

FINAL

**SEWER RATE STUDY
CSA 79 GREEN VALLEY LAKE**

B&V PROJECT NO. 190740.0100

PREPARED FOR

County of San Bernardino, Special Districts

MARCH 9, 2017



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1 Introduction

Black & Veatch has prepared this report for the County of San Bernardino (County), Special Districts (District) to document the development of a multi-year financial plan, cost of service analysis and rate design for County Service Area 79 Green Valley Lake (sewer utility). The specific objectives of the study were to:

- Review and evaluate existing policies and procedures affecting sewer rates;
- Develop a financial plan for sewer covering a five-year study period between Fiscal Year (FY) 2018 and FY 2022 for ongoing operations and planned capital improvements;
- Allocate the sewer projected FY 2018 revenue requirements to the various customer class in accordance with the respective service requirements;
- Develop a suitable five-year rate schedule that produces revenues adequate to meet financial needs while recognizing customer costs of service and state policy considerations such as Proposition 218 and the San Juan Capistrano Ruling.

1.1 COUNTY BACKGROUND

The County of San Bernardino is in southeast portion of California covering 20,105 square miles with a population of over two million. The County through the District provides water and sewer services to unincorporated areas known as County Service Areas (CSAs). The following are the seven water CSAs and ten sewer CSAs.

| WATER CSA | SEWER CSA |
|---|---|
| ■ County Service Area 70 F - Morongo Valley | ■ County Service Area 70 SP2 - High Country |
| ■ County Service Area 70 J - Oak Hills | ■ County Service Area 53 B - Fawnskin |
| ■ County Service Area 70 CG - Cedar Glen | ■ County Service Area 70 S3 - Lytle Creek |
| ■ County Service Area 70 W3 - Hacienda | ■ County Service Area 79 - Green Valley Lake |
| ■ County Service Area 70 W4 - Pioneertown | ■ County Service Area 82 - Searles Valley |
| ■ County Service Area 42 - Oro Grande | ■ County Service Area 70 GH - Glen Helen |
| ■ County Service Area 64 - Spring Valley Lake | ■ County Service Area 42 - Oro Grande |
| | ■ County Service Area 64 - Spring Valley Lake |
| | ■ County Service Area 70 Zone S-7 - Lenwood |
| | ■ County Service Area 70 BL - Bloomington |

Throughout the seven water CSAs, the District provides drinking water to approximately 7,939 residential and commercial connections. The District obtains its water supply from the Mojave and Morongo groundwater basins. Active wells located within each CSA pump groundwater where it is treated at the source. Groundwater meets the total annual demand of 3,850 acre-feet (AF) for all CSAs. The District distributes the pumped groundwater to its customers through a series of storage tanks and miles of distribution pipelines.

Throughout the ten sewer CSAs, the District provides sewer services to approximately 11,484 residential and commercial connections. The District collects and transports sewage flow over its miles of collection pipelines to a local treatment facility or to a third-party treatment provider. For the CSAs that do not have treatment facilities, the District has treatment agreements with Victor

Valley Wastewater Reclamation Authority (VWVRA), Running Springs Water Agency, and Big Bear Area Regional Wastewater Agency (BBARWA).

In general, the District operates and maintains each CSA as a self-supporting enterprise. As self-supporting enterprises, the water and sewer rates should provide sufficient levels of revenue to meet all operation and maintenance (O&M) expenses, debt service requirements, routine annual replacements of capital improvements funded from current revenues, and other revenue requirements within each CSA.

1.2 SCOPE OF WORK

The purpose of this study was to develop a sewer financial plan that project operating revenue, expenses and capital financing costs for sewer operations over a five-year planning period beginning July 1, 2018 and ending June 30, 2022. The plan considers future revenues under existing rates, O&M expense, principal and interest expense on bonded debt, establishment and/or maintenance of reserve funds, and capital improvement requirements. Annual projections of customers, revenues, and expenditures have been made using historical data and estimates based on Executive Order requirements and District forecast for the next five years.

Using the financial plan, Black & Veatch performed a cost of service analysis and rate design for the sewer utility. The sewer utility's costs of service were allocated to customer classes utilizing a cost causative approach endorsed by the Water Environment Federation (WEF) *Manual of Practice No. 27*. These allocation methodologies produce cost of service allocations recognizing the projected customer service requirements for the sewer utility. Proposed rates are designed in accordance with allocated cost of service and local policy considerations. Also evaluated was the extent to which the existing rate structure recovers revenues from customer classes in accordance with cost of service allocations.

1.3 DISCLAIMER

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

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

2 Sewer Rate Study

2.1 REVENUE AND REVENUE REQUIREMENTS

The sewer utility provides sewer collection services to its residential and commercial customers. Sewer treatment services are provided by the Running Springs Water Agency, yet are billed by the sewer utility. To meet the costs associated with providing sewer collection services to its customers, the sewer utility derives revenue from sewer charges, licenses, permits & franchises, miscellaneous revenue, and interest earned from the investment of available funds. The level of future revenue generated in the study uses a combination of an analysis of historical and future system growth in terms of number of equivalent dwelling units (EDUs).

With revenue derived from the various sources, the sewer utility meets the cash requirements of operation and maintenance; debt service and reserve payments on bond indebtedness; and recurring annual capital expenditures for replacements, system betterments, and extensions not debt financed. O&M expenses are those expenditures necessary to maintain the system in good working order. Routine annual capital expenditures, which include equipment replacements, consist of recurring annual replacements, minor extensions, and betterments which are normally revenue financed. Other capital costs include principal and interest payments, bond covenant-required payments, and the costs of major capital improvements paid directly from annual operating revenues.

2.2 CUSTOMER ACCOUNT PROJECTIONS

The sewer utility has several customer classes it provides service to, but the sewer utility does not classify customer accounts within the customer billing system. Therefore, in this study, there is only one customer class which encompasses all accounts.

Based on a detailed review of growth patterns by the District, the number of customer EDUs are projected to experience a slight growth of 0.08% per year for the study period. Shown in Table 2-1 are the projected customer EDUs.

Table 2-1 Number of Sewer Customer EDUs

| Line No. | Description | Fiscal Year Ending June 30 | | | | |
|---------------------|----------------------------|----------------------------|-------------------|-------------------|-------------------|-------------------|
| | | FY 2018 (EDUs) | FY 2019 (EDUs) | FY 2020 (EDUs) | FY 2021 (EDUs) | FY 2022 (EDUs) |
| County Service Area | | | | | | |
| 1 | CSA 79 - Green Valley Lake | 1,193 | 1,194 | 1,195 | 1,196 | 1,197 |

2.3 REVENUE UNDER EXISTING RATES

The primary source of revenue for the sewer utility comes from sewer rates. The level of future revenue is based on an analysis of projected system growth in terms of number of EDUs conducted in section 2.2. Applying the applicable rates shown in Table 2-2 to the number of EDUs produces the total sewer revenue.

Table 2-2 Existing Sewer Rates

| Line No. | Description | FY 2017 |
|---------------------|----------------------------|----------|
| | | (\$/EDU) |
| County Service Area | | |
| 1 | CSA 79 - Green Valley Lake | \$ 65.77 |

Table 2-3 represents a summary of projected sewer revenue under existing rates. As shown, the revenue generated increases over the study period in conjunction with the number of EDUs. The projected sewer revenue slightly increases from \$941,600 in FY 2018 to \$944,700 in FY 2022.

Table 2-3 Revenue under Existing Sewer Rates

| Line No. | Description | Fiscal Year Ending June 30 | | | | |
|---------------------|----------------------------|----------------------------|---------|---------|---------|---------|
| | | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 |
| | | (\$) | (\$) | (\$) | (\$) | (\$) |
| County Service Area | | | | | | |
| 1 | CSA 79 - Green Valley Lake | 941,600 | 942,400 | 943,100 | 943,900 | 944,700 |

2.4 OTHER REVENUE

In addition to revenue from rates, the sewer utility obtains revenue from other operating sources. Other revenue sources include miscellaneous revenue, and interest earned from the investment of available funds. In total, these revenues represent roughly six percent of total sewer revenues. Black & Veatch anticipates that these revenues will remain relatively constant for the duration of the study period.

2.5 OPERATING AND MAINTENANCE EXPENSES

Table 2-4 summarizes the sewer utility’s projected O&M expenses for the study period. Cost categories separate the expenses into groups such as personnel services (salaries and benefits), materials and supplies (contracts and professional services, and utilities), other services and charges and capital outlay. An inflation factor ranging from 1.0 and 3.0 percent per year applies to the O&M categories depending on the type of category.

Table 2-4 Sewer Operating and Maintenance Expenses

| Line No. | Description | Fiscal Year Ending June 30 | | | | |
|-----------------------|----------------------------|----------------------------|-----------|-----------|-----------|-----------|
| | | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 |
| | | (\$) | (\$) | (\$) | (\$) | (\$) |
| CSA 79 - O&M Expenses | | | | | | |
| 1 | Personnel Services | 271,500 | 276,900 | 282,400 | 288,000 | 293,800 |
| 2 | Materials and Supplies | 559,700 | 576,500 | 593,800 | 611,600 | 630,000 |
| 3 | Other Services and Charges | 16,300 | 16,500 | 16,700 | 16,900 | 17,100 |
| 4 | Capital Outlay | 0 | 0 | 0 | 0 | 0 |
| 5 | Total | \$847,500 | \$869,900 | \$892,900 | \$916,500 | \$940,900 |

2.6 DEBT SERVICE REQUIREMENTS

The sewer utility has no existing debt service obligations. In the study period, the water utility anticipates a new short term loan as shown in Table 2-5. The loan type has not been identified as this time. It can be an inter-fund loan or revolving loan. The table shows the combined principal and interest requirements on the future debt over the study period. It is common practice

for utilities to utilize debt to finance large capital improvement projects. By financing the cost of the projects, the sewer utility can fund large projects immediately and spread the payment over a specified time frame, thereby helping to offset the impact on rate-payers.

Table 2-5 Sewer Long-Term Debt

| Line No. | Description | Fiscal Year Ending June 30 | | | | |
|------------------|-------------------------|----------------------------|----------|----------|----------|----------|
| | | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 |
| | | (\$) | (\$) | (\$) | (\$) | (\$) |
| CSA 79 - LT Debt | | | | | | |
| 1 | Existing Long Term Debt | 0 | 0 | 0 | 0 | 0 |
| 2 | Proposed Long Term Debt | 0 | 19,400 | 19,400 | 19,400 | 19,400 |
| 3 | Total | \$0 | \$19,400 | \$19,400 | \$19,400 | \$19,400 |

2.7 CAPITAL IMPROVEMENT PROGRAM

Table 2-6 summarizes the sewer utility's Capital Improvement Program (CIP) for FY 2018 through FY 2022. The sewer utility developed this multi-year CIP covering its commitments for the study period. Based on the identified major capital projects, it was determined that the sewer utility needs to address a total of \$2.0 million in capital needs over the study period.

Table 2-6 Sewer Capital Improvement Projects by Function

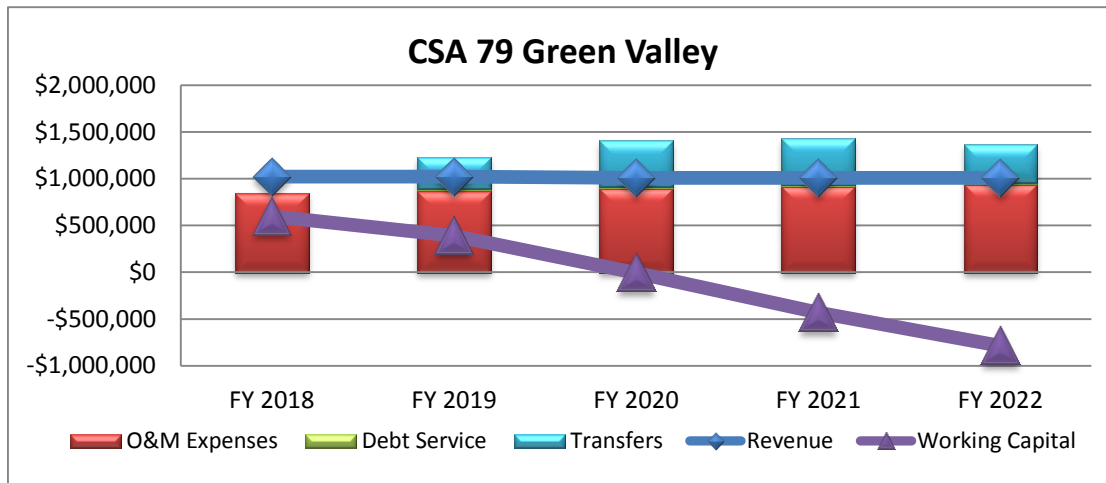
| Line No. | Description | Fiscal Year Ending June 30 | | | | |
|---------------------|----------------------------|----------------------------|---------|---------|---------|---------|
| | | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 |
| | | (\$) | (\$) | (\$) | (\$) | (\$) |
| County Service Area | | | | | | |
| 1 | CSA 79 - Green Valley Lake | 381,900 | 462,700 | 393,300 | 399,200 | 405,100 |

2.8 PROJECTED OPERATING RESULTS

The revenue requirements of the sewer utility consist of system O&M expense, debt service requirements, and transfer (capital contributions).

In the analysis, it was important to identify the state of the sewer utility if no revenue increases were to occur, which is the status quo scenario. Under this scenario, the sewer utility would not impose any revenue increases over the study period. As shown in Figure 2-1, the status quo conditions means that the sewer utility will operate at an annual deficit position starting FY 2020 thus tapping into its operating reserves. Under this scenario, reaching break-even requires the sewer utility to stop capital improvements or implement a rate increase.

Figure 2-1 Status Quo



To avoid operating in a deficit, the sewer utility examined various options for revenue increases that would meet the revenue requirements. Based on the goals and objectives, the sewer utility arrived at the revenue adjustments shown in the operating cash flow on Table 2-7. The operating cash flow transitions the sewer utility to positive cash flow.

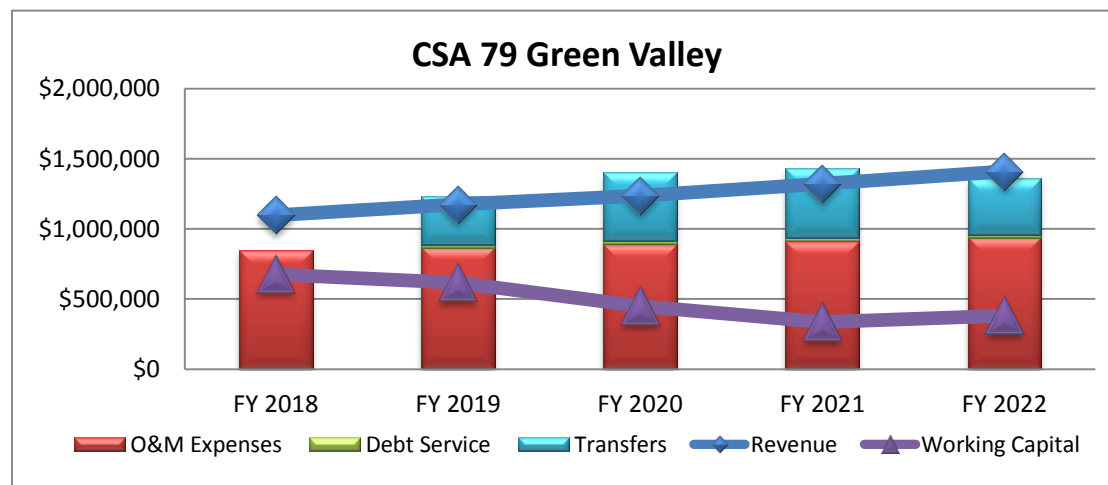
The operating cash flow consists of revenue and revenue requirements. In line 1 is the revenue under existing rates while lines 2 through 7 are the additional revenue generated from the required annual revenue increases. Line 9 represents other revenues, which include miscellaneous revenue and interest earned from the investment of available funds. Line 10 shows, the total revenues generated from existing rates, revenue from increases and other operating revenue.

The revenue requirements for O&M, debt service, and transfer (capital projects) have been previously discussed. Lines 11 and 12 show the O&M expenses and debt service revenue requirements. Line 13 represent the total amount of rate revenue transferred to fund capital expenditures. The amount identified will be transferred to a replacement fund to pay the capital projects identified in Table 2-6. The amounts differ since funding the capital projects is combination of available funds in the replacement fund, expansion fund and new sources such as grants and loans. Line 14 represents the total revenue requirement met through revenues. Line 17 indicates the net cumulative balance. The sewer utility will try to maintain an operating reserve balance consistent with industry standard of 90 days of O&M expenses. The recommended revenue adjustments allow the sewer utility to maintain a cumulative positive balance through FY 2022 while still incorporating capital improvements. Figure 2-2 represents the sewer utility with the revenue adjustments.

Table 2-7 Sewer Operating Cash Flow

| Line No. | Description | Fiscal Year Ending June 30 | | | | | | |
|-----------------------------|--------------------------------------|----------------------------|----------|-------------|-------------|-------------|-------------|-------------|
| | | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 | | |
| | | (\$) | (\$) | (\$) | (\$) | (\$) | | |
| Revenue | | | | | | | | |
| Rate Revenue | | | | | | | | |
| 1 | Sewer Sales | 941,600 | 942,400 | 943,100 | 943,900 | 944,700 | | |
| | Year | Months Effective | Rate Adj | | | | | |
| 2 | FY 2018 | 12 | 8.0% | 75,300 | 75,400 | 75,400 | 75,500 | 75,600 |
| 3 | FY 2019 | 12 | 7.5% | | 76,300 | 76,400 | 76,500 | 76,500 |
| 4 | FY 2020 | 12 | 7.0% | | | 76,600 | 76,700 | 76,800 |
| 5 | FY 2021 | 12 | 7.0% | | | | 82,100 | 82,200 |
| 6 | FY 2022 | 12 | 7.0% | | | | | 87,900 |
| 7 | Increased Revenue Due to Adjustments | | | 75,300 | 151,700 | 228,400 | 310,800 | 399,000 |
| 8 | Subtotal Rate Revenue | | | \$1,016,900 | \$1,094,100 | \$1,171,500 | \$1,254,700 | \$1,343,700 |
| 9 | Other Operating Revenue | | | 80,600 | 81,300 | 66,900 | 67,100 | 67,700 |
| 10 | Total Revenue | | | \$1,097,500 | \$1,175,400 | \$1,238,400 | \$1,321,800 | \$1,411,400 |
| Revenue Requirements | | | | | | | | |
| 11 | O&M Expenses | | | 847,500 | 869,900 | 892,900 | 916,500 | 940,900 |
| 12 | Long-Term Debt | | | 0 | 19,400 | 19,400 | 19,400 | 19,400 |
| 13 | Transfers | | | 0 | 344,500 | 493,300 | 499,200 | 405,100 |
| 14 | Total Revenue Requirements | | | \$847,500 | \$1,233,800 | \$1,405,600 | \$1,435,100 | \$1,365,400 |
| 15 | Net Annual Cash Balance | | | 250,000 | (58,400) | (167,200) | (113,300) | 46,000 |
| 16 | Beginning Fund Balance | | | 425,006 | 675,006 | 616,606 | 449,406 | 336,106 |
| 17 | Net Cumulative Fund Balance | | | \$675,006 | \$616,606 | \$449,406 | \$336,106 | \$382,106 |
| 18 | Working Capital Reserves | | | 209,000 | 214,500 | 220,200 | 226,000 | 232,000 |

Figure 2-2 Operating Cash Flow



2.8.1 Test Year Revenue Requirements

In analyzing the sewer utility’s cost of service for allocation to its customer classes, Black & Veatch selected the annual revenue requirements for FY 2018 as the Test Year (TY) requirements to demonstrate the development of cost-of-service sewer rates. Based on achieving the sewer

utility's principal goals within the study period, the cash flow in Tables 2-7 serves as the basis for the cost of service analyses.

3 Cost of Service Allocation

The revenue requirements derived from rates for sewer service are synonymous with the definition of the Cost of Service (COS). In developing equitable rate structures, revenue requirements are allocable to the various customer classifications based on the service rendered. Allocations of these requirements to customer classes should consider the quantity of sewage produced, sewer flow strengths, number of customer connections, and other relevant factors. Table 3-1 summarizes the total costs of service recovered from sewer user rates for the TY 2018.

Table 3-1 Sewer Cost of Service

| Line No. | Description | Operating Expense (\$) | Capital Cost (\$) | Total Cost (\$) |
|--|--------------------------------|------------------------|-------------------|-----------------|
| Revenue Requirements | | | | |
| 1 | O&M Expenses | 847,500 | 0 | 847,500 |
| 3 | Debt Service | 0 | 0 | 0 |
| 4 | Transfers | 0 | 0 | 0 |
| 5 | Subtotal | \$847,500 | \$0 | \$847,500 |
| Less Revenue Requirements Met from Other Sources | | | | |
| 6 | Other Operating Revenue | 80,600 | 0 | 80,600 |
| 7 | Subtotal | \$80,600 | \$0 | \$80,600 |
| Adjustments | | | | |
| 8 | Adj for Annual Cash Balance | (250,000) | 0 | (250,000) |
| 9 | Adj to Annualize Rate Increase | 0 | 0 | 0 |
| 10 | Subtotal | (\$250,000) | \$0 | (\$250,000) |
| 11 | COS to be Recovered from Rates | \$1,016,900 | \$0 | \$1,016,900 |

Shown in line 4 is the total revenue requirement that corresponds with the Table 2-6 line 14. In deriving the revenue requirement needed from rates, it is necessary to deduct revenues from other sources as shown in lines 6 and 9. Line 7 represents the net annual cash balance for the utility during the Test Year. In this case, the \$250,000 indicates that the sewer utility is projecting a positive cash balance for the year. Line 10 represents the total costs that rates need to recover.

3.1 FUNCTIONAL COST COMPONENTS

Cost of service methodology next analyzes the cost of providing sewer service by system function to properly allocate the costs to the various classes of customers and subsequently design rates. As a basis for allocating costs of service among customer classes, rate making principles separate costs into the following four basic functional cost components: (1) "Base"; (2) "Strength"; (3) "Customer"; and (4) "Direct Assignment".

- Base costs represent operating and capital costs primarily associated with collection. The collection costs vary directly with the quantity of sewage produced.
- Strength costs represent those operating costs primarily associated with treatment. The treatment costs are specifically related to treatment of Biochemical Oxygen Demand (BOD) and Total Suspended Solid (TSS).

- Customer costs are those expenses that tend to vary in proportion to the number of customers connected to the system. These include billing, collecting and accounting.
- Directly assigned costs are costs specifically identified as those incurred to serve a specific customer group(s).

The separation of costs of service into these principal categories facilitates allocating such costs to the various customer classes based on the respective service requirements of each class.

3.2 ALLOCATION TO COST COMPONENTS

Each element of cost is allocated to functional cost components based on the parameter or parameters having the most significant influence on the magnitude of that element of cost. O&M expense items are allocated directly to appropriate cost components, while the allocation of capital and replacement costs uses a detailed allocation of related capital investment. The separation of costs into functional components provides a means for distributing such costs to the various classes of customers based on their respective responsibilities for each particular type of service.

3.2.1 Allocation of Operating and Maintenance Expense

In the allocation of O&M expense, costs are allocated directly to cost components to the extent possible. Personnel services and materials and supplies are allocated based on a 50/25/25 split between volume, BOD strength and TSS strength. Thereafter 2 percent from base is allocated to customer for billing. Other services and charges are allocated 100 percent to volume. Table 3-2 represents the allocation of O&M to the functional cost components. To determine the net operating expenses, we subtract lines 6 and 7 from the total of allocated costs.

Table 3-2 Allocation of Sewer O&M Expenses

| Line No. | Description | Total Costs | Common to All Customers | | | |
|--------------------|----------------------------|-------------|-------------------------|-----------|-----------|-----------|
| | | | Base | Strength | | Customer |
| | | | Volume | BOD | TSS | Cust/Bill |
| | | (\$) | (\$) | (\$) | (\$) | (\$) |
| Operating Expenses | | | | | | |
| 1 | Personnel Services | 271,500 | 130,300 | 67,900 | 67,900 | 5,400 |
| 2 | Materials and Supplies | 559,700 | 268,700 | 139,900 | 139,900 | 11,200 |
| 3 | Other Services and Charges | 16,300 | 16,300 | 0 | 0 | 0 |
| 4 | Capital Outlay | 0 | 0 | 0 | 0 | 0 |
| 5 | Subtotal | \$847,500 | \$415,300 | \$207,800 | \$207,800 | \$16,600 |
| Less Other Revenue | | | | | | |
| 6 | Miscellaneous Revenues | 80,600 | 39,400 | 19,800 | 19,800 | 1,600 |
| 7 | Other Adjustments | (250,000) | (122,500) | (61,300) | (61,300) | (4,900) |
| 8 | Net Operating Expenses | \$1,016,900 | \$498,400 | \$249,300 | \$249,300 | \$19,900 |

3.2.2 Allocation of Capital Investments

In the allocation of capital expenses, costs are allocated to cost components to the extent possible. Capital expenditures represent future capital investment into the sewer system. These costs are allocated using the cost distribution of total existing assets. Table 3-3 shows that the system is primarily a collection only system, therefore all plant investments are attributed to base.

Table 3-3 Allocation of Sewer Capital Costs

| Line No. | Description | Total Costs | Common to All Customers | | | |
|--------------|------------------|-------------|-------------------------|----------|------|-----------|
| | | | Base | Strength | | Customer |
| | | | Volume | BOD | TSS | Cust/Bill |
| | | (\$) | (\$) | (\$) | (\$) | (\$) |
| Plant Assets | | | | | | |
| 1 | Collection | 798,966 | 798,966 | 0 | 0 | 0 |
| 2 | Lift Station | 467,028 | 467,028 | 0 | 0 | 0 |
| 3 | Treatment | 0 | 0 | 0 | 0 | 0 |
| 4 | General Plant | 265,656 | 265,656 | 0 | 0 | 0 |
| 5 | Net Plant Assets | \$1,531,649 | \$1,531,649 | \$0 | \$0 | \$0 |

3.3 UNITS OF SERVICE

The total cost responsibility for each customer class may be established by developing unit costs of service for each cost function and subsequently assigning those costs to the customer classes based on the respective service requirements of each. To properly recognize the cost of service, each customer class is allocated its share of base, strength, and customer costs. The number of units of service required by each customer class provides a means for the proportionate distribution of costs previously allocated to respective cost categories. Table 3-4 is a summary of the estimated units of service for the various customer classes.

Base costs vary with the volume of sewage produced and are distributed to customer classes on that basis. Strength costs are those associated with pollutant characteristics and is distributed to customer classes on the basis of loadings. Customer costs, which consist of billing, collection and accounting costs, are allocated to the various classes on the basis of the number of bills. The sewage produced is estimated based on 250 gallons per day of return flow into the sewer system. The pollutant loadings are derived from recommendations in WEF MoP No. 27, Table 7.3. Since the sewer utility classifies all customers as the same class and the majority of the customers are residential, a low strength was used in determining the units.

Table 3-4 Sewer Units of Service

| Line No. | Description | Contributed Volume | BOD Loadings | | TSS Loadings | | Bills |
|----------|-------------------------|--------------------|--------------|---------|--------------|---------|---------|
| | | | Factor | Loading | Factor | Loading | |
| | Units of Measure | (HCF) | (mg/L) | (lbs) | (mg/L) | (lbs) | (bills) |
| 1 | All Customers | 145,527 | 200 | 181,581 | 200 | 181,581 | 14,316 |
| 2 | Subtotal | 145,527 | | 181,581 | | 181,581 | 14,316 |
| 3 | Total Wastewater System | 145,527 | | 181,581 | | 181,581 | 14,316 |

3.4 COST OF SERVICE ALLOCATIONS

Following cost-of-service methodology, we distribute the costs of service to the various customer classes by applying the unit costs of service to respective service requirements. The total unit costs of service applied to the respective requirements for each customer class results in the total cost of service for each customer class.

3.4.1 Units Costs of Service

The Test Year unit cost of service for each functional cost component is based on the total cost divided by the applicable units of service as shown in Tables 3-5. In lines 1 and 2, the total costs represent the cost needed from rates shown in Table 3-1 line 10. Line 5 represents the unit costs used in allocating the costs to the specific customer classes.

Table 3-5 Sewer Unit Costs of Service

| Line No. | Description | Total Costs | Common to All Customers | | | |
|----------------------|--------------------------|-------------|-------------------------|-------------------|-------------------|--------------------|
| | | | Base Volume | Strength BOD | Strength TSS | Customer Cust/Bill |
| | | (\$) | (\$) | (\$) | (\$) | (\$) |
| Unit Cost of Service | | | | | | |
| 1 | Net Operating Expense | 1,016,900 | 498,400 | 249,300 | 249,300 | 19,900 |
| 2 | Capital Costs | 0 | 0 | 0 | 0 | 0 |
| 3 | Total | \$1,016,900 | \$498,400 | \$249,300 | \$249,300 | \$19,900 |
| 4 | Units of Service (Total) | | 145,527 | 181,581 | 181,581 | 14,316 |
| 5 | Cost per Unit | | \$3.42 per HCF | \$1.37 per lbs | \$1.37 per lbs | \$1.39 per bill |

3.4.2 Distribution of Costs of Service to Customer Classes

We arrive at the customer class responsibility for service by applying the unit costs of service to the number of units for which the customer class is responsible. Table 3-6 illustrates this process in which we apply the unit costs of service to the customer class units of service.

Table 3-6 Distribution of Sewer Cost to Customer Classes

| Line No. | Description | Total Costs | Common to All Customers | | | |
|---------------|--------------------------------|-------------|-------------------------|-------------------|-------------------|--------------------|
| | | | Base Volume | Strength BOD | Strength TSS | Customer Cust/Bill |
| | | (\$) | (\$) | (\$) | (\$) | (\$) |
| 1 | Cost per Unit | | \$3.42 per HCF | \$1.37 per lbs | \$1.37 per lbs | \$1.39 per bill |
| All Customers | | | | | | |
| 2 | Units | | 145,527 | 181,581 | 181,581 | 14,316 |
| 3 | Allocation of costs of service | 1,016,900 | 498,400 | 249,300 | 249,300 | 19,900 |
| 4 | Total | \$1,016,900 | \$498,400 | \$249,300 | \$249,300 | \$19,900 |

3.5 ADEQUACY OF EXISTING RATES TO MEET COSTS OF SERVICE

Presented in Tables 3-7 is a comparison of the allocated cost of service and revenue under existing rates for the system in total. The 8.0 percent, overall increase is the minimum considered necessary to meet the projected revenue requirements for the FY 2018 Test Year.

Table 3-7 Comparison of Sewer Cost of Service to Existing Revenue

| Line No. | Description | Allocated COS (\$) | Rev under Exst Rates (\$) | Indicated Rev Increase (%) |
|----------------|---------------|--------------------|---------------------------|----------------------------|
| Customer Class | | | | |
| 1 | All Customers | 1,016,900 | 941,600 | 8.0% |
| 2 | Total | \$1,016,900 | \$941,600 | 8.0% |

4 Proposed Rate Adjustments

The initial consideration in the derivation of rate schedules for sewer service is the establishment of equitable charges to the customers commensurate with the cost of providing the service. While the cost of service allocations to customer classes should not be construed as literal or exact determinations, they offer a guide to the necessity for, and the extent of, rate adjustments. Practical considerations sometimes modify rate adjustments by considering additional factors such as the extent of bill impacts, and local policies and practices.

4.1 EXISTING RATES

The sewer utility’s existing rates consists of a flat rate per EDU. For customers that have multiple EDUs, the charges will be the rate multiplied by the number of EDUs. A summary of existing sewer rates was presented earlier in this report in Table 2-2.

4.2 PROPOSED RATES

The costs of service analysis described in preceding sections of this report provide a basis for the design of sewer rates. The rate schedules for FY 2018 to FY 2022 shown in Table 4-1 take into consideration the sewer utility’s objectives.

Table 4-1 Proposed Sewer Rates

| Sewer Charges | Proposed Rate Schedule | | | | |
|---------------------|------------------------|------------|------------|------------|------------|
| | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 |
| | (\$/month) | (\$/month) | (\$/month) | (\$/month) | (\$/month) |
| Monthly Fee per EDU | \$71.03 | \$76.36 | \$81.71 | \$87.42 | \$93.54 |

4.3 REVENUE RECOVERY UNDER PROPOSED RATES

As previously discussed, the proposed rate schedule shown in Table 4-1 would increase rate revenues by the average system-wide cumulative increase of 42.2 percent over the five-year study period and maintain current cost recovery, as indicated in Tables 4-2.

Table 4-2 Comparison of Sewer Cost of Service to Proposed Revenue

| Line No. | Description | Allocated COS | Rev under New Rates | Percent Recovery |
|----------|----------------|---------------|---------------------|------------------|
| | | (\$) | (\$) | (%) |
| | Customer Class | | | |
| 1 | All Customers | 1,016,900 | 1,016,900 | 100.0% |
| 2 | Total | \$1,016,900 | \$1,016,900 | 100.0% |

4.4 NEIGHBORING UTILITIES

Presented in Table 4-3 are the proposed rates compared to rates of neighboring cities and agencies, for a single family residential customer. Single family residential is considered to have one EDU. With the proposed rate increases, the sewer utility continues to be the highest sewer providers of the surveyed communities. All surveyed community rates are current as of October 2016. The sewer utility proposed single family residential bill is anticipated to be \$73.34 after the adjustment.

Table 4-3 Comparison of Sewer Fees to Neighboring Agencies

| Sewer Utility | Typical Bill (\$/month) |
|--------------------------------------|----------------------------|
| Arrowbear Park County Water District | \$35.00 |
| Running Springs Water District | 44.11 |
| Green Valley Lake (Existing) | 65.77 |
| Green Valley Lake (Proposed) | 73.34 |