028,177	\$ 2,029,022	\$ 2,029,893
	\$ 10,221,479	\$ 12,671,609	\$ 11,866,184	\$ 9,794,369	\$ 10,148,793

Figure 3-2 shows the percentage of each of the major cost centers in the City’s rate case. As noted the majority of all required revenue from rates (61%) will be paid directly to the City of San Diego.

Figure 3-2 Major Cost Components of City of National City’s FY 2019 Revenue Requirements



As a part of establishing the revenue requirement for the City’s rate case City staff requested NV5 consultant’s guidance in establishing a sound reserve policy to financially protect the City’s sewer enterprise fund. At the end of FY 2017 (June 30, 2017) the City’s sewer enterprise fund showed a reserve cash fund balance of \$15.5 million. NV5 consultants reviewed with City staff industry standard guidelines in establishing formal reserve policies as well as the City’s needs for financial stability and potential exposures to external forces which could require unplanned O&M or capital expenditures. After review of these guidelines and exposures the following formal reserve policy is recommended for the City consisting of three cash flow reserves and two capital reserves. The establishment of this reserve policy has been integrated into the projected revenue requirements for the rate case.

Operations/Cash Flow Reserve: The operating reserve provides working capital for-day-to-day operations and helps to absorb fluctuations in cash balances due to routine difference in revenue and expense cycles. The City of National City places their sewer service charges on the annual County of San Diego Property Tax Roll for cost effective and efficient collection of these charges. The City’s fiscal year begins July 1 of each year and must fund their ongoing operations and capital budget requirements starting at that date. However, the City does not receive their first revenues from the tax roll until January of the following year and thus there is a lag of budget funding of six months. Therefore, a 50% cash flow reserve is recommended to allow for the orderly payment of the City’s sewer enterprise fund’s expenditures throughout the fiscal year

Metro Cash Flow Reserve: In 2015 the City of San Diego launched their Pure Water San Diego Program, a massive public works project, which introduces an additional risk of annual cost overruns to the City's required payments to San Diego for transportation, treatment, and disposal of wastewater collected from the City's customers. In 2015 San Diego provided the City with a draft financing plan for the entire program which established National City's non-debt funded portion of the program to be \$4.4 million in estimated pay-go expenses. It is recommended that the City establish a Metro Cash Flow Reserve in this amount to be used to offset unplanned cost increases for this project.

Emergency/Natural Disaster Reserve: Recent historic events such as Hurricane Harvey have only emphasized the need for an agency to have additional monies set aside to pay for unforeseen events such a restoring service to flooded pump stations, etc. It is recommended that this reserve be established at a minimum of 60-days of operating cash. This would provide cash-flow until the City was able to secure outside funding and/or FEMA reimbursements.

Capital Expansion and Replacement Reserves: As a participating agency (PA) in the San Diego Metro System the City is required by State and US EPA regulations to maintain reserves that provide for the expansion and replacement of the City's collection system. The expansion and replacement reserve provides funding for replacement, repair, or rehabilitation of wastewater infrastructure due to routine capital project planning or in the event of catastrophic failure of a major system asset. The City's current master plan estimates these needs to be \$2 million per year and thus we are recommending that the reserve be established at this level.

The final step in determining the revenue requirement for the City's rate case was to overlay the projected expenditures for the next five years as summarized in **Table 3-1** and the recommended reserve policy. **Table 3-2** creates a long-range plan showing the use of reserves to moderate the annual rate adjustment to 9.8% per year starting in FY 2019 from FY 2018 through FY 2021. The use/replacement of the City's reserves is shown on Line 22. A detailed copy of the five-year revenue requirement is included in **Appendix A** to this report.

Table 3-2: City of National City Long Range Financial Plan

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023
1 Beginning Balance	\$15,530,261.00	\$ 15,014,450.61	\$ 11,750,911.22	\$ 6,037,241.24	\$ 1,128,996.22	\$ (1,707,433.63)
2 Revenue:						
3 Non-Operating Revenue	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00
4 User Fees	\$ 6,942,939.32	\$ 6,942,939.32	\$ 6,942,939.32	\$ 6,942,939.32	\$ 6,942,939.32	\$ 6,942,939.32
5 Total Revenue	\$ 6,957,939.32	\$ 6,957,939.32	\$ 6,957,939.32	\$ 6,957,939.32	\$ 6,957,939.32	\$ 6,957,939.32
6 Operations Expenses:						
7 Collection System Maintenance	\$ 1,935,415.00	\$ 2,015,522.43	\$ 2,099,213.62	\$ 2,184,253.96	\$ 2,263,206.29	\$ 2,341,467.45
8 Metro and JPA costs - Low Projection	\$ 5,538,334.71	\$ 6,205,956.28	\$ 8,572,395.68	\$ 7,681,930.38	\$ 5,531,162.87	\$ 5,807,325.16
9						
10 Total Operations Expenses	\$ 7,473,749.71	\$ 8,221,478.71	\$ 10,671,609.30	\$ 9,866,184.34	\$ 7,794,369.16	\$ 8,148,792.61
11						
12 Capital Improvement Program:						
13 Collection System CIP	\$ -	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00
14 Total Expenses	\$ 7,473,749.71	\$ 10,221,478.71	\$ 12,671,609.30	\$ 11,866,184.34	\$ 9,794,369.16	\$ 10,148,792.61
15 Fund Balance Prior to Reserves	\$ 15,014,450.61	\$ 11,750,911.22	\$ 6,037,241.24	\$ 1,128,996.22	\$ (1,707,433.63)	\$ (4,898,286.92)
16 Reserve Targets:						
17 Operations/Cash Flow	\$ 3,736,874.86	\$ 4,110,739.36	\$ 5,335,804.65	\$ 4,933,092.17	\$ 3,897,184.58	\$ 4,074,396.31
18 Metro Cash Flow	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00	\$ 4,400,000.00
19 Emergency/Nat. Disaster	\$ 1,245,624.95	\$ 1,370,246.45	\$ 1,778,601.55	\$ 1,644,364.06	\$ 1,299,061.53	\$ 1,358,132.10
20 Capital Expansion Reserve	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00
21 Capital Replacement Reserve	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00	\$ 1,000,000.00
22 Total Recommended Reserves	\$ 11,382,499.81	\$ 11,880,985.81	\$ 13,514,406.20	\$ 12,977,456.23	\$ 11,596,246.11	\$ 11,832,528.41
23 Fund Balance Over/(Under)	\$ 3,631,950.80	\$ (130,074.59)	\$ (7,477,164.96)	\$ (11,848,460.01)	\$ (13,303,679.73)	\$ (16,730,815.32)
Reserve Target						

Cost of Service Analysis: The cost of service analysis revealed that several major changes have occurred in users and use since the City’s 2003 rate study and subsequently adopted sewer user rates. The significant changes are:

- As with other communities in San Diego County and Southern California the City’s citizens and businesses have decreased their water usage significantly since FY 2003. This has decreased revenues from the commercial and industrial users of the City who are billed on their annual water usage
- The City uses an equivalent dwelling unit (EDU) system of rates for their residential users. Historically the City has used 280 gallons per day (gpd) for a single family residential user for billing purposes. Multi-family/condo units are considered to be 0.78 EDU and mobile home units 0.61 EDUs. These EDUs are consistent with industry standards for EDU based user systems. However, due to the decreased water use by residential as well as commercial/industrial users the gallons per EDU have decreased to an estimated 240 gpd. 240 gpd is consistent with the majority of the PAs wastewater generation rate (in gpd) for EDUs such as the County of San Diego and the City of Lemon Grove.

The City's rate model was updated with the number of residential and commercial/industrial users used for billing purposes on the FY 2018 tax roll. As noted above the gallons for residential EDUs were revised to 240 gpd per EDU and the most recent water usage for commercial/industrial users was included.

Table 3-3 summarizes the current number of City users and their projected sewer flows based on the current tax roll water use data for FY 2018.

Table 3-3: Summary of Current Users and Estimated Sewer Flow

Units of Service and Loadings	No. of Active Customers	FLOW:			BOD:		SS:	
		(A) Total Flow (MGD)	(B) Total Flow (HCF)	(C) Annual Flow (MG/Year)	(D) BOD User (MG/L)	(E) Annual BOD Load (LBS/YR)	(F) SS per User (MG/L)	(G) Annual Load (LBS/YR)
Single Family	5,873	1.4095		514.47	200	858,116	200	858,116
Multi-family/Condo	9,840	1.8420		672.35	200	1,121,439	200	1,121,439
Mobile Homes	370	0.0542		19.77	200	32,977	200	32,977
Subtotal- Residential	16,083	3.3057	0	1,206.59		2,012,532		2,012,532
Commercial - Low*	770	0.7045	343,530	257.13	200	428,882	200	428,882
Commercial - Medium Low	203	0.1495	72,891	54.56	200	91,001	300	136,502
Commercial - Medium	8	0.0387	18,858	14.12	400	47,087	400	47,087
Commercial - Medium High	90	0.1014	49,445	37.01	600	185,190	500	154,325
Commercial - High	29	0.0482	23,494	17.59	680	99,726	900	131,991
Subtotal Non-Residential	1,100	1.0422	508,218	380.40		851,887		898,787
TOTAL	17,183	4.3479	508,218	1,586.99		2,864,419		2,911,319

Rate Design Analysis: As part of the rate setting process a routine review of an agency's sewer service charge rate structure is performed. This is done to assure that the agency's rate structure meets industry standards as well as complies with local, State, and Federal guidelines and regulations.

The City of National City first established their current rate structure in the mid-1990's and it was submitted to the State Water Resources Control Board of the State of California (SWRCB) and the US EPA. The rate structure and the cost allocations upon which it is based were approved by both the SWRCB and the US EPA. These principles still meet industry standards today and follows Best Management Practices (BMP's) established by the State of California, and thus there are no recommended changes to the existing rate structure.

The City uses a combination of EDU's for residential users and water based rates for commercial/industrial users. Single family residential users are considered to be 1 EDU, and multi-family/condo users 0.78 EDU, and mobile home users 0.61 EDU. Commercial/industrial users are grouped based on their estimated sewage strengths into five classes of users. Each year 90% of the prior year's water usage per commercial/industrial customer is used to determine the upcoming year's sewer service charge.

All classes of users will continue to be billed their annual sewer service charge on the County of San Diego tax roll based on either their EDU classification or their annual water usage and sewage strength category. **Table 3-4** compares the current FYE 2018 sewer rates with the proposed FYE 2019 through FYE 2023 of the proposed rate case. The entire output from the rate model showing all steps in the rate case is contained in **Appendix A** to this Study

Table 3-4: Comparison of Current Versus Proposed Sewer User Rates

User Class	Current	2019	2020	2021	2022	2023
Residential: \$ Per Month						
Single Family	\$ 32.08	\$ 35.23	\$ 38.68	\$ 42.47	\$ 46.61	\$ 51.18
Multi-family/Condo	\$ 25.00	\$ 27.48	\$ 30.17	\$ 33.13	\$ 36.36	\$ 39.92
Mobile Homes	\$ 19.50	\$ 21.49	\$ 23.60	\$ 25.91	\$ 28.43	\$ 31.22
Non-Residential: \$ Per HCF						
Commercial - Low	\$ 3.03	\$ 3.61	\$ 3.97	\$ 4.35	\$ 4.78	\$ 5.25
Commercial - Medium Low	\$ 3.12	\$ 3.89	\$ 4.33	\$ 4.73	\$ 5.13	\$ 5.66
Commercial - Medium	\$ 4.09	\$ 4.69	\$ 5.37	\$ 5.76	\$ 6.13	\$ 6.80
Commercial - Medium High	\$ 4.90	\$ 5.48	\$ 6.40	\$ 6.80	\$ 7.12	\$ 7.95
Commercial - High	\$ 6.12	\$ 6.82	\$ 8.14	\$ 8.55	\$ 8.79	\$ 9.88

As discussed earlier in this report, the majority of the revenue requirement recovered by the City’s sewer service charges go to pay for cost associated with charge from San Diego Metro. **Figure 3-3** summarizes the major components of the proposed FY 2019 monthly single family sewer service charge of \$35.23 per EDU. This figure also shows the use of City reserves to phase in the Pure Water Program and City CIP costs:

Figure 3-3 Components of FY 2019 Single Family Monthly Rate

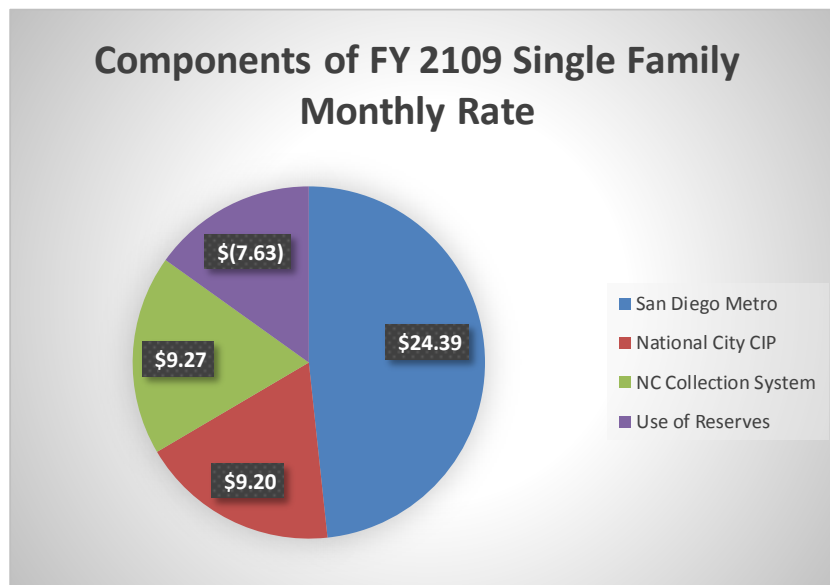
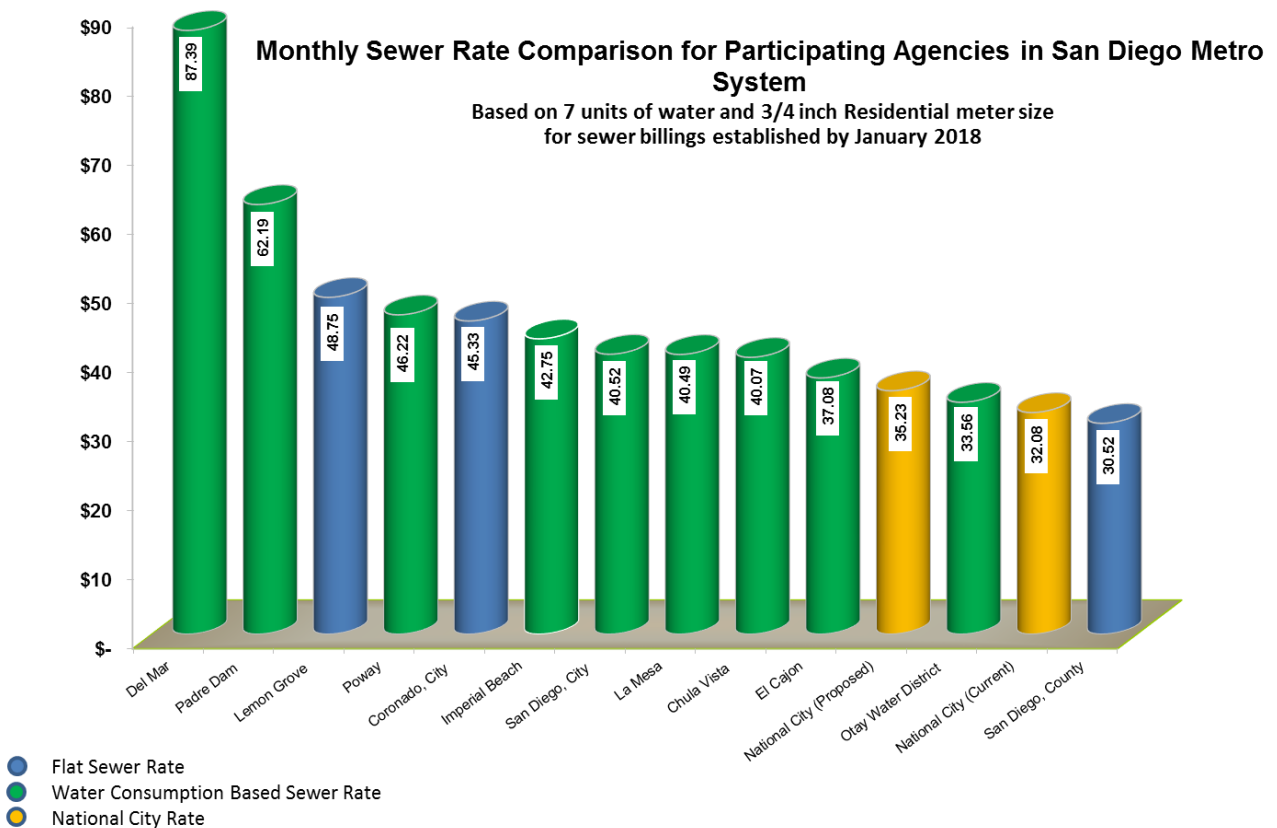


Figure 3-4 summarizes all San Diego Metro Member Agencies comparative sewer user rates based on 7 HCF of water usage/sewer flow and a residential monthly base fee. It should be noted that the rates shown are those effective July 1, 2017. The City’s first proposed rate adjustment is not until July 1, 2018. By that time the majority of these rates will be 5% to 10% higher as all agencies except San Diego either have adopted current rate cases or are in the process of updating their current rate cases to phase in the required Pure Water Program costs. Even with the proposed 5-year rate adjustments National City will still enjoy some of the lowest rates among the users of the San Diego Metro System. The proposed FY 2019 single family rate will be as low as \$35.23 which is 37% lower than the existing (FY 2018) average Metro member agency rate of \$50.82

Figure 3-4 Metro Member Agencies Sewer Rate Comparison





Appendix A – Rate Model

- Assumptions
- Wastewater Operations & Maintenance Budget
- Budget Summary
- Step 1 – Customer Summary and Estimated Flows
- Step 2 – Determination of Unit Costs
- Step 3 – Sewer User Rate Calculations by Fund and Cost