

WATER AND SEWER CAPACITY FEE STUDY

MCKINLEYVILLE COMMUNITY SERVICES DISTRICT

JULY 11, 2016



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OVERVIEW

McKinleyville Community Services District (the District) retained Willdan to prepare a capacity fee study for the District's water and sewer utility systems. Capacity fees are one-time charges, collected as a condition of establishing a connection to the District's systems, for new and existing water and sewer facilities that are of proportional benefit to the new connection. The recommended capacity fees for the District are proportionate and reasonably related to the capital facility demands of new development. This report documents the data, methodology, and results of the capacity fee study.

In addition to the Capacity Fees that are the subject of this study, the District also imposes Installation Charges. Installation Charges are used to recover costs associated with the physical installation of lateral connections to the utility system, and can be thought of as "plumbing charges". The scope of this study does not include the District's Installation Charges.

The District last updated the water and sewer capacity fees in 2011. Since this time there have been revisions to the District's capital program and as such, the District has requested Willdan prepare this capacity fee study. The study is completed using the same methodology as the September 11, 2011, Water and Sewer Capacity Fees study, also completed by Willdan.

EXISTING CAPACITY FEES

Current water and sewer capacity fees were established in 2011 and are currently \$2,895 for a 5/8-inch water meter and \$4,976 for a single sewer Equivalent Residential Unit (ERU). Since 2011 the District has revised its capital program and, as such, it is appropriate to revise the existing Capacity Fees.

The District's existing capacity charge for water, per District *Rule 5.11*, is based on the size of the installed water meter. The capacity ratio, based on the meter's flow rating, is used to determine a capacity ratio from a standard 5/8-inch meter to a proportionate fee for larger meter sizes.

The District's existing capacity charge for sewer is based on an Equivalent Residential Units (ERU) and is a one-time charge determined per District *Rule 21.02*. An ERU is defined as any single-family residential structure. Other types of structures are evaluated by the District on an individual basis with respect to average monthly flows, and the capacity charge imposed thereon is adjusted to be appropriately proportionate to the standard charge imposed on an ERU.

OBJECTIVE AND REGULATORY REQUIREMENTS

The primary objective of establishing a full cost-recovery capacity fee is to provide an equitable means by which new system users can pay for the costs of the facilities required to serve them.

The legal requirements applicable to capacity fees imposed by the District are set forth in Government Code Sections 66013 and 61123.

CALCULATION METHODOLOGIES

Reduced to its simplest form, the process of calculating capacity fees involves two steps: determining the cost of capital improvements related to new service connections, and allocating those costs equitably to various types of connections.



There are two basic methods used to calculate the components of the District’s capacity fees. The methodologies are used to determine the best measure of demand created by new connections for each component of the capacity fees.

- ❖ In instances where infrastructure has been built in advance of new development and there is excess capacity available to be utilized by new development, the **buy-in methodology** is utilized. Under this methodology, new development repays the community for previous capacity investments via the capacity fee.
- ❖ The **plan-based methodology** utilizes the District’s capital improvement plan (CIP) and related master plans to determine new development’s share of planned projects. Projects that do not add capacity, such as routine maintenance or replacement of existing facilities, are not included in the fees. Projects that add capacity are further evaluated as to the percentage of the project attributable to existing development versus new development. Only the portion of planned projects attributable to new development is included in the capacity fees.

Based on the available data, the majority of the facility components analyzed and incorporated into the proposed capacity fees utilize the plan-based methodology, with the buy-in methodology used to recover costs associated with existing excess distribution and treatment capacity. A summary of the capacity fee components and methodologies are shown in the Figure 1-1:

Figure 1-1: Capacity Fee Component Methodology

| Water Capacity Fee Components | Calculation methodology |
|---|--------------------------------|
| Resources | Plan-Based |
| Storage | Plan-Based |
| Distribution | Plan-Based & Buy-In |
| Planning and Study Efforts | Plan-Based |
| Wastewater Capacity Fee Components | |
| Treatment | Plan-Based & Buy-In |
| Interceptors | Plan-Based |
| Collection lines | Plan-Based |
| Planning and Study Efforts | Plan-Based |
| Joint Cost Components | |
| Water | Plan-Based |
| Sewer | Plan-Based |



DEVELOPMENT & DEMAND DATA

Both existing and planned connections must be addressed as part of the analysis required to support the establishment of capacity fees. This section of the report organizes and correlates the information to provide a framework for the capacity fee analysis. The information in this section forms a basis for establishing levels of service, analyzing facility needs, and allocating capital facilities costs between existing and future development and among various customer types.

Currently the District has 5,546 active water accounts. As the future mix between commercial and residential accounts is unknown, Willdan utilized equivalent residential units (ERUs) to define a projected water and sewer demand. The District annual growth rates from the Humboldt County General Plan DEIR 2012 and are forecasted to be 1.0%, and from the 2015 Urban Water Management Plan, an 0.8% annual growth rate. Using this information, a growth rate of 0.9% is assumed for this analysis. Using an annual growth rate of 0.9% for the District, approximately 25% growth is anticipated over the next 25 years. This rate of growth is forecasted to result in 8,596 ERUs at buildout, generally consistent with the Humboldt County General Plan DEIR 2012 estimated buildout of 8,611 housing units. **The capital improvement projects listed in this study, as developed by the District, reflect the water and sewer projects associated with serving this projected development.**

Figure 1-2: Growth Projections

| | ERUs | Accounts |
|-------------------|--------------|--------------|
| Existing ERUs | 6,877 | 5,546 |
| Years to Buildout | 25 | 25 |
| Growth Rate (1) | 0.9% | 0.9% |
| Cumalitive Growth | 25% | 25% |
| New ERUs | 1,719 | 1,387 |

(1) Humboldt County General Plan DEIR 2012 & 2015
Urban Water Management Plan - 0.9% assumed growth
rate

* Figures are rounded



WATER CONSUMPTION CHARACTERISTICS

Willdan performed a detailed consumption analysis to develop a usage standard based on one residential equivalence (Equivalent Residential Unit). Based on the consumption analysis, shown in Figure 1-3, the 5,546 accounts are converted to 6,877 ERUs. Based on historical district water use data, each ERU has a demand of 6.6 HCF (hundred cubic feet) of water per month. Applying the 6.6 units as an existing standard, the forecasted 1,719 new ERUs will generate a projected annual water demand of 136,483 HCF.

Figure 1-3: Water Connection and Consumption Projections

| | Existing | Growth | Projected Build-out |
|--|----------|---------|---------------------|
| Total Annual Consumption (hcf) | 545,932 | 136,483 | 682,415 |
| Total ERUs | 6,877 | 1,719 | 8,597 |
| Annual Consumption per Connection (hcf) | 79.4 | 79.4 | 79.4 |
| Monthly Consumption per Connection (hcf) | 6.6 | 6.6 | 6.6 |

SEWER DISCHARGE CHARACTERISTICS

Similarly, Willdan applied, and confirmed the validity of, industry standard discharge factors to determine the amount of water being discharge to the sewer system. As sewer discharge is not metered, it is necessary to apply a discharge factor to account for water used for irrigation – Industry standards dictate that Single Family Residential units discharge approximately 70% of water use, while all other customer classes discharge approximately 90% of water consumption. Review of the District’s sewer billing records in comparison to water use indicate discharge factors of approximately 80% for Single Family Residential water use and 85% for other customer classes, generally consistent with industry standards. The discharge-weighted average for the entire system was determined to be 81%.

With the discharge factors applied, average monthly discharge was calculated at 5.4 HCF per account. Consequently, the forecasted 1,719 units will generate an annual sewer discharge of 111,202 HCF annually, a 25% increase in discharge from current levels.

Figure 1-4: Sewer Discharge Factor Projections

| | Existing | Growth | Projected Build-out |
|--|----------|---------|---------------------|
| Total Annual Consumption (hcf) | 545,932 | 136,483 | 682,415 |
| Total ERUs | 6,877 | 1,719 | 8,597 |
| Annual Consumption per Connection (hcf) | 79.4 | 79.4 | 79.4 |
| Monthly Consumption per Connection (hcf) | 6.6 | 6.6 | 6.6 |
| Discharge Factor | 81% | 81% | 81% |
| Total Annual Discharge (hcf) | 444,808 | 111,202 | 556,010 |
| Monthly Discharge per Connection(hcf) | 5.4 | 5.4 | 5.4 |



WATER CAPACITY FEES

Capacity fees can only recover costs directly attributable to new connections. Accordingly, the District reviewed the proposed CIP projects, project by project, and provided the proportion of each project attributable to new development, as well as each project’s system component (storage, distribution, etc.). The portions of project costs not attributable to growth would be recovered from existing users as part of the monthly water rates.

Each capital project is necessary for one of three reasons: 1) To fix an existing system deficiency that has resulted from system age or environmental requirements; 2) To provide additional capacity for future users; or 3) To serve both existing and future users. Project costs related to options 1 and 2 are directly allocated to existing and future users, respectively. Capital projects that fall under option 3 are allocated to new and existing ERU’s based on the proportions of each project as provided by the District. The CIP presented below represents the capital projects that the District finds necessary to meet the demands of projected growth. Projects, and portions of projects, related only to existing users have been excluded. All values are shown as present value. More information related to capital project costs, applied methodology, and the split between existing and future users are detailed in Appendix A.

WATER STORAGE

The District plans to spend \$5,400,000 on an expansion of the Districts water storage and other growth related projects. The District is installing a new 4.5 million gallon tank. The new tank and land purchase will increase the District's storage capacity, enhance fire flows during peak summer usage and provide additional system capacity for new growth, especially in northern McKinleyville. Of the 4.5 million gallon tank, 2.25 million gallons (50%) of the project is related to existing deficiencies, with the remaining 50% attributed to new growth.

Figure 2-1: Water Storage Projects Allocated to New Growth

| Water System | Total Cost | Cost Allocated to Growth |
|-------------------------------|---------------------------|--------------------------|
| 4.5 MG New Tank | 5,200,000 | 2,600,000 |
| Property Purchase/Improvement | 200,000 | 100,000 |
| Total Water | 5,400,000 | 2,700,000 |
| | Twenty Year Total | 2,700,000 |
| | Gallons of Added Capacity | 2,250,000 |
| | Cost Per Gallon | \$ 1.20 |



WATER DISTRIBUTION

The District purchases all of its water from Humboldt Bay Municipal Water District (HBMWD). Water is pumped from HBMWD's facility on the Mad River to the Ramey Pump Station. Water is then pumped to MCSD's six storage tanks where it is gravity fed to MCSD's customers.

Given the ability for new development to utilize excess distribution capacity, the buy-in methodology is used to calculate the portion of the proposed Water Capacity Fee attributable to distribution facility costs.

In order to determine the appropriate buy-in charge, the total cost of the existing plants assets were provided by the District. The records revealed the original cost of the District's utility system was \$8.8 million less Grant funded and Developer contributed capital. This cost (\$8,758,801) was divided by the distribution capacity of the existing infrastructure (3,600,000 gallons per day) yielding a buy-in cost of \$2.43 per gallon.

In addition, the District is planning on five water distribution projects over the next twenty years. Discussions with District staff indicate that these projects will provide sufficient capacity for forecasted build-out. Based on projections of peak water demand from new development, new development over this period is projected to place a demand of 447,515 gallons daily. The projected demand of new development is calculated by applying the existing use standard, peak average daily use, to each new projected account.

Additionally, costs related to securing and constructing an emergency water supply are allocated to water distribution. Although currently deficient, the proposed emergency water supply is being sized to accommodate existing and future growth. As such, the cost of the project is being split proportionately between existing and future users.

Figure 2-2: Water Distribution Projects Allocated to New Growth

| Water System | Total Cost | Cost Allocated to Growth |
|---|-----------------------------|---------------------------------|
| Ramey Pump Upgrades | 170,000 | 136,000 |
| Emergency Water Supply | 340,000 | 170,000 |
| Tank Seismic Actuators | 40,000 | 12,000 |
| Fire Hydrant System Upgrade | 77,000 | 23,100 |
| Water Main Rehabilitation and Replacement | 4,430,000 | 2,215,000 |
| Total Water | 5,057,000 | 2,556,100 |
| | Twenty Year Total | 2,556,100 |
| | Gallons of Capacity per Day | 447,515 |
| | Cost Per Gallon | \$ 5.71 |



JOINT COSTS

To ensure adequate water and sewer capacity for new development, the District also needs non-capacity items such as administrative building space. These costs are allocated to cost per connection, since connections are the best proxy for estimating demand. These costs reflect the additional demand on administrative costs associated with an increased service population. **Please note:** these costs do not include expenditures related to everyday operations and maintenance. Joint costs total \$3,791,000 with new growth being allocated \$1,309,600. As these are joint costs between the two services, costs were evenly split between them, with each being apportioned \$654,800. As shown in Figure 2-3, the cost per new account for the joint costs is \$472.27.

Figure 2-3: Joint Cost Capital Improvement Program Allocation

| Joint System | Growth's Cost | % Attributed to Growth | Cost Allocated to Growth | % to Water | Cost to Water | % to Sewer | Cost to Sewer |
|--|------------------------|------------------------|--------------------------|------------|----------------|------------|----------------|
| | | | | | | | |
| Hydrocleaner and appurtenances | 900,000 | 20% | 180,000 | 50% | 90,000 | 50% | 90,000 |
| Backhoe | 200,000 | 20% | 40,000 | 50% | 20,000 | 50% | 20,000 |
| Dump Truck | 175,000 | 20% | 35,000 | 50% | 17,500 | 50% | 17,500 |
| Tractor and Attachments | 130,000 | 20% | 26,000 | 50% | 13,000 | 50% | 13,000 |
| Air Compressor and appurtenances | 62,000 | 20% | 12,400 | 50% | 6,200 | 50% | 6,200 |
| Portable Emergency Generators | 90,000 | 20% | 18,000 | 50% | 9,000 | 50% | 9,000 |
| 3/4 or 1-Ton Pickup | 683,000 | 20% | 136,600 | 50% | 68,300 | 50% | 68,300 |
| CCTV Truck | 60,000 | 20% | 12,000 | 50% | 6,000 | 50% | 6,000 |
| Car | 65,000 | 20% | 13,000 | 50% | 6,500 | 50% | 6,500 |
| Light Duty Utility Truck | 112,000 | 20% | 22,400 | 50% | 11,200 | 50% | 11,200 |
| Facility Upgrades and Sealcoat | 60,000 | 20% | 12,000 | 50% | 6,000 | 50% | 6,000 |
| Office Building | 300,000 | 80% | 240,000 | 50% | 120,000 | 50% | 120,000 |
| Property Purchase | 400,000 | 100% | 400,000 | 50% | 200,000 | 50% | 200,000 |
| Building Roofs | - | 0% | - | 50% | - | 50% | - |
| PCs, Software, & Printers | 70,000 | 30% | 21,000 | 50% | 10,500 | 50% | 10,500 |
| File Server Upgrade | 109,000 | 30% | 32,700 | 50% | 16,350 | 50% | 16,350 |
| MOM Upgrade and Replacement | 125,000 | 30% | 37,500 | 50% | 18,750 | 50% | 18,750 |
| Office Equipment | 50,000 | 20% | 10,000 | 50% | 5,000 | 50% | 5,000 |
| GIS/SEMS/CADD Equipment and Software | 40,000 | 20% | 8,000 | 50% | 4,000 | 50% | 4,000 |
| Misc./ Emergency Equipment Replacement | - | 0% | - | 50% | - | 50% | - |
| GPS Surveying Equipment | 60,000 | 30% | 18,000 | 50% | 9,000 | 50% | 9,000 |
| Office Emergency Generator | - | 0% | - | 50% | - | 50% | - |
| Emergency Generator | 50,000 | 50% | 25,000 | 50% | 12,500 | 50% | 12,500 |
| Emergency Response Equipment | 50,000 | 20% | 10,000 | 50% | 5,000 | 50% | 5,000 |
| Total Joint | 3,791,000 | | 1,309,600 | | 654,800 | | 654,800 |
| | Twenty Year Total | | <u>1,309,600</u> | | <u>654,800</u> | | <u>654,800</u> |
| | Projected New Accounts | | | | 1,387 | | 1,387 |
| | Cost Per Unit | | | | \$ 472.27 | | \$ 472.27 |



DEMAND & COST SUMMARY

Water use for residential and non-residential customers was determined using data provided by the District from the District’s billing records. A system peaking factor is applied to daily consumption to ensure adequate capacity for peak demand (peak hour and peak month). Therefore, a new connection is allocated its potential demand on the system; rather than average daily demand. The figure below summarizes the demand factors and each components cost per gallon for additional water capacity (Figures 2-1 through 2-3).

Figure 2-4: Water Capacity Fee Demand and Cost Summary

Water Demand and Cost Summary

| Demand Summary | Factors | |
|--|-----------------|--------|
| Total Annual Consumption (hcf) | 545,932 | |
| Annual Consumption (gallons) | 408,357,136 | |
| Total Accounts | 5,546 | |
| Daily Consumption (gallons) | 202 | |
| Average Month Consumption (hcf) | 45,494 | |
| Max Month Consumption (hcf) | 71,266 | |
| System Peaking Factor | 1.6 | |
| Gallons per Peak day per Account | 323 | |
| Water Component Cost Summary | Planned | Buy-in |
| Storage | \$1.20 | |
| Distribution | \$5.71 | \$2.43 |
| Net Capital Cost per Gallon of Capacity | \$9.34 | |
| Joint Costs (per connection) | \$472.27 | |
| Net Capital Cost per Connection | \$472.27 | |



WATER CAPACITY FEES

The proposed water capacity fees are based on the size of the installed water meter, as recommended by the American Water Works Association (AWWA). A capacity ratio, based on the meters flow rating (in gallons per minute), is used to determine a capacity ratio from a standard 5/8 inch meter into a proportionate fee for larger meter sizes. The capacity ratios are consistent with industry standards and are an accurate reflection of the possible demand of different meter sizes.

For the smallest meter size, 5/8 inch water meter, the fee is derived by multiplying the gallons per day per residential connection (Figure 2-4) by the total capital cost per gallon of capacity (Figure 2-4). The next step in the fee calculation is to add the average cost per water customer for joint costs. For example, 323 peak gallons per residential connection (from Figure 2-4) multiplied by \$9.34 (cost per gallon of capacity - Figure 2-4) equals \$3,019. Adding \$472.27 (capital cost per connection) yields a capacity fee of \$3,491 for a 5/8 inch meter. For larger meter sizes, include the capacity ratio in the formation fee (before adding the capital cost per connection).

FIGURE 2-5: WATER CAPACITY FEES

Water Connection Fees

| | | Component Unit Cost | \$1.20 | \$8.14 | \$472.27 | | | |
|-------------|------|----------------------|---------|--------------|---------------|----------|--|--|
| | | Component Multiplier | 323 | 323 | 1 | | | |
| Water Meter | | Joint Costs | | | | | | |
| Size | GPM | Capacity Ratio | Storage | Distribution | (per account) | Total | | |
| 5/8" | 20 | 1.0 | \$ 388 | \$ 2,631 | \$ 472.27 | \$ 3,491 | | |
| 3/4" | 30 | 1.5 | 581 | 3,946 | 472.27 | 5,000 | | |
| 1" | 50 | 2.5 | 969 | 6,577 | 472.27 | 8,018 | | |
| 1 1/2" | 100 | 5.0 | 1,938 | 13,154 | 472.27 | 15,564 | | |
| 2" | 160 | 8.0 | 3,101 | 21,046 | 472.27 | 24,619 | | |
| 3" | 300 | 15.0 | 5,814 | 39,461 | 472.27 | 45,748 | | |
| 4" | 500 | 25.0 | 9,690 | 65,769 | 472.27 | 75,931 | | |
| 6" | 1000 | 50.0 | 19,380 | 131,538 | 472.27 | 151,390 | | |
| 8" | 1600 | 80.0 | 31,008 | 210,461 | 472.27 | 241,941 | | |
| 10" | 2300 | 115.0 | 44,574 | 302,537 | 472.27 | 347,584 | | |

Please note, due to building code regulations, new single-family homes are to be sized with a 3/4" meter because of fire protection systems, rather than the typical 5/8" meter. It is recommended that all new single-family residential units, with meter sizes 5/8" or 3/4", be charged the 5/8" capacity fee, unless the 3/4" is serving a multifamily residence and would thus reflect their typical demand on the system.



SEWER CAPACITY FEES

As part of the capacity fee process, CIP projects are identified as growth-related, existing needs, or a percentage of both. The CIP includes capital project requirements needed to meet projected growth. More information related capital project costs, applied methodology, and the split between existing and future users are detailed in Appendix A.

TREATMENT

In order to determine the cost associated with the remaining plant capacity, Willdan reviewed the District's Property, Plant, and Equipment (PPE) schedule. The analysis revealed that throughout the years, the District has invested \$21.7 million in PPE costs related to the wastewater management facility. The plant is currently operating at approximately 85% of average daily permitted capacity. Given the available capacity for new development to utilize, the buy-in methodology is used to calculate this component of the Sewer Capacity Fee.

Only the cost to the District can be utilized during the buy-in method. As a result, \$6,283,169 of Grant funded and Developer Contributed Capital was excluded. Thus, the remaining PPE (\$15,466,215) is divided by the maximum daily capacity of the plant (1,610,000 gpd) which yields a buy-in cost of \$9.61 per gallon. By recovering this amount, the District will be reimbursed by new development for remaining system capacity.

Relative to new projects, the District plans to spend \$28,553,000 overall on treatment-related capital improvement projects related to a new Wastewater Management Facility (WWMF). Specifically, the District has identified \$6,677,900 of costs related to treatment projects to serve additional demand of new development. The new WWMF will add an additional 530,000 gallons of capacity per day.

Figure 3-1: Sewer Treatment and Reclamation Projects Allocated to New Growth

| Sewer System | Total Cost | Cost Allocated to Growth |
|---|-------------------|--------------------------|
| WWMF Upgrade/CEQA/Permitting | 13,460,000 | 4,038,000 |
| WWMF Upgrade/CEQA/Permitting (future reg) | 8,000,000 | - |
| WWMF SO ₂ /Chlorine Injector Controllers | 40,000 | 20,000 |
| WWMF Sludge Disposal & handling | 4,800,000 | 1,440,000 |
| Barn and Fence Upgrades | - | - |
| Irrigation Pipe and Fittings | 40,000 | 20,000 |
| Property purchase | 1,500,000 | 750,000 |
| Reclamation Site Upgrade | 535,000 | 267,500 |
| Underground Valving and Piping | 178,000 | 142,400 |
| Total Sewer | 28,553,000 | 6,677,900 |
| Twenty Year Total | | 6,677,900 |
| Gallons of Capacity per Day | | 530,000 |
| Cost Per Gallon | \$ | 12.60 |



INTERCEPTORS

The District plans to spend \$244,000 on interceptor projects over the next ten years, \$96,800 of which is allocable to new development. Based on projections of peak sewer demand from new development, new development is projected to add an additional 364,621 gallons of wastewater daily through build-out, resulting in a cost per gallon of \$0.27 as shown in Figure 3-2.

Figure 3-2: Sewer Interceptor Projects Allocated to New Growth

| Sewer System | Total Cost | Cost Allocated to Growth |
|--|----------------|--------------------------|
| Sewer Lift Stn. Pump & Generator Replacement | 160,000 | 80,000 |
| WWMF & Fischer Lift Station Grinder Upgrade | 84,000 | 16,800 |
| Total Sewer | 244,000 | 96,800 |
| Twenty Year Total | | 96,800 |
| Gallons of Capacity per Day | | 364,621 |
| Cost Per Gallon | \$ | 0.27 |

COLLECTION

Of \$7,530,600 in collection related costs, the District plans to spend \$5,878,000 on projects that are the result of new development. Based on projections of peak sewer demand from new development, new development is projected to add an additional 364,621 gallons of wastewater daily through build-out, resulting in a cost per gallon of \$16.12 as shown in Figure 3-3.

Figure 3-3: Sewer Collection Projects Allocated to New Growth

| Sewer System | Total Cost | Cost Allocated to Growth |
|---|------------------|--------------------------|
| Collection System Upgrades/Expansion | 4,300,000 | 4,300,000 |
| Sewer Main Rehabilitation and Replacement | 3,100,000 | 1,550,000 |
| Sewer Main Camera Unit | 110,000 | 22,000 |
| Underground Pipe Locater & Camera | 20,000 | 6,000 |
| Total Sewer | 7,530,000 | 5,878,000 |
| Twenty Year Total | | 5,878,000 |
| Gallons of Capacity per Day | | 364,621 |
| Cost Per Gallon | \$ | 16.12 |



PLANNING AND STUDY EFFORTS

According to the District's CIP, 30% of planned studies and planning efforts, \$81,000 in total, are allocated to new development. Based on projections of peak sewer demand, new development is projected to add an additional 364,621 gallons of wastewater daily through build-out, resulting in a cost per gallon of \$0.22 as shown in Figure 3-4.

Figure 3-4: Sewer Planning and Study Efforts Allocated to New Growth

| Sewer System | Total Cost | Cost Allocated to Growth |
|----------------------------------|----------------|--------------------------|
| WWMF Engr Study/NPDES Permitting | 270,000 | 81,000 |
| Total Sewer | 270,000 | 81,000 |
| Twenty Year Total | | 81,000 |
| Gallons of Capacity per Day | | 364,621 |
| Cost Per Gallon | \$ | 0.22 |

DEBT SERVICE CREDIT

In 2015 the District issued a \$17,000,000 loan with the California State Water Resource Control Board (CSWRCB) to fund a portion of the Wastewater Management Facility (WWMF) Upgrade. Capacity fee criteria require the consideration of debt service credits where expansion related infrastructure is funded with debt. Annual debt service payments associated with the CSWRCB loan are included in user rates for wastewater service. Without consideration of a debt service credit, new customers would be charged twice for this infrastructure, once through the capacity fee and again through user rates which include debt service associated with the WWMF. Figure 3-5 provides the calculations used to develop the debt service credit.



Figure 3-5: Debt Service Credit

| PMT Yr | Year | Principal | New ERUs | System ERUs | Proportion of Debt Paid by New ERUs | Debt Paid by New ERUs |
|------------------------------|------|------------|----------|-------------|-------------------------------------|-----------------------|
| 1 | 2017 | \$ 419,049 | 69 | 6,946 | 0.99% | \$ 4,163 |
| 2 | 2018 | 427,430 | 138 | 7,015 | 1.97% | 8,408 |
| 3 | 2019 | 435,978 | 207 | 7,084 | 2.92% | 12,740 |
| 4 | 2020 | 444,698 | 276 | 7,153 | 3.86% | 17,159 |
| 5 | 2021 | 453,592 | 345 | 7,222 | 4.78% | 21,668 |
| 6 | 2022 | 462,664 | 414 | 7,291 | 5.68% | 26,271 |
| 7 | 2023 | 471,917 | 483 | 7,360 | 6.56% | 30,970 |
| 8 | 2024 | 481,355 | 552 | 7,429 | 7.43% | 35,766 |
| 9 | 2025 | 490,982 | 621 | 7,498 | 8.28% | 40,664 |
| 10 | 2026 | 500,802 | 690 | 7,567 | 9.12% | 45,666 |
| 11 | 2027 | 510,818 | 759 | 7,636 | 9.94% | 50,774 |
| 12 | 2028 | 521,034 | 828 | 7,705 | 10.75% | 55,992 |
| 13 | 2029 | 531,455 | 897 | 7,774 | 11.54% | 61,322 |
| 14 | 2030 | 542,084 | 966 | 7,843 | 12.32% | 66,767 |
| 15 | 2031 | 552,926 | 1,035 | 7,912 | 13.08% | 72,330 |
| 16 | 2032 | 563,984 | 1,104 | 7,981 | 13.83% | 78,015 |
| 17 | 2033 | 575,264 | 1,173 | 8,050 | 14.57% | 83,824 |
| 18 | 2034 | 586,769 | 1,242 | 8,119 | 15.30% | 89,761 |
| 19 | 2035 | 598,505 | 1,311 | 8,188 | 16.01% | 95,828 |
| 20 | 2036 | 610,475 | 1,380 | 8,257 | 16.71% | 102,029 |
| 21 | 2037 | 622,684 | 1,449 | 8,326 | 17.40% | 108,368 |
| 22 | 2038 | 635,138 | 1,518 | 8,395 | 18.08% | 114,847 |
| 23 | 2039 | 647,841 | 1,587 | 8,464 | 18.75% | 121,470 |
| 24 | 2040 | 660,798 | 1,656 | 8,533 | 19.41% | 128,241 |
| 25 | 2041 | 674,014 | 1,725 | 8,602 | 20.05% | 135,163 |
| Total Debt Paid by New ERUs; | | | | | | \$ 1,608,206 |
| % Attributed to Growth | | | | | | 30% |
| Growth related portion | | | | | | \$ 482,462 |
| Gallons of Capacity per Day | | | | | | 530,000 |
| Cost Per Gallon | | | | | | \$ 0.91 |



COST SUMMARY

Figure 3-6 summarizes the demand factors and cost per gallon for additional sewer capacity.

Figure 3-6: Sewer Capacity Fees Demand and Cost Summary

| Demand Summary | Factors | |
|-------------------------------------|----------------|--|
| Daily Consumption (gallons) | 202 | |
| % Discharged | <u>81%</u> | |
| Discharge per Day per ERU (gallons) | 164 | |

| Sewer Cost Summary | Planned | Buy-in |
|--|-----------------|---------------|
| Treatment | \$12.60 | \$9.61 |
| Interceptors | \$0.27 | |
| Collection Lines | \$16.12 | |
| Planning and Study Efforts | \$0.22 | |
| Debt Service Credit | -\$0.91 | |
| Net Capital Cost per Gallon of Capacity | \$37.90 | |
| Joint Costs (per connection) | \$472.27 | |
| Net Capital Cost per Connection | \$472.27 | |



SEWER CAPACITY FEES

Unlike water, meter size is not directly correlated with the sewer discharge (effluent). Consequently, Willdan recommends the District maintain *Rule 21.02*, as ERUs are appropriately utilized to equitably allocate capacity related costs to the impact of a new sewer connection. Using 1 ERU as an example: 164 gallons per peak day per ERU (from Figure 3-6) multiplied by \$37.90 per gallon (net capital cost per gallon - Figure 3-6) equals \$6,216.31 per equivalent residential unit (ERU) plus \$472.27 for a total fee of \$6,689. Please note, an additional \$472.27 related to joint costs (capital cost per connection) is applied only once, not per ERU.

Figure 3-7: Sewer Capacity Fees

| Component Unit Cost | \$22.21 | \$0.27 | \$16.12 | \$0.22 | -\$0.91 | \$472.27 | |
|----------------------|-------------|-------------|-------------|----------------------------|---------------------|---------------------------|----------|
| Component Multiplier | 164 | 164 | 164 | 164 | 164 | 1 | |
| | Treatment | Interceptor | Collection | Planning and Study Efforts | Debt Service Credit | Joint Costs (per account) | Total |
| 1 ERU | \$ 3,641.81 | \$ 43.54 | \$ 2,643.82 | \$ 36.43 | \$ (149) | \$ 472.27 | \$ 6,689 |

Please note, some units maybe credited the treatment buy-in component of the sewer capacity fee (Figure 3-6) or \$1,579 based on previously paid sewer assessments.

FEE PROGRAM ADMINISTRATION

In conjunction with adopting an updated water and sewer fee schedule, we recommend the District apply annual adjustments to the Water and Sewer capacity fees to keep pace with inflation. We suggest using the Engineering News Record construction cost index to best reflect the costs related to capital projects.

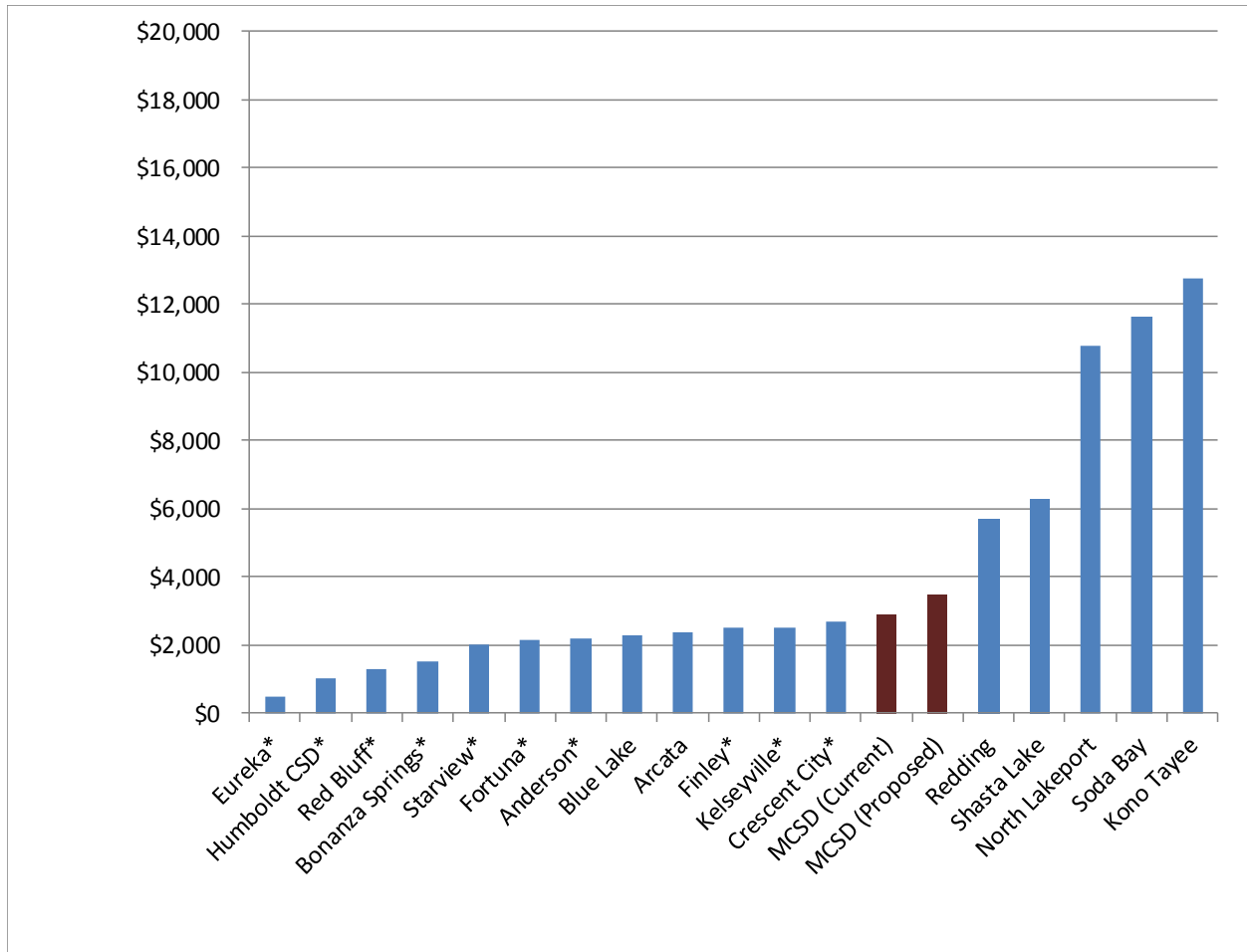
It is also recommended the District adopt a formal policy of updating the water and sewer capacity fees every three to five years to ensure appropriate funding of capital projects and equity amongst users is maintained.



REGIONAL CAPACITY FEE SURVEY

A comparison survey of local and similarly sized agencies is a common tool utilized by policy makers. Figure 4-1 provides a comparison the water capacity fees of a typical new single family home, including the District's current and proposed fees.

Figure 4-1: Water Capacity Fee Comparison

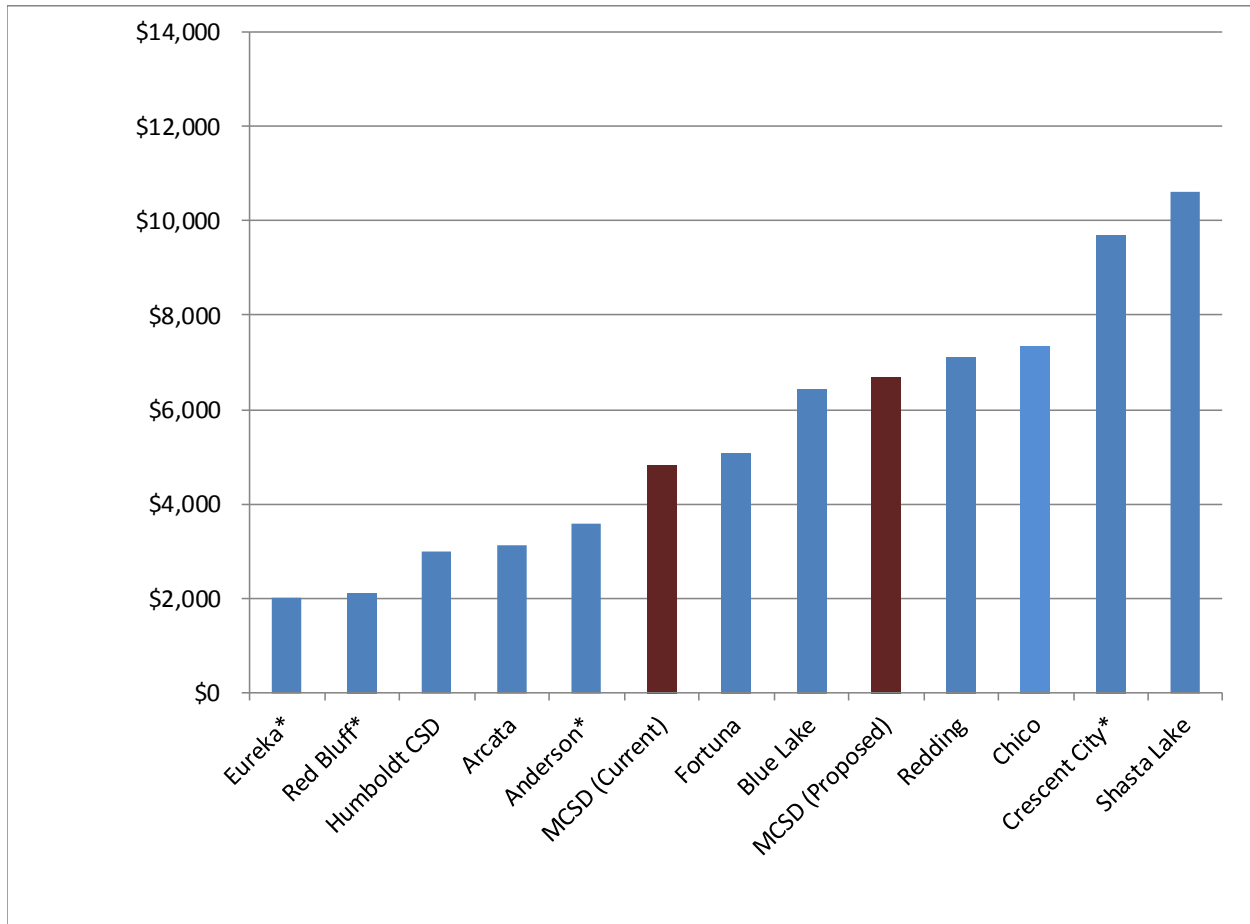


* indicates the systems have not updated the water capacity fee since our previous 2011 capacity fee study.



Figure 4-2 compares the District's current and proposed sewer capacity charges for a typical new single-family home with those of other agencies.

Figure 4-2: Sewer Capacity Fee Comparison



* indicates the systems have not updated the sewer capacity fee since our previous 2011 capacity fee study.

As both graphs demonstrate, the District's existing fees are within the range of fees charged by other systems. The proposed full cost recovery fees also put the District's capacity fees within the range of other systems. Please note, however, capacity charges can vary widely from agency to agency depending on a wide range of factors, such as cost, subsidy, level of service, even the date previous update.

Appendix A

| Water System | Total Cost | Source | Method | % Attributed to Growth ⁽¹⁾ | Cost Attributed to Growth | Component |
|---|-------------------|-----------------|---------------------|---------------------------------------|---------------------------|--------------|
| 4.5 MG New Tank | 5,200,000 | MCS D Draft CIP | Capacity Method (2) | 50% | 2,600,000 | Storage |
| Property Purchase/Improvement | 200,000 | MCS D Draft CIP | Capacity Method (2) | 50% | 100,000 | Storage |
| Water Tank Upgrades | - | MCS D Draft CIP | Capacity Method (2) | 0% | - | N/A |
| Ramey Pump Upgrades | 170,000 | MCS D Draft CIP | New/Existing | 80% | 136,000 | Distribution |
| Emergency Water Supply | 340,000 | MCS D Draft CIP | New/Existing | 50% | 170,000 | Distribution |
| Radio Telemetry Upgrade | - | MCS D Draft CIP | Existing | 0% | - | N/A |
| Meter Reader Upgrade | - | MCS D Draft CIP | Existing | 0% | - | N/A |
| McCluski Tank 3 Roof Upgrade | - | MCS D Draft CIP | New/Existing | 0% | - | N/A |
| Tank Seismic Actuators | 40,000 | MCS D Draft CIP | New/Existing | 30% | 12,000 | Distribution |
| Fire Hydrant System Upgrade | 77,000 | MCS D Draft CIP | New/Existing | 30% | 23,100 | Distribution |
| Water Main Rehabilitation and Replacement | 4,430,000 | MCS D Draft CIP | New/Existing | 50% | 2,215,000 | Distribution |
| Customer Radio Meter Replacements | - | MCS D Draft CIP | Existing | 0% | - | N/A |
| Total Water | 10,457,000 | | | | 5,256,100 | |

(1) "% Attributed to Growth" estimated provided by the District.

(2) The District is installing a new water tank which holds 4.5 million gallons. Per discussions with the District, 50% of the tank is related to growth (2.25 MGD).

Appendix A

| Sewer System (Including Fisher Ranch) | Total Cost | | | % Attributed to Growth | Cost Attributed to Growth | Component |
|---|-------------------|-----------------|--------------|------------------------|---------------------------|----------------------------|
| WWMF Engr Study/NPDES Permitting | 270,000 | MCS D Draft CIP | New/Existing | 30% | 81,000 | Planning and Study Efforts |
| WWMF Upgrade/CEQA/Permitting | 13,460,000 | MCS D Draft CIP | New/Existing | 30% | 4,038,000 | Treatment |
| WWMF Upgrade/CEQA/Permitting (future reg) | 8,000,000 | MCS D Draft CIP | New/Existing | 0% | - | Treatment |
| WWMF Fencing and Gate | - | MCS D Draft CIP | Existing | 0% | - | N/A |
| WWMF SO ₂ /Chlorine Injector Controllers | 40,000 | MCS D Draft CIP | New/Existing | 50% | 20,000 | Treatment |
| WWMF Sludge Disposal & handling | 4,800,000 | MCS D Draft CIP | New/Existing | 30% | 1,440,000 | Treatment |
| Customer Radio Meter Replacements | - | MCS D Draft CIP | Existing | 0% | - | N/A |
| Collection System Upgrades/Expansion | 4,300,000 | MCS D Draft CIP | New | 100% | 4,300,000 | Collection Lines |
| Sewer Main Rehabilitation and Replacement | 3,100,000 | MCS D Draft CIP | New/Existing | 50% | 1,550,000 | Collection Lines |
| Sewer Lift Stn. Pump & Generator Replacement | 160,000 | MCS D Draft CIP | New/Existing | 50% | 80,000 | Interceptors |
| Radio Telemetry Upgrade | - | MCS D Draft CIP | Existing | 0% | - | N/A |
| Meter Replacement: WWMF, FIS | - | MCS D Draft CIP | Existing | 0% | - | N/A |
| WWMF & Fischer Lift Station Grinder Upgrade | 84,000 | MCS D Draft CIP | New/Existing | 20% | 16,800 | Interceptors |
| Sewer Main Camera Unit | 110,000 | MCS D Draft CIP | New/Existing | 20% | 22,000 | Collection Lines |
| Underground Pipe Locater & Camera | 20,000 | MCS D Draft CIP | New/Existing | 30% | 6,000 | Collection Lines |
| SCBA Apparatus and Bottles | - | MCS D Draft CIP | Existing | 0% | - | N/A |
| Fisher Ranch | | | | | | |
| Barn and Fence Upgrades | - | MCS D Draft CIP | Existing | 0% | - | Treatment |
| Irrigation Pipe and Fittings | 40,000 | MCS D Draft CIP | Existing | 50% | 20,000 | Treatment |
| Property purchase | 1,500,000 | MCS D Draft CIP | Existing | 50% | 750,000 | Treatment |
| Reclamation Site Upgrade | 535,000 | MCS D Draft CIP | Existing | 50% | 267,500 | Treatment |
| Underground Valving and Piping | 178,000 | MCS D Draft CIP | Existing | 80% | 142,400 | Treatment |
| Total Sewer | 34,344,000 | | | | 12,733,700 | |

Appendix A

Joint CIP (Heavy Equipment, Utility Vehicles, Office, Corporation Yard & Shops, Computers, Software & Equipment, Small Equipment & Other)

| | | | | | | |
|--|------------------|----------------|--------------|------|------------------|-----|
| Hydrocleaner and appurtenances | 900,000 | MCSD Draft CIP | New/Existing | 20% | 180,000 | N/A |
| Backhoe | 200,000 | MCSD Draft CIP | New/Existing | 20% | 40,000 | N/A |
| Dump Truck | 175,000 | MCSD Draft CIP | New/Existing | 20% | 35,000 | N/A |
| Tractor and Attachments | 130,000 | MCSD Draft CIP | New/Existing | 20% | 26,000 | N/A |
| Air Compressor and appurtenances | 62,000 | MCSD Draft CIP | New/Existing | 20% | 12,400 | N/A |
| Portable Emergency Generators | 90,000 | MCSD Draft CIP | New/Existing | 20% | 18,000 | N/A |
| 3/4 or 1-Ton Pickup | 683,000 | MCSD Draft CIP | New/Existing | 20% | 136,600 | N/A |
| CCTV Truck | 60,000 | MCSD Draft CIP | New/Existing | 20% | 12,000 | N/A |
| Car | 65,000 | MCSD Draft CIP | New/Existing | 20% | 13,000 | N/A |
| Light Duty Utility Truck | 112,000 | MCSD Draft CIP | New/Existing | 20% | 22,400 | N/A |
| Facility Upgrades and Sealcoat | 60,000 | MCSD Draft CIP | New/Existing | 20% | 12,000 | N/A |
| Office Building | 300,000 | MCSD Draft CIP | New/Existing | 80% | 240,000 | N/A |
| Property Purchase | 400,000 | MCSD Draft CIP | New | 100% | 400,000 | N/A |
| Building Roofs | - | MCSD Draft CIP | Existing | 0% | - | N/A |
| PCs, Software, & Printers | 70,000 | MCSD Draft CIP | New/Existing | 30% | 21,000 | N/A |
| File Server Upgrade | 109,000 | MCSD Draft CIP | New/Existing | 30% | 32,700 | N/A |
| MOM Upgrade and Replacement | 125,000 | MCSD Draft CIP | New/Existing | 30% | 37,500 | N/A |
| Office Equipment | 50,000 | MCSD Draft CIP | New/Existing | 20% | 10,000 | N/A |
| GIS/SEMS/CADD Equipment and Software | 40,000 | MCSD Draft CIP | New/Existing | 20% | 8,000 | N/A |
| Misc./ Emergency Equipment Replacement | - | MCSD Draft CIP | Existing | 0% | - | N/A |
| GPS Surveying Equipment | 60,000 | MCSD Draft CIP | New/Existing | 30% | 18,000 | N/A |
| Office Emergency Generator | - | MCSD Draft CIP | Existing | 0% | - | N/A |
| Emergency Generator | 50,000 | MCSD Draft CIP | New/Existing | 50% | 25,000 | N/A |
| Emergency Response Equipment | 50,000 | MCSD Draft CIP | New/Existing | 20% | 10,000 | N/A |
| Joint Total | 3,791,000 | | | | 1,309,600 | |