



February 4, 2021

Mr. Blake Tresan, PE  
General Manager  
Truckee Sanitary District  
12304 Joerger Drive  
Truckee, CA 96161

**Subject:** Truckee Sanitary District Connection Fee Adequacy Analysis Study -Phase 2  
Implementation

Dear Mr. Tresan:

Enclosed please find HDR's draft letter report regarding the second phase, implementation of the connection fee, completed for the District's connection fee adequacy analysis. The second phase of the analysis is a discussion of the implementation of the fee for the District's residential and non-residential customers. The analysis has been prepared using generally accepted financial, rate, and engineering principles.

HDR appreciates the opportunity to assist the District in this matter. We appreciate the assistance provided by District staff in the development of this analysis. We look forward to finalizing the analysis and report for the connection fee adequacy analysis.

Sincerely yours,  
HDR Engineering, Inc.

A handwritten signature in black ink, appearing to read 'Shawn Koorn'.

Shawn Koorn  
Associate Vice President



# Connection Fee Adequacy Analysis Study

## Phase 2 - Allocation

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### 1. Introduction and Overview

The District retained HDR Engineering Inc. (HDR) to review the District's connection fee which has remained unchanged since 1982. The objective of the study is to evaluate the adequacy of the District's existing connection fee schedule and make recommendations for change, if warranted. The analysis was split in two phases (1) the connection fee adequacy analysis for the District, and (2) the allocation of the connection fee to the various customers. Phase 1 of the study evaluated future capacity-related capital costs associated with project buildout flows and calculated the connection fee to be \$1,440 per equivalent dwelling unit (EDU) in 2020 dollars. This letter report summarizes the second phase of the connection fee and reviews how the \$1,440 per EDU can be allocated and implemented for residential and non-residential customers.

### 2. Overview of the District's Present Connection Fees

The District has sewer connection fees in place which are based on the type of connection (residential, restaurant, barber shop, etc.). The District's current ordinance assigns a connection fee according to the type of customer connection based on generally accepted flow assumptions by customer type. Under the District's current ordinance the connection fee and user fee are tied to the type of customer connection, either residential or by type of commercial account.

The District's existing residential sewer connection fee is based on living units. The non-residential customers vary by customer class subcategory based on an equivalent unit ratio to the residential 1 EDU. Most customers are charged on a per unit basis for example, per seat for restaurants or per site for campgrounds. The connection charge analysis (Phase 1) resulted in a calculated recommended sewer connection fee of \$1,440 per EDU. This is a \$690 increase from the current charge of \$750 per EDU established in 1982 ( $\$1,440 - \$750 = \$690$  increase). Shown in Table 1 is a summary of the existing District's sewer connection fees.

**Table 1**  
**District's Existing Sewer Connection Fees**

Type of Connection	Units	Equivalent EDU Ratio (rounded)	Connection Fee Per Unit <sup>[1]</sup>
<b>Residential</b>	Living Unit	1.000	\$750
<b>Non-Residential</b>			
Commercial Establishments (unless otherwise noted below)	# of Plumbing Fixtures Units <sup>[2]</sup>	0.067	\$50.00
Hotel/Motel (w/o Kitchen)	Living Unit	0.270	\$202.50
Hotel/Motel (with Kitchen)	Living Unit	0.350	\$262.50
Campsite (with sewer)	# of Sites	0.250	\$187.50
Campsite (without sewer)	# of Sites	0.190	\$142.50
Markets	# of Plumbing Fixture Units <sup>[2]</sup>	0.067	\$50.00
Laundries	Per # of 10 lb. Machines	0.320	\$240.00
Laundries	Per # of 20 - 50 lb. Machines	0.640	\$480.00
Restaurants & Bars	# of Inside Seats	0.067	\$50.00
Restaurants & Bars	# of Outside Seats	0.033	\$25.00
Restaurants & Bars	# of Banquet Seats	0.024	\$18.00
Theatres	# of Seats	0.010	\$7.50
Churches	# of Seats	0.010	\$7.50
Barber Shops	# of Service Chairs	0.280	\$210.00
Beauty Shops	# of Service Chairs	0.500	\$375.00
Unclassified Service <sup>[3]</sup>	# of Units	0.033	\$25.00
Other	TBD by General Manager	0.016	\$11.90
Temporary Discharge	Per 1,000 Gal.		
Public Schools <sup>[4]</sup>	Per 1,000 Gal.		

[1] Adopted by resolution 2020-102. Fee unchanged since 1982.

[2] Refer to Appendix A-3 of Ordinance 1-2017.

[3] This factor serves as a multiplier to hold the correct values on an account.

[4] Refer to Section 3.12 of Ordinance 1-2017.

### 3. Implementation of District's Connection Fees

The second phase or the implementation of the connection fee will show how the fee per 1 EDU is implemented for residential and non-residential customers. The starting point will be a review of the residential implementation alternatives followed by non-residential implementation alternatives.

#### 3.1. Residential Connection Fee Alternatives

The District's existing residential sewer connection is based on one living unit. Administratively, that is the value of one unit of capacity (i.e., 1 EDU). Currently, the District charges all living units, regardless of the type (i.e., single family or multi-family) or size the same flat connection fee. The

District has expressed the desire to review alternative approaches to this flat method for residential customers.

The following options have been provided for discussion with the Board.

- **Option 1** (Flat Charge) – Maintain the current flat fee structure for residential connections.
- **Option 2** (Multi-family vs. Single-family) – Update residential fee structure to include a single family and multi-family connection. Multi-family would include mobile home, townhomes, apartments, and accessory dwelling units.
- **Option 3** (Charge by Size) – Update residential connection fee structure to be a function of the size of the residential unit.

**Option 1 (Flat Charge)** - The residential fee calculated in Option 1 is based on the current sewer connection fee structure (i.e., the same rate for all residential units). The connection fee under Option 1 is \$1,440 per EDU (living unit).

Table 2 Residential Sewer Connection Fee Option 1		
Type of Connection	Units	Calculated Connection Fee
All Residential	Living Unit	\$1,440

This option keeps the sewer user fee rate structure and connection fee equivalent dwelling ratio the same. Administratively, this is a simpler explanation to the customer and follows the capacity of infrastructure to the available capacity of the customer on a usage basis. By its nature, the flat fee treats all residential connections equally.

**Option 2 (Multi-family vs. Single-family)** - The connection fees calculated for Option 2 differentiates between a single family and multi-family connection. Multi-family units would include mobile home, townhomes, apartments, and accessory dwelling units. Typically, multi-family residential units generate between 75% to 85% of the potential wastewater as a single-family residential unit. If an assumed 80% factor for multi-family to single-family generation is used, the residential connection fee would be \$1,440 for single-family and the multi-family connection fee would be 80% of this or \$1,152 per living unit ( $\$1,440 \times 80\% = \$1,152$ ).

**Table 3**  
**Residential Sewer Connection Fee Option 2**

Type of Connection	Units	Calculated Connection Fee
Residential	Living Unit	\$1,440
Multi-Family (80% of Single-family)	Living Unit	\$1,152

The connection fee under Option 2 is not set based on specific District flow data, but is instead based on industry accepted differentials in sewage generation between the residential and multi-family connections.

**Option 3 (Charge by Size)** – The residential sewer connection fees calculated for Option 3 include a scalable methodology, in this example based on square footage. As the size, measured in square feet, of a residential unit increases there is typically a commensurate increase in the number of bedrooms and bathrooms for the residence. Therefore, from a capacity (sewage generation) standpoint it is reasonable to assume that larger residential units have the potential to generate more wastewater.

Since the historical average size of residential unit of all types (residential, condo, apartment, etc.) in the District is 2,000 square feet, \$1,440 would be charged for this average size residence and less for smaller units and more for larger units. Incorporating a fixed base fee along with the scalable fee is recommended because regardless of the size of the residential unit, there is base minimum flow potential (i.e., all units have a dishwasher, washing machine, bathroom, etc.) that all units have.

To evaluate this option, three alternatives were developed which provide different minimum base charges of \$290 (~20%), \$505 (~35%), and \$720 (~50%). The remaining fee would be charged on a per sq. ft. for conditioned square footage of the living unit. For example, assuming a minimum charge of \$290, and a living unit of 2,000 sq. ft., this would result in a connection fee of \$1,440 ( $\$290 + (\$0.575 \times 2,000 \text{ sq. ft.}) = \$1,440$ ). The scalable charge attempts to represent the differences in capacity for various size living units.

Including a fixed minimum base fee also helps buffer the impact to the District should development trends change and the average size of unit connection go up or down from the historical value of 2,000 square feet.

In the case of home additions, where additional square footage is added to a residence, only the variable component of the connection fee would be used in calculating the additional amount owed as a connection fee. Since small additions may not increase the capacity of residence, previous analysis reports have exempted remodels less than 500 square feet and would recommend the District adopt the same approach and have included this exemption in Table 4.

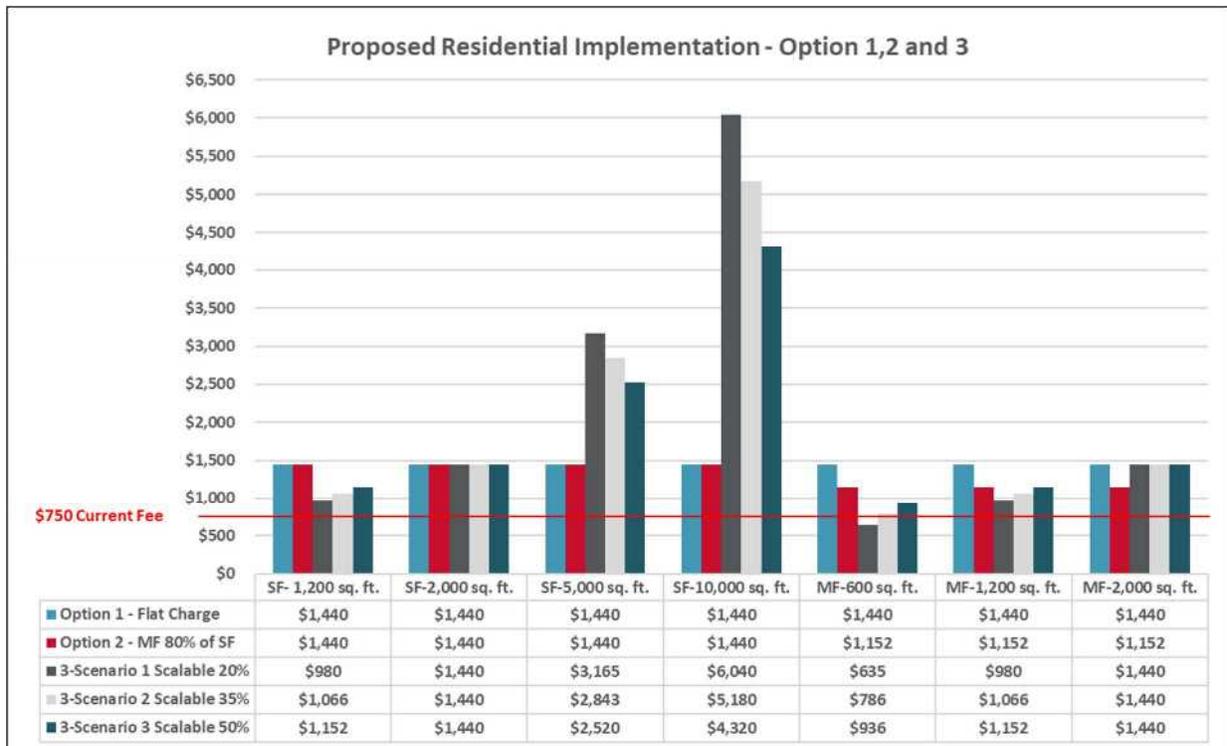
Table 4 provides a summary of the implementation of the connection fee for Option 3.

<b>Table 4</b>			
<b>Residential Sewer Connection Fee Option 3</b>			
<b>Type of Connection</b>	<b>Scenario 1 Calculated Fee</b>	<b>Scenario 2 Calculated Fee</b>	<b>Scenario 3 Calculated Fee</b>
<b>All Residential</b>			
Base charge (% of \$1440)	20%	35%	50%
Base Charge (per living unit)	\$290	\$505	\$720
Plus: Square footage charge	\$0.575	\$0.468	\$0.360
<b>Additions (Not an ADU) to existing homes</b>			
Greater than 500 sq. ft.	\$0.575	\$0.468	\$0.360
500 sq. ft. or less	Exempt	Exempt	Exempt

The connection fee approach under Option 3 is similar to the connection fee approach currently used by the Tahoe Truckee Sanitation Agency (TTSA) and North Tahoe PUD (NTPUD).

A comparison of the three residential implementation alternatives are illustrated in Figure 1 below.

**Figure 1 – Summary of Residential Implementation Alternatives – Option 1, 2 and 3**



Note: Option 3, Scenario 1, 2, 3 minimum \$290, \$505, \$720 respectively

### 3.2. Non-Residential Connection Fee

The non-residential connection fee is based on the type of connection and an equivalency factor based on a ratio of the Residential unit of 1.0 EDU. For this analysis, the District’s current non-residential to residential ratio was compared to industry documents including Metcalf & Eddy, the 1980 EPA Design Manual, Washington State DOH, Ohio EPA, and TTSA. In comparing the District’s current non-residential EDU ratios to other industry EDU ratios, the ratio is near or within the values shown. This is hard to completely evaluate since the industry EDU ratios shown provide a range of data or may include “treatment” factors (e.g., solids, organic matter, salts) within the ratio. The District is a collection and conveyance system whereas the industry ratios include treatment. Since, the District’s current connection fee ratios are typically within the industry values and also tie in the District’s current user fee rate structure, it appears that there is no need to change the current non-residential connection fee EDU ratios. Figure 2 below shows the summary of the EDU ratio comparisons.

**Figure 2 – Summary of EDU Ratio to Other Industry EDU Ratios**

Truckee Sanitary District Summary of EDU Ratio		1 EDU = 230 gpd						
Type of Service	Unit	Present Connection Fee per Unit	TSD Ratio to Residential	Metcalf & Eddy	1980 EPA Design Manual	WA - DOH	Ohio EPA	TTSA
Residential	Per Living Unit	\$750.00	1.00					1.00
Commercial Establishments	# of Plumbing Fixture Units	\$50.00	0.07	0.04	0.02	0.04	0.15	0.18
Hotel/Motel without kitchen	Per Living Unit	\$202.50	0.27	0.23	0.17	0.22		0.50
Hotel/Motel with kitchen	Per Living Unit	\$262.50	0.35	0.26	0.25	0.17	0.43	0.66
Campsite with sewer	# of Sites	\$187.50	0.25	0.17	0.17	0.15	0.38	0.50
Campsite without sewer	# of Sites	\$142.50	0.19	0.07		0.07		0.38
Markets	# of Plumbing Fixtures	\$50.00	0.07	0.04	0.02	0.04	0.15	0.15
Laundries	# of 10 lb Machines	\$240.00	0.32	1.80	2.98	0.22	1.74	0.50
Laundries	# of 20-50 lb Machines	\$480.00	0.64	3.59	5.97	0.43	3.48	1.00
Restaurants/Bars	# of Inside Seats	\$50.00	0.07	0.04	0.02	0.04	0.15	0.10
Restaurants/Bars	# of Outside Seats	\$25.00	0.03	0.02	0.01	0.02	0.08	0.04
Restaurants/Bars	# of Banquet Seats	\$18.00	0.02	0.01	0.01	0.01	0.05	0.04
Theatres	# of Seats	\$7.50	0.01	0.01	0.02	0.02	0.02	0.01
Churches	# of Seats	\$7.50	0.01	0.01	0.02	0.02	0.02	0.01
Barber Shops	# of Service Chairs	\$210.00	0.28					0.30
Beauty Shops	# of Service Chairs	\$375.00	0.50				0.43	0.50
Unclassified Service	# of Units	\$25.00	0.03					
Other	As determined by the General Manager	\$11.90	0.02					
Temporary Discharge	Per 1,000 gallons							
Public Schools	Per 1,000 gallons							

Since the review of non-residential EDU ratios did not indicate any overwhelming needed changes the estimated non-residential sewer connections fees are shown in Table 5 based on the calculated connection fee of \$1,440 per EDU.

**Table 5**  
**Non-Residential Sewer Connection Fee at \$1,440 per EDU**

Type of Connection	Units	Equivalent EDU Ratio	Calculated Fee Per Unit <sup>[1]</sup>
Commercial Establishments (unless otherwise noted below)	# of Plumbing Fixtures Units <sup>[2]</sup>	0.067	\$96.00
Hotel/Motel (w/o Kitchen)	Living Unit	0.270	\$389.00
Hotel/Motel (with Kitchen)	Living Unit	0.350	\$504.00
Campsite (with sewer)	# of Sites	0.250	\$360.00
Campsite (without sewer)	# of Sites	0.190	\$273.50
Laundries	Per # of 10 lb. Machines	0.320	\$461.00
Laundries	Per # of 20 - 50 lb. Machines	0.640	\$921.50
Restaurants & Bars	# of Inside Seats	0.067	\$96.00
Restaurants & Bars	# of Outside Seats	0.033	\$48.00
Restaurants & Bars	# of Banquet Seats	0.024	\$34.50
Theatres/Churches	# of Seats	0.010	\$14.50
Barber Shops	# of Service Chairs	0.280	\$403.00
Beauty Shops	# of Service Chairs	0.500	\$720.00
Unclassified Service <sup>[3]</sup>	# of Units	0.033	\$48.00
Other	TBD by General Manager	0.016	\$23.00
Temporary Discharge	Per 1,000 Gal.		
Public Schools <sup>[4]</sup>	Per 1,000 Gal.		

#### 4. Future Adjustments to the Connection Fee

This study calculated a sewer connection fee based on an industry standard methodology which takes into account the current value of the level of service for the sewer system. The methodology used to calculate the connection fee valued the fee as of 2020. HDR recommends that these charges be adjusted annually by an escalation factor to reflect the cost of inflation. The most frequently used source to escalate a connection fee is the Engineering News Record (ENR) Construction Cost Index (CCI) which tracks changes in construction costs for municipal utility projects.

Typically an ordinance is created amending the sewer connection fees to be updated on an annual basis. Sample language is as follows:

1. That "Exhibit A, Table 1" to the District Sewer ordinance, setting forth Sewer Connection Fees, is hereby amended to read as attached hereto and incorporated herein.
2. The Sewer Connection Fees set forth in said Exhibit A, Table 1 shall be adjusted annually, commencing January 1, 20XX and each January 1 thereafter, to reflect the increase, if any, in the Engineering News Record Construction Cost Index (ENR-CCI) published by the Engineering News Record:  
[https://www.enr.com/economics/historical\\_indices/construction\\_cost\\_index\\_history](https://www.enr.com/economics/historical_indices/construction_cost_index_history) by adding to the then current Sewer Connection Fees an amount obtained by

*multiplying the then current Sewer Connection Fees by the percentage by which the level of the ENR-CCI as last reported immediately prior to said January 1 has increased over its level as last reported immediately prior to the preceding January 1.*

This method of escalating the connection fee is recommended to be reviewed periodically (5 to 10 years) to determine if the District's actual infrastructure construction costs has significantly changed from those included in the connection fee structure. Additionally, changes in capacity-related capital infrastructure needs based on changes in land use should be examined on a similar frequency to see if a revision to the connection fee study is warranted.

## **5. Summary on the Connection Fees**

The connection fees developed and presented in this technical review are based on the planning and engineering design criteria of the District's sewer system, future capital improvements, and generally accepted ratemaking principles. Adoption of the calculated sewer connection fees will create equitable and cost-based charges for new customers connecting to the District's sewer system.