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## FINAL TECHNICAL MEMORANDUM

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**TO:** FARYAL SAIIDNIA, PROJECT MANAGER, CITY OF MILL VALLEY  
CRAIG TACKABERY, PUBLIC WORKS, CITY OF MILL VALLEY

**FROM:** GREG CLUMPNER, NBS DIRECTOR  
ALLAN HIGHSTREET, NBS PRINCIPAL CONSULTANT  
JORDAN TAYLOR, NBS CONSULTANT

**SUBJECT:** SEWER CAPACITY FEE STUDY FINDINGS

**DATE:** APRIL 27, 2021

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### SECTION 1. INTRODUCTION

#### A. BACKGROUND

The City of Mill Valley (City) retained NBS to conduct a sewer capacity fee study in conjunction with the sewer rate study for two primary reasons: (1) to ensure that the fees are updated to comply with legal requirements and industry standards, and (2) that these fees reflect the cost of capital infrastructure needed to serve new connections, or any person requesting additional capacity in the City’s sewer system (referred to throughout as “future customers”).

California Government Code Section 66013 defines a capacity fee as a one-time “charge for public facilities in existence at the time a charge is imposed or charges for new public facilities to be acquired or constructed in the future that are of proportional benefit to the person or property being charged, including supply or capacity contracts for rights or entitlements, real property interests, and entitlements and other rights of the local agency involving capital expense relating to its use of existing or new public facilities.” It authorizes public agencies to impose capacity fees, which are also called system capacity charges, connection fees, or capital impact fees, on customers connecting to or upsizing their connection to the sewer system, to ensure that they pay their fair share of sewer utility assets, plus the costs of new facilities needed to serve them. In its simplest form, capacity fees are the result of dividing the cost (or value) of the Utility’s current system assets plus planned capital improvements, by the expected number of future customers. As a result, future customers connecting to the City’s sewer utility would enter as equal participants, along with current customers, regarding their financial commitment and obligations to the City.

## SECTION 2. SEWER CAPACITY FEE STUDY

### A. STUDY METHODOLOGY

Capacity fees are one-time fees intended to reflect the cost of existing infrastructure and planned improvements available to new services, and place new utility customers on equal basis from a financial perspective with existing customers. Once new customers are added to the system, they then incur the obligation to pay the same monthly sewer rates that existing customers pay.

Various methodologies have been and are currently used to calculate capacity fees. The most common methodologies are based on the following:

- The value of existing (historical) system assets, often called a “system buy-in” methodology.
- The value of planned future improvements, also called the “incremental” or “system development” methodology.
- A combination of these two approaches.

This analysis uses the “Combination Approach”<sup>1</sup> which requires new customers to pay their fair share of existing system assets and any planned capital improvements that have capacity to serve new customers. In their simplest form, capacity fees are calculated by dividing the costs of infrastructure allocated to future development by the number of units of new development anticipated, further defined as follows:

- The cost of existing assets that have capacity to serve new development are those that can reasonably be allocated to future development.
- The number of new units (i.e., growth) are those units projected to occur within the timeframe covered by the capacity fee analysis.

### B. EXISTING CONNECTIONS AND PROJECTED FUTURE GROWTH

NBS calculated that there are currently about 7,400 equivalent dwelling units (EDU) connected to the sewer utility. An equivalent dwelling unit is defined as the average flow of wastewater produced by a single family residential dwelling unit. In the City’s case, an EDU equates to 200 gallons per day of wastewater flow. **Figure 1** shows the number of current sewer EDU connections by customer class.

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<sup>1</sup> Method of calculating capacity fees (also known as System Development Fees, Connection Fees, Capital Impact Fees) are set forth in the American Water Works Association’s *Principles of Water Rates, Fees and Charges* Seventh Edition (2017) pages 311 to 347.

**Figure 1. Estimated Existing Equivalent Dwelling Units**

Customer Class	Existing Sewer EDUs <sup>1</sup>	Annualized Consumption (CCF)	
		CCF	Basis of Consumption
SINGLE FAMILY RESIDENTIAL <sup>1</sup>	3,583	301,299	Winter Avg
MULTI-FAMILY RESIDENTIAL <sup>1</sup>	2,633	133,698	Winter Avg
COMMERCIAL			
BAR W/O RESTAURANT <sup>2</sup>	4	291	Win/Sum Avg
CAR WASH <sup>2</sup>	20	2,031	Winter Avg
HOSPITAL/CONVALESCENT <sup>2</sup>	86	6,735	Winter Avg
HOTEL W/ DINING <sup>2</sup>	85	3,711	Win/Sum Avg
HOTEL W/O DINING <sup>2</sup>	62	4,461	Win/Sum Avg
LAUNDROMAT <sup>2</sup>	44	3,855	Winter Avg
MARKET W/ GRINDER <sup>2</sup>	0	0	Winter Avg
MARKET W/O GRINDER <sup>2</sup>	148	9,159	Winter Avg
PROFESSIONAL OFFICES <sup>2</sup>	209	19,404	Winter Avg
REPAIR SHOP/SERVICE STATION <sup>2</sup>	13	924	Winter Avg
RESTAURANT/BAKERY <sup>2</sup>	355	15,807	Win/Sum Avg
SCHOOLS <sup>2</sup>	90	8,202	Winter Avg
STORE/RETAIL <sup>2</sup>	105	8,781	Winter Avg
<b>Total</b>	<b>7,438</b>	<b>518,358</b>	

1. Number of Sewer Dwelling Units is based on data provided by MMWD and the SASM agenda packet dated May 21, 2021.

2. Calculated EDU based on flow and BOD/TSS strength factors.

Capacity in the City’s sewer utility is allocated to current and future customers, as shown in **Figure 2**. The City collects and transports all wastewater to the Sewerage Agency of Southern Marin (SASM) where it is treated. The City has a contracted capacity with the treatment plant that was used in the calculation of projecting future customers. The percentage of capacity assigned to current and future customers is based upon the number of equivalent dwelling units that are estimated to connect to full capacity of the contract with SASM.

**Figure 2. Allocation of Capacity to Current and Future Customers**

Demographic Statistics	Existing Total	Projected Service Total <sup>1</sup>	% Allocation Factors		Cumulative Change	
			Existing Customers	New Customers	Number of Units	% Increase
Equivalent Dwelling Units (EDUs)	7,438	9,321	74.7%	25.3%	1,883	25.3%

1. Customer capacity based on the City’s capacity allocation with SASM. Source file: Restated Joint Exercise of Powers 01 27 2000.pdf, pages 8-9, SASM agenda packet from May 21, 2021 and <https://www.cityofmillvalley.org/civicax/filebank/blobdload.aspx?BlobID=23439>

### C. EXISTING AND PLANNED ASSETS

The capital assets addressed in this study include existing assets and planned capital improvements (i.e., the system buy-in). An important aspect of this study is how the value of existing utility assets is determined. This study uses the replacement cost new – less depreciation (RCNLD) approach summarized in **Figure 3** to estimate existing asset values and depreciation, because it provides an up-to-date asset value that reflects estimated cost inflation.<sup>2</sup>

**Figure 3. Summary of Existing Asset Values**

Asset Category <sup>1</sup>	System Buy-In Cost Basis	Allocation Basis (%) <sup>2</sup>		Distribution of Cost Basis (\$)	
		Existing Customers	Future Customers	Existing Customers	Future Customers
<b>Sewer Fund</b>					
Lamphole Replace	\$ 62,850	74.7%	25.3%	\$ 46,936	\$ 15,914
Mains and Piping	22,817,300	74.7%	25.3%	17,039,658	5,777,642
Manhole Replace	1,836,600	74.7%	25.3%	1,371,549	465,051
Pump Station	10,000	74.7%	25.3%	7,468	2,532
Structure Replace	11,825	74.7%	25.3%	8,831	2,994
<b>Total Capital Facilities &amp; Equipment</b>	<b>\$ 24,738,575</b>	<b>74.7%</b>	<b>25.3%</b>	<b>\$ 18,474,441</b>	<b>\$ 6,264,135</b>

1. Source file for City of Mill Valley current assets as of 2020, provided by Shaff and Wheeler: *MillValley\_Sewer\_Assets\_2021\_jt.xlsx*

2. Based on proportionate allocation between existing and future users. See Table 2 in Exhibit 1 for demographic expectations.

The Engineering News Record (ENR) Construction Cost Index and Handy-Whitman Index of Public Utility Construction Costs are cost inflation indices that track construction costs and were used to estimate the replacement value of the City’s existing assets. The replacement cost is calculated by escalating the book value of existing assets (including depreciation) to current-day values using the ENR Construction Cost or Handy-Whitman Index values. The replacement cost was then adjusted using straight line depreciation. For those assets that have exceeded their estimated life but are still in service, it was assumed they would have a cost basis of five percent of their replacement cost. Figure 3 summarizes the system buy-in cost basis by Asset Category for the City.

The asset costs were allocated to current customers based on the 74.7 percent allocation factor previously shown in Figure 2 and the 25.3 percent allocation factor for future customers. Figure 3 also shows the allocation of the \$24.7 million in total existing assets to current and future customers. Future customers are allocated about \$6.2 million of the existing sewer utility assets.

**Figure 4** shows a summary of the City’s future capital projects, all of which are needed to maintain the collection system for current and future customers. Because of this, planned project costs were allocated to current and future users based on the same percentages as shown in Figure 2. For future customers, planned capital asset projects are allocated about \$14.2 million. For a complete list of the City’s planned capital projects, refer to the *Appendix*.

<sup>2</sup> The RCNLD approach was used to estimate all existing asset values, except for land, which does not depreciate.

**Figure 4. Planned Assets Allocated to Current and Future Customers**

Capital Project Description <sup>1</sup>	Future Cost Estimate <sup>1</sup>	System Development Cost Basis <sup>3</sup>	% Allocation		Distribution of Cost Basis (\$)	
			Existing Customers	Future Customers	Existing Customers	Future Customers
Repair of Hotspots and Pipe Rehabilitation	\$ 8,798,685	\$ 8,798,685	74.7%	25.3%	\$ 6,570,742	\$ 2,227,943
Bilthedale	\$ 543,400	\$ 543,400	74.7%	25.3%	\$ 405,804	\$ 137,596
Shelter Bay Sewer Pump Station - Complete Replacement	\$ 1,087,902	\$ 1,087,902	74.7%	25.3%	\$ 812,431	\$ 275,471
Frontage Road Sewer Pump Station - Upgrade	\$ 2,635,861	\$ 2,635,861	74.7%	25.3%	\$ 1,968,426	\$ 667,435
Misc. Generators/Devices Citywide	\$ 634,449	\$ 634,449	74.7%	25.3%	\$ 473,798	\$ 160,651
Annual Sewer Rehabilitation	\$ 553,877	\$ 553,877	74.7%	25.3%	\$ 413,628	\$ 140,249
CCTV Inspections	\$ 5,280,000	\$ 5,280,000	74.7%	25.3%	\$ 3,943,034	\$ 1,336,966
Repairs from CCTV	\$ 14,500,000	\$ 14,500,000	74.7%	25.3%	\$ 10,828,408	\$ 3,671,592
Manhole Replacement	\$ 5,000,000	\$ 5,000,000	74.7%	25.3%	\$ 3,733,934	\$ 1,266,066
Cleanout Replacements	\$ 1,000,000	\$ 1,000,000	74.7%	25.3%	\$ 746,787	\$ 253,213
Annual Flow Monitoring	\$ 1,000,000	\$ 1,000,000	74.7%	25.3%	\$ 746,787	\$ 253,213
GIS Data Management	\$ 1,000,000	\$ 1,000,000	74.7%	25.3%	\$ 746,787	\$ 253,213
Sewer Master Plan	\$ 300,000	\$ 300,000	74.7%	25.3%	\$ 224,036	\$ 75,964
S&W Lower Priority projects (\$14M total)	\$ 14,000,000	\$ 14,000,000	74.7%	25.3%	\$ 10,455,015	\$ 3,544,985
<b>Total</b>	<b>\$ 56,334,174</b>	<b>\$ 56,334,174</b>	<b>74.7%</b>	<b>25.3%</b>	<b>\$ 42,069,616</b>	<b>\$ 14,264,558</b>

1. CIP expenses for FY 2019/20 and FY 2020/21 were provided by the City. Source file: CIP 5 YR BUDGET MILL VALLEY 6-2-20\_ab.xlsx.  
 CIP expenses for FY 2021/22 forward found in source file: MillValley\_SewerCIP\_2021\_2025\_Final.pdf, Table 6, page 20 of pdf.

The City may have additional capital projects that are needed to serve future developments, and the costs of such projects may be recovered through a development agreement. This will be evaluated on a case-by-case basis as part of the development review process.

**D. ADJUSTMENTS TO THE COST BASIS**

The City has the option to reduce the amount of costs to be recovered by the capacity charge by a proportional share of the capital replacement reserves. Government code 66000 does not require this adjustment. The adjustment lowers the amount of dollars collected. It may be more prudent to use the capital reserve as a contingency for changes in future costs. Using the allocations calculated in Figure 2, 25.3 percent of the \$2.8 million unrestricted cash can be credited from the capacity fee calculation. A summary of the calculation of the option for the credit for City cash is shown in **Figure 5**, and future customers can be credited about \$716,000. This credit is not included in the proposed capacity charge in Figure 7.

**Figure 5. Unrestricted Cash Allocated to Future Customers**

Cash Reserves	Beginning Cash <sup>1</sup>	% Allocation		\$ - Allocation	
		Existing Customers	Future Customers	Existing Customers	Future Customers
<b>Un-restricted Reserves</b>					
Operating & Capital Replacement Reserve Fund	\$ 2,829,825	74.7%	25.3%	\$ 2,113,276	\$ 716,549
<b>Total Beginning Cash</b>	<b>\$ 2,829,825</b>	<b>74.7%</b>	<b>25.3%</b>	<b>\$ 2,113,276</b>	<b>\$ 716,549</b>

1. Unencumbered Fund Balance from 6/30/20 Fund balance less CIP carryover encumbrance. From Eric Erikson, 9-22-20 email.

## E. CALCULATED CAPACITY FEES

The sum of the existing and planned asset values (that is, the system buy-in and system development costs), along with the adjustment for cash reserves, defines the total cost basis allocated to future customers as shown in **Figure 6**.

**Figure 6. Summary of Cost Basis Allocated to Future Customers**

<b>System Asset Values Allocated to Future Development</b>	<b>Replacement Cost</b>
<i>Costs Included in Existing System Buy-In:</i>	
Existing Assets	\$ 6,264,135
Planned, Future Capital Projects	14,264,558
Total: Existing & Future System Costs	\$ 20,528,693
<b>Total Cost Basis for New Development</b>	<b>\$ 20,528,693</b>

The Total Adjusted Cost Basis for future customers is divided by the planned customer growth (measured in equivalent dwelling units). This represents the maximum capacity fee that the City can charge per EDU for future customers. The calculation is shown in **Figure 7**.

**Figure 7. Summary of New Base Capacity Charges**

<b>Summary of Capacity Fee Calculation</b>	<b>Adjusted System Cost Basis</b>	<b>Planned Additional Meter Equivalents</b>	<b>Base Capacity Fee per EDU</b>
Sewer Capacity Fee per EDU	\$ 20,528,693	1,883	\$10,900

Sewer capacity fees for commercial, industrial, and institutional use are established per Mill Valley Municipal Code 17.04.080B.4.

## SECTION 3. RECOMMENDATIONS AND NEXT STEPS

### Consultant Recommendations

The following are NBS' recommendations for the City's consideration:

- **Approve and Accept This Study Report:** NBS recommends the City Council formally approve and adopt this report, its recommendations, and accompanying appendix as documentation of the capacity fee analyses and the basis for adopting the capacity fees.
- **Implement Recommended Capacity Fee Charges:** Based on the analyses presented in this report, the City Council should implement the proposed sewer capacity fees shown in Figure 7. These adjustments are structured based on industry standards and are necessary to ensure that the capacity fees that reflect the cost of capacity needed to serve future customers connecting to the City's sewer system.

### Next Steps

**Periodically Review Sewer Capacity Fees** – Any time an Agency adopts new utility rates or capacity charges, those new rates and fees should be closely monitored over the next several years to ensure the revenue generated is sufficient to meet the annual revenue requirements and reviewed to incorporate new capital facility plans and/or significant repair and replacement projects. Changing economic factors, water consumption patterns, new regulatory mandates, and unplanned capital improvements all underscore the need for this annual review.

*Note: The attached Technical Appendix provides more detailed information on the analysis of the sewer capacity fee study summarized in this report.*

### Principal Assumptions and Considerations

In preparing this report and the recommendations included herein, NBS has relied on a number of principal assumptions and considerations with regard to financial matters, number of customer accounts, billing and asset records, planned capital improvements, and other conditions and events that may occur in the future. This information and assumptions were provided by sources we believe to be reliable, although NBS has not independently verified this data.

While we believe NBS' use of such information and assumptions is reasonable for the purpose of this report and its recommendations, some assumptions will invariably not materialize as stated herein or may vary significantly due to unanticipated events and circumstances. Therefore, the actual results can be expected to vary from those projected to the extent that actual future conditions differ from those assumed by NBS or provided to NBS by others.

**APPENDIX – SEWER CAPACITY FEE ANALYSIS**





**CITY OF MILL VALLEY**  
**SEWER CAPACITY FEE STUDY**  
**Demographic Data and Projections**

**TABLE 1 - EXISTING AND PROJECTED SERVICE NUMBERS**

Customer Class	Existing Sewer EDUs <sup>1</sup>	Annualized Consumption	
		CCF	Basis of Consumption
SINGLE FAMILY RESIDENTIAL <sup>1</sup>	3,583	301,299	Winter Avg
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<b>Total</b>	<b>7,438</b>	<b>518,358</b>	

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2. Calculated EDU based on flow and BOD/TSS strength factors.

**TABLE 2 - EXISTING AND PROJECTED SERVICE NUMBERS**

Demographic Statistics	Existing Total	Projected Service Total <sup>1</sup>	% Allocation Factors		Cumulative Change	
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**CITY OF MILL VALLEY**  
**SEWER CAPACITY FEE STUDY**  
**Existing Capital Facilities and Equipment for Consideration (System Buy-In)**

**TABLE 3 - EXISTING ASSETS, ALLOCATION TO EXISTING AND FUTURE CUSTOMERS**

Asset Category <sup>1</sup>	System Buy-In Cost Basis	Allocation Basis (%) <sup>2</sup>		Distribution of Cost Basis (\$)	
		Existing Customers	Future Customers	Existing Customers	Future Customers
<b>Sewer Fund</b>					
Lamphole Replace	\$ 62,850	74.7%	25.3%	\$ 46,936	\$ 15,914
Mains and Piping	22,817,300	74.7%	25.3%	17,039,658	5,777,642
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Pump Station	10,000	74.7%	25.3%	7,468	2,532
Structure Replace	11,825	74.7%	25.3%	8,831	2,994
<b>Total Capital Facilities &amp; Equipment</b>	<b>\$ 24,738,575</b>	<b>74.7%</b>	<b>25.3%</b>	<b>\$ 18,474,441</b>	<b>\$ 6,264,135</b>

1. Source file for City of Mill Valley current assets as of 2020, provided by Shaff and Wheeler: *MillValley\_Sewer\_Assets\_2021\_jt.xlsx*

2. Based on proportionate allocation between existing and future users. See Table 2 in Exhibit 1 for demographic expectations.

CITY OF MILL VALLEY  
 SEWER CAPACITY FEE STUDY  
 Handy-Whitman Categories and Asset Allocation

TABLE 4 - Asset Categories for Inflation

Category	Type of Asset
ENR-LA	<b>Engineering News Record Average Construction Inflation - Los Angeles</b>
ENR-SF	<b>Engineering News Record Average Construction Inflation - San Francisco</b>
	<b>Source of Supply Plant</b>
1	Collecting & Impounding Res.
	<b>Pumping Plant</b>
2	Structures & Improvements
3	Electric Pumping Equipment
	<b>Water Treatment Plant</b>
4	Structures & Improvements
5	Large Treatment Plant Equipment
6	Small Treatment Plant Equipment
	<b>Transmission Plant</b>
7	Steel Reservoirs
8	Elevated Steel Tanks
9	Concrete Reservoirs
10	Cast Iron Mains
11	Steel Mains
12	Concrete Cylinder Mains
	<b>Distribution Plant</b>
13	Mains-Average All Types
14	Cast Iron Mains
15	Cement Asbestos Mains
16	Steel Mains
17	PVC Mains
18	Services Installed
19	Meters
20	Meter Installations
21	Hydrants Installed
	<b>Miscellaneous Items</b>
22	Flocculating Equipment - Installed
23	Clarifier Equipment - Installed
24	Filter Gallery Piping - Installed

**CITY OF MILL VALLEY**

**SEWER CAPACITY FEE STUDY**

**Allocation of Cash Reserves and Outstanding Debt to Existing and Future Services**

**TABLE 5 - ALLOCATION OF CASH RESERVES TO EXISTING AND FUTURE USERS**

Cash Reserves	Beginning Cash <sup>1</sup>	% Allocation		\$ - Allocation	
		Existing Customers	Future Customers	Existing Customers	Future Customers
<b>Un-restricted Reserves</b>					
Operating & Capital Replacement Reserve Fund	\$ 2,829,825	74.7%	25.3%	\$ 2,113,276	\$ 716,549
<b>Total Beginning Cash</b>	<b>\$ 2,829,825</b>	<b>74.7%</b>	<b>25.3%</b>	<b>\$ 2,113,276</b>	<b>\$ 716,549</b>

1. Unencumbered Fund Balance from 6/30/20 Fund balance less CIP carryover encumbrance. From Eric Erikson, 9-22-20 email.

**CITY OF MILL VALLEY**  
**SEWER CAPACITY FEE STUDY**  
**Sewer Planned Capital Facilities and Equipment for Consideration (System Development)**

**TABLE 6 - PLANNED CAPITAL IMPROVEMENT COSTS, ALLOCATED TO EXISTING AND FUTURE CUSTOMERS**

Capital Project Description <sup>1</sup>	Future Cost Estimate <sup>1</sup>	System Development Cost Basis <sup>3</sup>	% Allocation		Distribution of Cost Basis (\$)	
			Existing Customers	Future Customers	Existing Customers	Future Customers
Repair of Hotspots and Pipe Rehabilitation	\$ 8,798,685	\$ 8,798,685	74.7%	25.3%	\$ 6,570,742	\$ 2,227,943
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S&W Lower Priority projects (\$14M total)	\$ 14,000,000	\$ 14,000,000	74.7%	25.3%	\$ 10,455,015	\$ 3,544,985
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CIP expenses for FY 2021/22 forward found in source file: *MillValley\_SewerCIP\_2021\_2025\_Final.pdf*, Table 6, page 20 of pdf.

**CITY OF MILL VALLEY**  
**SEWER CAPACITY FEE STUDY**  
**Unit Cost Calculation**

**TABLE 7 - DEVELOPMENT OF THE COST BASIS FOR NEW CUSTOMERS**

<b>System Asset Values Allocated to Future Development</b>	<b>Replacement Cost</b>
<i>Costs Included in Existing System Buy-In:</i>	
Existing Assets	\$ 6,264,135
Planned, Future Capital Projects	14,264,558
Total: Existing & Future System Costs	\$ 20,528,693
<b>Total Cost Basis for New Development</b>	<b>\$ 20,528,693</b>

**TABLE 8 - DEVELOPMENT OF THE MAXIMUM CAPACITY FEE PER METER EQUIVALENT**

<b>Summary of Capacity Fee Calculation</b>	<b>Adjusted System Cost Basis</b>	<b>Planned Additional Meter Equivalents</b>	<b>Base Capacity Fee per EDU</b>
Sewer Capacity Fee per EDU	\$ 20,528,693	1,883	\$10,900