Truckee Sanitary District

Final Report

Truckee Sanitary District

Connection Fee Adequacy Analysis

April 2021

HDR

April 12, 2021

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

Subject: Sewer Connection Fee Adequacy Analysis Study - Final Report

Dear Mr. Tresan:

Enclosed please find HDR's final report regarding the sewer connection fees adequacy analysis for the Truckee Sanitary District (District). The District last updated these fees in 1983. This study reflects the District's required capital improvements to accommodate growth and expansion on the sewer collection system. The development of this report is intended to provide the District with the basis to establish cost-based sewer connection fees. The adoption of final sewer connection fees is a policy decision of the District's Board.

This report has been prepared using generally accepted financial and engineering principles. The District's recent Sewer System Hydraulic Model Update and the District's capital improvement plan were the primary sources for much of the information contained in this report. HDR would recommend that prior to implementing the fees, the fees be reviewed by the District's legal counsel for compliance with California State law.

HDR appreciates the opportunity to assist the District in this matter. We also would like to thank you and your staff for the assistance provided to us. We look forward to future opportunities to work with the District.

Sincerely yours,
HDR Engineering, Inc.

Shawn Koorn
Associate Vice President

929 108th Ave NE, Suite 1300
Bellevue, WA 98004

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Abbreviations and Acronyms

CCI	Construction Cost Index
CIP	Capital Improvement Plan
District	Truckee Sanitary District
ENR	Engineering News Record
EDU	Equivalent Dwelling Unit
Fee	Connection Fee
Fund 4	District's restricted fund for expansion projects
GPD	Gallons Per Day
mg	Million gallons
mgd	Million gallons per day
SDC	System Development Charge (another term for connection fee)

Executive Summary

Introduction

The purpose of connection fees is to fund a fair and proportionate share of capital costs for the District's sewer system. The objective of the connection fee adequacy analysis is to calculate cost-based connection fees for new customers connecting to, or requesting additional capacity to, the District's sewer system. By establishing cost-based sewer connection fees, the District's growth pays for growth by having new customers pay their share of the infrastructure which will serve them, and protect existing customers from the financial impacts of growth.

In compliance with the State's Sewer System Management Plan, in July 2019 the District completed the Sewer System Hydraulic Model Update of the collection system (Carollo Engineering, August 2019, available on District website). The model found that while the existing collection system appears to have capacity to serve the current customer base, the collection system has numerous assets that are not sized sufficiently to serve future buildout flows.

Given this, the District retained HDR Engineering Inc. (HDR) to review the adequacy of 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 and make recommendation for change, if warranted. This analysis is split into two phases (1) the connection fee adequacy analysis for the District, and (2) the District's implementation of the connection fee to the various customers. The analysis provided in this report is based on industry best practices for connection fees, consistent with California law on connection fees, and the District's cost of future improvements to meet system growth and expansion (i.e., new customers).

Overview of the Connection Fee Adequacy Analysis

Consistent with state law, the District charges new customers a connection fee when connecting to the sewer collection system or expanding capacity of an existing connection. Connection fees are retained in a restricted fund (Fund 4) and can only be expended for capital projects that expand the capacity of District facilities (i.e., growth pays for growth). The District last changed connection fees in 1982. District staff have made preliminary estimates of the cost of upsizing facilities to accommodate buildout flows and divided these costs by the number of potential future users and found that the current connection fee does not appear to generate sufficient funds to pay for the upsizing of the required facilities to meet future growth.

The District has sewer connection fees in place which are based on the type of connection (residential, restaurant, hotel/motel, 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 equivalent dwelling units, or EDUs. 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 maximum sewer connection fee of $1,440 per EDU.

Table ES - 1
Present and Calculated Residential Sewer Connection Fee[1] ($ / Unit)

Meter Size	Present Connection Fee	Calculated Connection Fee
Total ($/EDU)	$750	$1,440

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

Table ES - 1 shows the fee per EDU will increase by $690. This difference represents an approximate annual inflation index of 1.73% per year, from 1982 to today. It is an industry practice to adjust these fees annually by the Engineering News Record, Construction Cost Index to keep the value at current day dollars. Based on the 1982 fee of $750 and the annual Engineering News Record, Construction Cost Index (ENR-CCI) for the 20-City average, the fee today would be approximately $2,250 per living unit or a $1,500 increase from the current fee. Section 2 of the report, describes the sewer connection fee calculations in more detail.

Overview of Connection Fee Implementation for Residential and Non-Residential

The second phase, which focuses on the implementation of the connection fee, shows how the fee per 1 EDU is applied to residential and non-residential customers. The analysis reviewed alternatives for both the residential implementation and non-residential implementation customers.

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 were 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. This option calculates a sewer connection fee on a scalable methodology based on the square footage of the residential unit. 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.

Table ES - 2 shows the calculated residential sewer connection fee options. Section 3 of the report, describes the implementation of the sewer connection in more detail.

Table ES - 2
Calculated Residential Sewer Connection Fee Options

OPTION 1		Units	Option 1 Calculated Fee
Residential		Living Unit	$1,440
OPTION 2		**Units**	**Option 2 Calculated Fee**
Residential		Living Unit	$1,440
Multi-Family (80% of SF)		Living Unit	$1,152
OPTION 3	**Scenario 1 Calculated Fee**	**Scenario 2 Calculated Fee**	**Scenario 3 Calculated Fee**
All Residential			
Base charge (% of $1,440)	25%	50%	75%
Base Charge (per living unit)	$360	$720	$1,080
Plus: Square footage charge	$0.540	$0.360	$0.180
Additions (Not an ADU) to existing homes			
Greater than 500 sq. ft.	$0.540	$0.360	$0.180
500 sq. ft. or less [1]	Exempt	Exempt	Exempt

[1] CA Housing and Community Development definition - 500 sq. ft. or less presents no additional stress on utility services or infrastructure

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 such as Metcalf & Eddy, the 1980 EPA Design Manual, and other industry and utility information (See Technical Appendix A-3). In comparing the District's current non-residential EDU ratios to other industry EDU ratios, the ratio is near or within the values reviewed. When evaluating these ratios it is important to understand that the EDU ratios may provide a range of data or may include "treatment" factors (e.g., solids, organic matter, salts) within the ratio. Since, the District's current connection fee ratios are within the industry values and also tie in the District's current user fee rate structure, it is recommended that no changes to the current non-residential connection fee EDU ratios be made.

Given the review of non-residential EDU ratios did not indicate any necessary changes to the calculated non-residential sewer connections fees, based on calculated connection fee of $1,440 per EDU, the non-residential connection fees are shown in Table ES - 3.

Table ES - 3
Present and Calculated Non-Residential Sewer Connection Fee[1] ($ / Unit)

Type of Connection	Units	Equivalent EDU Ratio	Present Fee Per Unit[1]	Calculated Fee Per Unit
Establishments (not noted below)	# of Plumbing Fixtures Units[2]	0.067	$50.00	$96.00
Hotel/Motel (w/o Kitchen)	Living Unit	0.270	$202.50	$389.00
Hotel/Motel (with Kitchen)	Living Unit	0.350	$262.50	$504.00
Campsite (with sewer)	# of Sites	0.250	$187.50	$360.00
Campsite (w/o sewer)	# of Sites	0.190	$142.50	$273.50
Laundries	Per # of 10 lb. Machines	0.320	$240.00	$461.00
Laundries	Per # of 20 - 50 lb. Machines	0.640	$480.00	$921.50
Restaurants & Bars	# of Inside Seats	0.067	$50.00	$96.00
Restaurants & Bars	# of Outside Seats	0.033	$25.00	$48.00
Restaurants & Bars	# of Banquet Seats	0.024	$18.00	$34.50
Theatres/Churches	# of Seats	0.010	$7.50	$14.50
Barber Shops	# of Service Chairs	0.280	$210.00	$403.00
Beauty Shops	# of Service Chairs	0.500	$375.00	$720.00
Unclassified Service[3]	# of Units	0.033	$25.00	$48.00
Other	TBD by General Manager	0.016	$11.90	$23.00
Temporary Discharge	Per 1,000 Gal.			
Public Schools[4]	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.

Future Adjustments to the Connection Fee

The methodology used to calculate the connection fee assumed 2021 construction costs. HDR recommends that the connection fee be adjusted annually by an escalation factor to reflect the change in the cost of construction over time. The most frequently used source to escalate a connection fee is the Engineering News Record (ENR) Construction Cost Index (CCI) based on the 20-City average which tracks changes in construction costs for municipal utility projects. Section 3 of the report provides further detail to this recommendation.

Summary

The options for residential connection fees presented in Table ES-2 were presented and discussed with the Board on March 18th 2021. The Board expressed a preference for the scalable Option 3 approach with a based fee of 80%. This would be $1,152 base charge ($1,440 X 80% = $1,152). The remaining fee would be charged on a per square footage of the living unit. For example, assuming a minimum charge of $1,152, and a living unit of 2,000 sq. ft., this would result in a connection fee of $1,440 ($1,152 + ($0.144 X 2,000 sq. ft.) = $1,440).

Table ES - 4
Board Recommended Non-Residential Sewer Connection Fee[1] ($ / Unit)

OPTION 3	Scenario 3 Calculated Fee
All Residential	
Base charge (% of $1,440)	80%
Base Charge (per living unit)	$1,152
Plus: Square footage charge	$0.144
Additions (Not an ADU) to existing homes	
Base charge	Exempt
Additions greater than 500 sq. ft. ($/ft^2)	$0.144
500 sq. ft. or less [1]	Exempt

In developing the connection fees for the District a number of key assumptions were utilized. These are as follows:

- The methodology used is the incremental methodology which is based on future projects.
- The base year for calculations is 2021.
- The number of District EDU's at buildout included potential sewer service to all properties in the District's service area, sphere of influence, and areas of concern as defined by the Nevada County Local Area Formation Commission (LAFCo.).
- The District's Sewer System Hydraulic Model was used to determine capacity-related capital improvements for sewer pipes and lift station facilities.
- District staff estimated the future building and fleet expenditures that were growth related.

The connection fees developed and presented in this report are based on the planning and engineering design criteria of the District's sewer system, future capital improvements, and generally accepted rate and fee principles.

Disclaimer

HDR, in its calculation of the connection fees for the District, as presented in this report, has used generally accepted engineering and rate and fee principles[1]. This should not be construed as a legal opinion with respect to California State law. HDR recommends that the District have its legal counsel review the connection fees as set forth in this report to ensure compliance with California State law.

[1] Principles established in industry documents referenced as System Development Charges for Water, Wastewater, and Stormwater Facilities, by Arthur C. Nelson; and WEF Manual of Practice No. 27, Financing and Charges for Wastewater Systems, Fourth Edition.

1.0 Introduction and Overview

1.1 Introduction

The purpose of connection fees is to fund a fair and proportionate share of capital costs for the District's sewer system. The objective of the connection fee adequacy analysis is to calculate the cost-based charges for new customers connecting to, or requesting additional capacity on, the District's sewer system. By establishing cost-based connection fees, the District's growth pays for growth by having new customers pay their share of the infrastructure in place which will serve them, thereby shielding existing customers from the financial impacts of growth.

The sewer connection fees were last updated in 1982. General industry recommendations are to adjust these charges annually based on changes in construction costs, and to update the charges every three to five years, or when comprehensive planning documents for the system have been updated. The District recently completed the Hydraulic Model Update of the collection system which outlined the need for future expansion related projects. Given the analyses completed by the District over the last several years, a review of the connection fees is prudent at this time to determine parity between existing and new District customers.

1.2 Defining Sewer Connection Fees

The first step in establishing cost-based connection fees, sometimes referred to as system development charges (SDC), is to gain a better understanding of the definition of a connection fee. For the purposes of this analysis, a connection fee (or system development charge) is defined as follows:

> *"System development charges are one-time charges paid by new development to finance construction of public facilities needed to serve them."*[2]

Connection fees are generally imposed as a condition of service. The objective of connection fees is not to generate revenue for the utility, but to create a fiscal balance between existing customers and new customers. In this way, all customers seeking to connect to the utility's system bear an equitable share of the cost of capacity that is invested in both the existing and any future growth-related expansions. Through the implementation of equitable and cost-based connection fees, existing customers will not be burdened with the cost of new development (e.g., system expansion). If cost-based connection fees are not implemented, then existing utility customers will bear (i.e., pay for) a significant portion of the costs associated with new development. Ultimately, the adoption of the final connection fees is a policy decision by the District Board regarding the sharing of costs between new development and existing customers.

1.3 Requirement Under California State Law

In establishing connection fees, an important requirement is that they be developed and implemented in conformance with State and local laws. California law provides the basis for the

[2] Arthur C. Nelson, System Development Charges for Water, Sewer, and Stormwater Facilities, Lewis Publishers, New York, 1995, p. 1,

determination of connection fees through a uniform framework for the imposition of connection fees by local governments. Specifically, the requirement for the calculation of connection fees in California are found in the California Government Code sections 66013, 66016, and 66022, which are interspersed within the 'Mitigation Fee Act'.

A summary of the relevant statutes required in the calculation of connection fees (or capacity charges) under California law is as follows:

> "66013 (a) Notwithstanding any other provision of law, when a local agency imposes fees for water connections or sewer connections, or imposes capacity charges, those fees or charges shall not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed, unless a question regarding the amount of the fee or charge imposed in excess of the estimated reasonable cost of providing the services or materials is submitted to, and approved by, a popular vote of two-thirds of those electors voting on the issue."
>
> "66013 (b) (3) 'Capacity charge' means a 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. A "capacity charge" does not include a commodity charge."

In addition to the determination of "the estimated reasonable cost of providing the service for which the fee is imposed," California law also requires the following:

- That notice (of the time and place of the meeting, including a general explanation of the matter to be considered) and a statement that certain data is available be mailed to those who filed a written request for such notice,
- That certain data (the estimated cost to provide the service and anticipated revenue sources) be made available to the public,
- An opportunity for public input at an open and public meeting to adopt or modify the fee, and
- That revenue in excess of actual cost be used to reduce the fee creating the excess.

In 1996, the voters of California approved Proposition 218, which required that the imposition of certain fees and assessments by municipal governments require a vote of the people to change or increase the fee or assessment. In Richmond v. Shasta Community Services Dist., 32 Cal.4th 409 (2004), the California Supreme Court held that capacity charges are not "assessments" under Proposition 218 because they are imposed only on those who are voluntarily seeking water and sewer service, rather than being charged to particular identified parcels, and therefore such fees are not subject to the procedural or substantive requirements of Proposition 218. The court also held that such fees can properly be enacted by either ordinance or resolution.

In November 2010 the voters of California passed Proposition 26, an initiative based state constitutional amendment that provided a new definition of the term "tax" in the California Constitution. Under Proposition 26 a fee or charge imposed by a public agency is a tax unless it meets one of seven exceptions. "Connection fees" would be included within exceptions 1 and/or 2. These two exception note that the connection fee or charge is:

(1) "A charge imposed for a specific benefit conferred… directly to the payor that is not provided to those not charged, and which does not exceed the reasonable cost to the local government of conferring the benefit…,"

(2) "A charge imposed for a specific government service… directly to the payor that is not provided to those not charged, and which does not exceed the reasonable cost to the local government of providing the service or product."

In the case of the District's connection fee, the District does not charge one fee payer more in order to charge another fee payer less (i.e., a cross-subsidy), and it does not exceed the reasonable costs to the local government of providing the service. Given this, the fee is not a tax within the meaning of Proposition 26.

In simplified terms, the basic principle that needs to be followed under California law is that the connection fee be based on a proportionate share of the costs of the system required to provide service and that the requirements for adoptions and accounting be followed in compliance with California law.

1.4 Methodology to Development of Connection Fees

In establishing connection fees, there are various approaches that can be used depending on the available capacity in the utility (i.e., ability to meet future customer demands). The AWWA M-1 Manual discusses three generally accepted connection fees methods:

- "The ***buy-in method,*** is based on the value of the existing system's capacity. This method is typically used when the existing system has sufficient capacity to serve new development now and into the future.
- The ***incremental cost method,*** is based on the value or cost to expand the existing system's capacity. This method is typically used when the existing system has limited or no capacity to serve new development now and into the future.
- The ***combined approach*** is based on a blended value of both the existing and expanded system's capacity. This method is typically used where some capacity is available in parts of the existing system (e.g., treatment), but new or incremental capacity will need to be built in other parts (e.g., lift station) to serve new development at some point in the future."[3]

The District's sewer system is essentially built-out and in addition a majority of the District's existing facilities were funded from assessments, prior connection fee revenues, or dedicated by developers at no cost to the District. Therefore, the incremental approach is the approach that best fits the District's expansion of facilities given the impacts of growth outlined in the Hydraulic Model Update.

[3] AWWA M-1 Manual, p 6th Edition, p. 265-266.

Within the generally accepted connection fee methodologies[4], there are a number of different steps used to establish cost-based and equitable connection fees. These steps are as follows:

Step 1 - Determination of system planning criteria

Step 2 - Determination of equivalent dwelling units (EDUs)

Step 3 – Valuation of system component costs

Step 4 - Determination of any credits

Step 1 – Determination of System Planning Criteria

The first step in establishing connection fees is the determination of the system planning criteria. This implies calculating the amount of capacity required by a single-family residential customer. The use of an adopted facility plan or master plan for the utility provides the basis for the connection fee system planning criteria. These planning documents provide the rational planning basis and criteria for the facilities and investment needed to properly and adequately operate and maintain the system. Generally for a wastewater system the planning criterion is the average usage per EDU. The District's Standard Specifications, Code Book, and Capital Improvement Plan resulting from the Hydraulic Modelling are the documents and information that are referenced for the determination of the system planning criteria.

Step 2 – Determination of Equivalent Dwelling Units (EDU)

The next step is the determination of the equivalent dwelling units or EDUs. An EDU provides a "common denominator" for assessing impact on a utility system. The determination of the total system EDUs is an important calculation in that it provides the linkage between the amounts of infrastructure necessary to provide service to a set number of customers. This implies that if the system is designed to provide service for demands up to the year 2070, then the infrastructure costs are divided by the additional EDUs projected to be connected by 2070 to determine the equitable and proportionate cost per EDU.

Step 3 – Valuation of System Component Costs

The next step in the analysis is to determine the valuation of the system infrastructure. The incremental method is based on future expansion-related capital projects, based on an adopted capital plan or master plan and valued at today's cost, regardless of the timing of when the facility will be built. The expansion component is related only to future capital projects which provide an expansion of capacity to accommodate future growth.

Given a value for capacity and the number of equivalent capacity units, the basic formula for calculating the connection fee is relatively straight-forward, and is as follows:

$$\frac{\text{System Value (Capacity Cost \$)}}{\text{System Capacity (Equivalent Dwelling Units)}} = \text{Connection Fee(\$) per Equivalent Dwelling Unit}$$

[4] Methodologies established in industry documents referenced as System Development Charges for Water, Wastewater, and Stormwater Facilities, by Arthur C. Nelson; and WEF Manual of Practice No. 27, Financing and Charges for Wastewater Systems, Fourth Edition

In the determination of the connection fee, the cost per equivalent dwelling unit as shown above is the "gross connection fee". The "gross connection fee" is calculated before any credits.

Step 4 – Determination of Any Credits

The last step in the calculation of the connection fee is the determination of any credits. The documentation for credits is referenced through the District's financial records for cash reserves. This is a calculation so that collected funds to date are offset against the future capital projects. This results in a net connection fee stated in dollars per EDU. The general basis of this calculation is the assumption that an EDU is equivalent to a typical residential customer.

1.5 Summary

This section of the report has defined sewer connection fees; provided an overview of the requirements under California state law, the connection fee approach which must be established between new development and the new or expanded facilities required to accommodate new development, and appropriate apportionment of the cost to the new development in relation to benefits reasonably to be received. The next section of the report will provide a discussion of the calculation of the District's sewer connection fee.

2.0 Development of the Sewer Connection Fees

2.1 Introduction

This section of the report presents the key assumptions and details used in calculating the District's sewer connection fees. The calculation of the District's sewer connection fees is based on District-specific planning and engineering information. The incremental cost methodology was the approach applied to the sewer connection fee calculation. The fee is based on the value or cost to expand the existing system's capacity.

2.2 Overview of the District's Sewer System

The Truckee Sanitary District (District) was formed in 1906 and currently serves approximately 13,000 customers, of which 90% are residential, within a 39 square mile service area. The District is responsible for the collection and conveyance system which conveys wastewater through a collection system consisting of approximately 230 miles of sewer mainlines and 43 pump stations.

In compliance with the State's Sewer System Management Plan, in July 2019 the District completed the Sewer System Hydraulic Model Update of the collection system. The model found that while the existing collection system appears to have capacity to serve the current customer base, the collection system has numerous assets that are not sized sufficiently to serve future buildout flows.

The District has not changed connection fees since 1982. The District's sewer system is essentially built-out and in addition a majority of the District's existing facilities were funded from assessments or dedicated by developers at no cost to the District. Therefore, the incremental approach is the approach that best fits the District's expansion of facilities given the impacts of growth outlined in the Hydraulic Model Update.

2.3 Present Sewer Connection Fee

The District has sewer connection fees in place which are based on type of connection. The District's existing residential sewer connection fee is based on living units. Shown in Table 2-1 is a summary of the existing District's residential sewer connection fees.

Table 2 - 1
Existing Residential Sewer Connection Fee [1]

Type of Connection	Units	Connection Fee
Residential	Living Unit	$750

[1] Connection fees adopted by Resolutions 2020-102. Fee unchanged since 1982.

The existing non-residential sewer connection fee is based on type of connection and service units. Table 2-2 below shows connection fees for non-residential.

Table 2 - 2
Existing Non-Residential Sewer Connection Fee

Type of Connection	Units	Equivalent EDU Ratio	Connection Fee Per Unit[1]
Non-Residential			
Commercial Establishments			
(unless otherwise noted below)	# of Plumbing Fixtures Units[2]	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
Laundries	Per # of 10 lb. Machines	0.320	$240.00
	Per # of 20 lb. – 50 lb. Machines	0.640	$480.00
Restaurants & Bars	# of Inside Seats	0.067	$50.00
	# of Outside Seats	0.033	$22.00
	# of Banquet Seats	0.024	$18.00
Theatres/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[3]	# of Units	0.033	$25.00
Other	TBD by General Manager	0.016	$11.90
Temporary Discharge	Per 1,000 Gal.		
Public Schools[4]	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.

2.4 Calculation of the District's Connection Fees

The District's system consists of collection and conveyance of wastewater within the greater Truckee area. The District's system planning criteria were based on the recent sewer system hydraulic model update. The update included a trigger analysis to help the District track the timing of future system improvements. These future projects are the focus of the adequacy of connection fee analysis.

As discussed in Section 1, the process of calculating connection fees is based on a four-step process. In summary form, these steps are as follows:

- Determination of system planning criteria
- Determination of equivalent dwelling units (EDUs)
- Valuation of system component costs
- Determination of any credits

Each of these steps is discussed in more detail below.

2.4.1 System Planning Criteria and Equivalent Dwelling Units

Future buildout EDUs were based on the current Town of Truckee, Nevada County and Placer County zoning, buildout and connection of parcels in the District service area, sphere of influence, and areas of concern (2013 Truckee Sanitary District Sphere of Influence Plan, available on the Nevada County LAFCO website). These results were used in the 2019 Sewer System Hydraulic Model Update, were used to establish the existing and future equivalent residential units (EDUs). The future buildout EDUs of 28,478 less the existing of 16,201 EDUs, results in an estimated 12,277 in future EDUs. A summary of the system criteria is presented in Table 2-3.

Table 2 - 3
Connection Fee – Equivalent Dwelling Units (EDUs)

Description	Criteria
Existing EDUs [1]	16,201
Future EDUs	12,277
Total EDUs [2]	**28,478**

[1] Existing EDUs from 2019 Sewer System Hydraulic Model Update page 11 with 2017 to 2020 added.
[2] Total EDUs buildout from 2019 Sewer System Hydraulic Model Update page 9.

Given the development of the wastewater system EDUs for the planning period, the focus can shift to the calculation of the connection fee for each functional component (e.g., collection, lift station) of the system.

2.4.2 Calculation of the Sewer Connection Fee – Future Components

An important requirement for a connection fee study is the connection between the anticipated future growth on the system and the needed facilities required to accommodate that growth. For purposes of this study, the District's Sewer System Hydraulic Model outlined the future improvements necessary to meet growth on the system. Four key areas of infrastructure were identified for expansion: collection pipes, lift stations, facilities, and fleet. District staff reviewed the existing capital improvement plan (CIP) and updated the projects necessary to meet future demands on the wastewater system. The collection pipes and lift stations were based on the recently hydraulic model analysis update. The facilities and fleet were based on fleet and corporate yard facility expansion costs provided by the District (See Technical Appendix A-2).

The District's estimated collection pipes and lift stations that are capacity constrained as based on the Sewer System Hydraulic Model update are estimated to be $10.5 million in collection pipes and $1.8 million in lift stations over the buildout period (See Technical Appendix A-1).

The District owns, operates, and maintains a corporation yard consisting of an Administration Building, Field Operations Building, Vehicle Maintenance Building, Vehicle Storage Facility, Aggregate Storage Structure, Fueling station and associated site and facility appurtenances. The total value of the Districts' facilities is estimated to be approximately $19.0 million. The capital cost of expanding these facilities to meet buildout is estimated to be approximately $5.5 million over the next 50 years.

The District owns, operates, and maintains a fleet of 51 vehicles and equipment purchased for approximately $3.0 million with a current replacement value of approximately $4.0 million. As the District grows from its existing customer base of approximately 16,201 EDUs to a buildout of 28,478 EDUs, the fleet will need to be expanded to serve the needs of the community. This is estimated to be approximately $1.2 million over the next 50 years.

The total future growth/expansion related projects from 2021 to 2070 (50 years) was estimated to be $19.1 million. This averaged $384,000 in CIP annually over the time period. Table 2-4 details the future projects. Detail of these projects by decade can be found in A-4, Exhibit 2 of the Technical Appendix.

Table 2 - 4
Connection Fee – Summary of Future Projects (2021 – 2070)

Project Description	Total
Collection System	$10,539,603
Lift Stations	1,888,820
Facility	5,528,247
Fleet	1,228,501
Total Projects	**$19,185,171**

As noted, the District developed the cost estimates for the projects. As part of this study, HDR engineering staff worked with the District and reviewed the cost projections. The HDR review confirmed the projections of project costs reflected generally accepted industry standard approaches[5].

2.4.3 Calculation of the Sewer Connection Fee – Credit Components

The last step in the calculation of the connection fee is the determination of any credits. This is generally a calculation to assure that collected funds to date are offset against the future capital projects. Connection fees collected by the District are placed in a restricted fund (Fund 4) which can only be used for capital expenditures that increase the capacity of the District. The projected Fund 4 cash balance is $1.5 million.

While not included in the analysis, the District also has an asset renewal and replacement plan that outlines the future replacement of the existing system. Given that the replacement of existing assets, that have capacity available, are eligible to be included in the fee, HDR and the District evaluated the methodology and approach of including these assets. However, in discussion with District staff, it was determined that these future renewal and replacement would not be included in the analysis at this time. As the District continues to review and

[5] Industry standard approached established in industry documents referenced as System Development Charges for Water, Wastewater, and Stormwater Facilities, by Arthur C. Nelson; and WEF Manual of Practice No. 27, Financing and Charges for Wastewater Systems, Fourth Edition

evaluate the connection fee methodology and approach, and renewal and replacement capital improvements are further identified and reviewed, they may be included.

2.5 Net Maximum Allowable Connection Fee

The District, as a matter of policy, may charge any amount up to the net maximum allowable connection fee, but not over that amount. Charging an amount greater than the net maximum allowable connection fee would not meet the nexus test of a cost-based connection fee related to the benefit derived by the customer. Total future plant of $19.1 million, less Fund 4 projected balance of $1.5 million, or a net of $17.6 million in future system projects ($19.1 - $1.5 = $17.6) to be included in the connection fee calculation. Based on the sum of the component costs calculated above, the net maximum allowable connection fee is $1,440. Table 2-5 shows the summary of the connection fee by component. Further details can be found in A-4, Exhibit 1 of the Technical Appendix.

Table 2 - 5
Connection Fee – Net Maximum Allowable Connection Fee ($/EDU)

Description	Estimated Cost ($)		Future EDUs		Calculated $ Cost per EDU
Future					
Collection Pipes	$10,539,603	÷	12,277	=	$858.48
Lift Stations	1,888,820	÷	12,277	=	153.85
Facilities	5,528,247	÷	12,277	=	450.29
Fleet	1,228,501	÷	12,277		100.07
Total Future Projects	$19,185,171				$1,562.69
Less: Projected Fund 4 Balance	(1,507,000)	÷	12,277		(122.75)
Total Future System	$17,678,171				**$1,439.94**
Rounded Connection Fee ($/EDU)					**$1,440.00**

Table 2-6 shows the calculated connection fee per EDU for the current and calculated connection fee. A detail of the net allowable connection fee for the District is shown in A-4 of the Technical Appendix.

Table 2 - 6
Connection Fee per EDU (1 EDU)

Meter Size	Current Connection Fee	Calculated Connection Fee
Per 1 EDU	$750	$1,440

Table 2-6 shows the fee per one living unit will increase by $690 ($1,440 - $750). This difference represents an approximate annual inflation index of 1.73% per year from 1982 to today. It is an industry practice to adjust these fees annually by the Engineering News Record, Construction Cost Index to keep the value at current day dollars. Based on the 1982 fee of $750 and the annual

Engineering News Record, Construction Cost Index (ENR-CCI) for the 20-City average, the fee today would be approximately $2,250 per living unit or a $1,500 increase from the current fee.

2.6 Key Assumptions

In developing the connection fees for the District a number of key assumptions were utilized. These are as follows:

- The methodology used is the incremental methodology which is based on future projects.
- The base year for calculations is 2021.
- The District's most recent planning documents were used as system planning criteria.
- The District's Sewer System Hydraulic Model provided the future capital improvement projects.
- The District determined the portion of future capital improvements projects that were growth related.

2.7 Summary

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

This section of the report discussed the results of the first phase of the connection fee adequacy analysis study, the calculated connection fee per 1 EDU. The second phase or the implementation of the connection fee will follow in Section 3 of this report. The implementation will show how the fee per 1 EDU is applied and collected for residential and non-residential customers.

3.0 Sewer Connection Fees and Implementation

3.1 Introduction

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.

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 second phase of the connection fee reviews how the $1,440 per EDU can be allocated and implemented for residential and non-residential customers.

3.2 Residential Connection Fee

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 3 - 1 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 X 80% = $1,152).

Table 3 - 2 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 that all units have (i.e., almost all units regardless of size have a kitchen, bathroom, dishwasher, washing machine, etc.).

To evaluate this option, three alternatives were developed which provide different minimum base charges of $360 (~25%), $720 (~50%), and $1,080 (~75%). 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 $360, and a living unit of 2,000 sq. ft., this would result in a connection fee of $1,440 ($360 + ($0.540 X 2,000 sq. ft.) = $1,440). The scalable charge represents 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. As noted by the California Housing and Community Development definition, 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 included this exemption in Option 3. Table 3-3 provides a range of values for illustrative purposes for the implementation of the connection fee for Option 3. A more detailed summary of Option 3 is provided in A-5, of the Technical Appendix.

Table 3 - 3
Residential Sewer Connection Fee Option 3

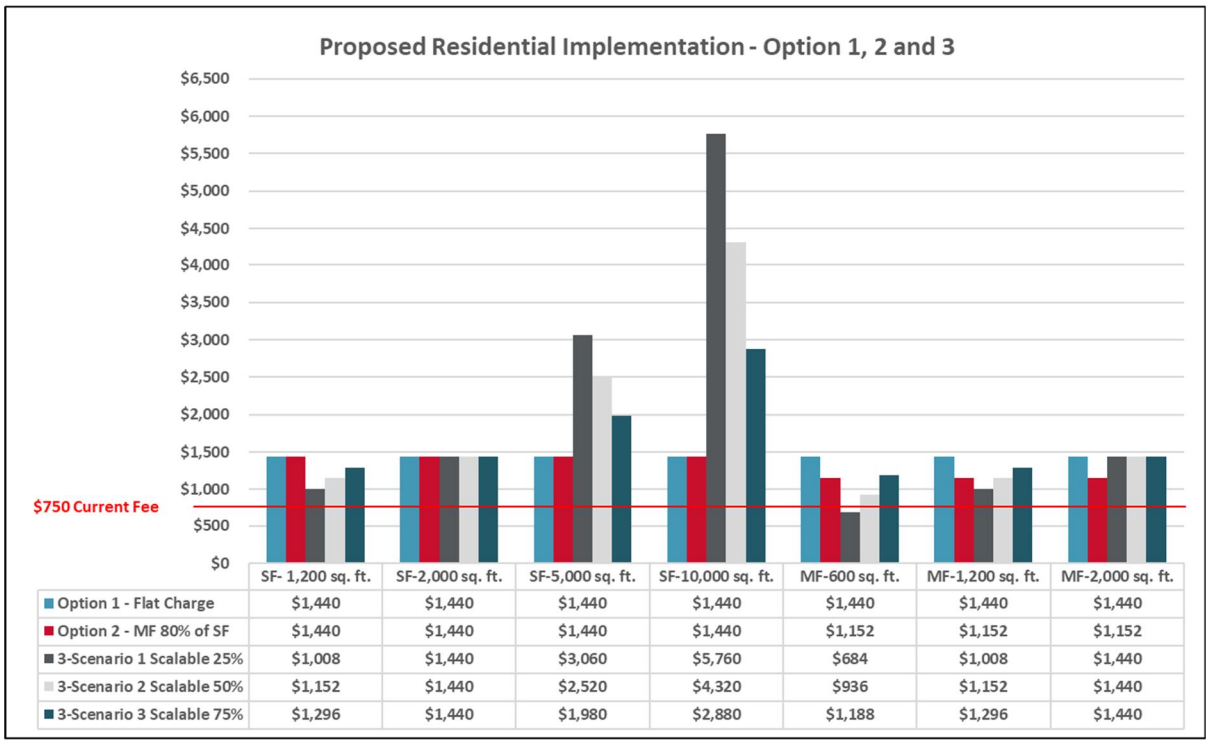
Type of Connection	Scenario 1 Calculated Fee	Scenario 2 Calculated Fee	Scenario 3 Calculated Fee
All Residential			
Base charge (% of $1,440)	25%	50%	75%
Base Charge (per living unit)	$360	$720	$1,080
Plus: Square footage charge	$0.540	$0.360	$0.180
Additions (Not an ADU) to existing homes			
Base charge	Exempt	Exempt	Exempt
Additions greater than 500 sq. ft.($/ft^2)	$0.540	$0.360	$0.180
500 sq. ft. or less [1]	Exempt	Exempt	Exempt

[1] CA Housing and Community Development definition - 500 sq. ft. or less presents no additional stress on utility services or infrastructure

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



	SF- 1,200 sq. ft.	SF-2,000 sq. ft.	SF-5,000 sq. ft.	SF-10,000 sq. ft.	MF-600 sq. ft.	MF-1,200 sq. ft.	MF-2,000 sq. ft.
Option 1 - Flat Charge	$1,440	$1,440	$1,440	$1,440	$1,440	$1,440	$1,440
Option 2 - MF 80% of SF	$1,440	$1,440	$1,440	$1,440	$1,152	$1,152	$1,152
3-Scenario 1 Scalable 25%	$1,008	$1,440	$3,060	$5,760	$684	$1,008	$1,440
3-Scenario 2 Scalable 50%	$1,152	$1,440	$2,520	$4,320	$936	$1,152	$1,440
3-Scenario 3 Scalable 75%	$1,296	$1,440	$1,980	$2,880	$1,188	$1,296	$1,440

Note: Option 3, Scenario 1, 2, 3 minimum $360, $720, $1,080 respectively

3.3 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 such as Metcalf & Eddy and the 1980 EPA Design Manual, along with other industry and utility approaches. In comparing the District's current non-residential EDU ratios to other industry EDU ratios, the ratio is near or within the values shown. It is important to note that the industry EDU ratios provide a range of data or may include "treatment" factors (e.g., solids, organic matter, salts) within the ratio. 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 is recommended that no changes to the current non-residential connection fee EDU ratios is necessary. Detail of this analysis can be found in A-3 of the Technical Appendix.

Since the review of non-residential EDU ratios did not indicate any overwhelming needed changes the calculated non-residential sewer connections fees are shown in Table 3-4 based on the calculated connection fee of $1,440 per EDU.

Table 3 - 4 Calculated Non-Residential Sewer Connection Fee ($ / Unit)			
Type of Connection	Units	Equivalent EDU Ratio	Calculated Fee Per Unit
Commercial Establishments (unless otherwise noted below)	# of Plumbing Fixtures Units	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[3]	# of Units	0.033	$48.00
Other	TBD by General Manager	0.016	$23.00
Temporary Discharge	Per 1,000 Gal.		
Public Schools[4]	Per 1,000 Gal.		

3.4 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 2021. 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 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.

3.5 Summary

The connection fees developed and presented in this report are based on the planning and engineering design criteria of the District's sewer system, future capital improvements, and generally accepted ratemaking principles. Table 3-5 shows the present and calculated fees showing the residential Option 1.

Table 3 - 5
Present and Calculated Non-Residential Sewer Connection Fee ($ / Unit)

Type of Connection	Units	Equivalent EDU Ratio	Present Fee Per Unit[1]	Calculated Fee Per Unit
Residential	Living Unit	1.000	$750.00	$1,440.00
Non-Residential				
Establishments (not noted below)	# of Plumbing Fixtures Units	0.067	$50.00	$96.00
Hotel/Motel (w/o Kitchen)	Living Unit	0.270	$202.50	$389.00
Hotel/Motel (with Kitchen)	Living Unit	0.350	$262.50	$504.00
Campsite (with sewer)	# of Sites	0.250	$187.50	$360.00
Campsite (w/o sewer)	# of Sites	0.190	$142.50	$273.50
Laundries	Per # of 10 lb. Machines	0.320	$240.00	$461.00
Laundries	Per # 20-50 lb. Machines	0.640	$480.00	$921.50
Restaurants & Bars	# of Inside Seats	0.067	$50.00	$96.00
Restaurants & Bars	# of Outside Seats	0.033	$25.00	$48.00
Restaurants & Bars	# of Banquet Seats	0.024	$18.00	$34.50
Theatres/Churches	# of Seats	0.010	$7.50	$14.50
Barber Shops	# of Service Chairs	0.280	$210.00	$403.00
Beauty Shops	# of Service Chairs	0.500	$375.00	$720.00
Unclassified Service	# of Units	0.033	$25.00	$48.00
Other	TBD by General Manager	0.016	$11.90	$23.00
Temporary Discharge	Per 1,000 Gal.			
Public Schools	Per 1,000 Gal.			

The options for residential presented in Table 3-3 were presented and discussed with the Board on March 18th 2021. The Board recommended developing the Option 3 approach at a level of 80%. This would be $1,152 base charge ($1,440 X 80% = $1,152). The remaining fee would be

charged on a per square footage of the living unit. For example, assuming a minimum charge of $1,152, and a living unit of 2,000 sq. ft., this would result in a connection fee of $1,440 ($1,152 + ($0.144 X 2,000 sq. ft.) = $1,440).

Table 3 - 6
Board Recommended Non-Residential Sewer Connection Fee[1] ($ / Unit)

OPTION 3	Scenario 3 Calculated Fee
All Residential	
Base charge (% of $1,440)	80%
Base Charge (per living unit)	$1,152
Plus: Square footage charge	$0.144
Additions (Not an ADU) to existing homes	
Base charge	Exempt
Greater than 500 sq. ft.($/ft^2)	$0.144
500 sq. ft. or less [1] ($/ft^2)	Exempt

Adoption of the calculated sewer connection fees will create equitable and cost-based charges for new customers connecting to the District's sewer system.

Technical Appendix

Technical Appendix - A.1 – TSD Buildout Capacity-Related Pipeline and Lift Station Costs

Truckee Sanitary District
Connection Fee Study - Pipe Summary
3/31/2021

Pipeline	Diameter	Upsize Diameter	Length	Pipe Type	Depth(IN)	Depth (FT)	Location	Drainage Basin	Improvement Project ID	Cost at $250/LF
CT06-A08	15	21	265	VCP	52	4	Dirt	DL	DL-1	66,250
CT06-A09	15	21	250	VCP	67	6	Dirt	DL	DL-1	62,500
CT06-A10	15	21	240	VCP	68	6	Dirt	DL	DL-1	60,000
CT06-A11	21	21	260	VCP	74	6	Dirt	DL	DL-1	65,000
CT06-A12	15	21	222	VCP	82	7	Dirt	DL	DL-1	55,500
CT06-A13	15	21	290	VCP	82	7	Dirt	DL	DL-1	72,500
CT06-A14	15	21	248	VCP	84	7	Dirt	DL	DL-1	62,000
CT06-A15	15	21	290	VCP	84	7	Dirt	DL	DL-2	72,500
CT06-A16	15	21	315	VCP	69	6	Dirt	DL	DL-2	78,750
CT06-A17	15	21	287	VCP	57	5	Dirt	DL	DL-2	71,750
CT06-A18	15	21	277	VCP	54	5	Dirt	DL	DL-2	69,250
CT06-A28	15	18	139	VCP	88	7	Dirt	DL	DL-3	34,750
CT03-A04	14	18	307	DIP	76	6	Dirt	DL	DL-4	76,750
CT03-A05	14	18	244	DIP	76	6	Dirt	DL	DL-4	61,000
CT03-A06	14	18	256	DIP	36	3	Dirt	DL	DL-4	64,000
CT04-A02	10	18	333	DIP	108	9	Dirt	DL	DL-5	83,250
CT04-A03	10	15	320	VCP	84	7	Dirt	DL	DL-6	80,000
CT04-A04	10	15	392	VCP	72	6	Dirt	DL	DL-6	98,000
CT04-A05	10	15	141	VCP	72	6	Dirt	DL	DL-6	35,250
GD10-E01	6	10	218	PVC	45	4	Dirt	GD	G-1	54,500
GD10-G01	6	10	224	PVC	48	4	Dirt	GD	G-1	56,000
GD10-G02	6	10	173	PVC	55	5	Dirt	GD	G-1	43,250
GD08-A12	10	15	312	PVC	96	8	Pavement	GD	G-2	78,000
GD09-A01	10	15	254	PVC	56	5	Dirt	GD	G-2	63,500
GD09-A02	10	15	409	PVC	58	5	Dirt	GD	G-2	102,250
GD09-A03	10	15	207	PVC	60	5	Dirt	GD	G-2	51,750
GD09-A04	10	15	341	PVC	72	6	Dirt	GD	G-2	85,250
GD09-A05	10	15	296	PVC	92	8	Dirt	GD	G-2	74,000
GD09-A06	10	18	383	PVC	56	5	Dirt	GD	G-2	95,750
GD09-A07	10	18	297	PVC	48	4	Dirt	GD	G-2	74,250
GD09-A08	10	18	374	PVC	66	6	Dirt	GD	G-2	93,500
CT09-B28	12	18	192	VCP	55	5	Pavement	MV	MV-1	48,000
CT09-B25	18	24	54	VCP	88	7	Pavement	MV	MV-2	13,500
CT09-B26	18	24	13	VCP	82	7	Pavement	MV	MV-2	3,250
CT09-B26A	18	24	173	VCP	59	5	Pavement	MV	MV-2	43,250
CT09-B27	18	24	182	VCP	60	5	Pavement	MV	MV-2	45,500
CT09-B13	18	27	468	VCP	184	15	Dirt	MV	MV-3	117,000
CT09-B14	21	27	480	VCP	206	17	Dirt	MV	MV-3	120,000
CT09-B15	21	27	467	VCP	224	19	Dirt	MV	MV-3	116,750
CT09-B16	21	27	469	VCP	220	18	Dirt	MV	MV-3	117,250
CT09-B17	21	27	461	VCP	222	19	Dirt	MV	MV-3	115,250
CT09-B18	21	27	475	VCP	167	14	Dirt	MV	MV-3	118,750
CT09-B19	21	27	470	VCP	180	15	Dirt	MV	MV-3	117,500
CT09-B20	21	27	470	VCP	153	13	Dirt	MV	MV-3	117,500
CT09-B21	21	27	448	VCP	132	11	Pavement	MV	MV-3	112,000
CT09-B22	21	27	387	VCP	114	10	Pavement	MV	MV-3	96,750
CT09-B23	21	27	77	VCP	110	9	Pavement	MV	MV-3	19,250
CT09-B24	21	27	246	VCP	94	8	Pavement	MV	MV-3	61,500
CT09-B01	18	24	77	VCP	74	6	Dirt	MV	MV-4	19,250
CT09-B04	18	24	141	VCP	134	11	Dirt	MV	MV-4	35,250
CT09-B05	18	24	323	VCP	68	6	Dirt	MV	MV-4	80,750
CT09-B05A	14	24	100	VCP	88	7	Dirt	MV	MV-4	25,000
CT09-W02	18	24	339	VCP	60	5	Dirt	MV	MV-4	84,750
CT09-W03	18	24	108	VCP	85	7	Dirt	MV	MV-4	27,000

Truckee Sanitary District
Connection Fee Study - Pipe Summary
3/31/2021

Pipeline	Diameter	Upsize Diameter	Length	Pipe Type	Depth(IN)	Depth (FT)	Location	Drainage Basin	Improvement Project ID	Cost at $250/LF
CT09-F12	8	15	140	VCP	56	5	Dirt	MV	MV-5	35,000
CT09-F13	8	15	438	VCP	62	5	Dirt	MV	MV-5	109,500
CT09-F14	8	15	416	VCP	75	6	Dirt	MV	MV-5	104,000
CT09-N01	8	15	60	ACP	66	6	Dirt	MV	MV-5	15,000
CT09-N04	8	15	389	ACP	124	10	Dirt	MV	MV-5	97,250
CT09-N05	8	15	406	ACP	75	6	Dirt	MV	MV-5	101,500
CT10-A01	8	15	280	PVC	98	8	Pavement	MV	MV-5	70,000
CT10-A02	8	15	314	PVC	80	7	Pavement	MV	MV-5	78,500
CT10-A03	8	15	383	PVC	80	7	Dirt	MV	MV-5	95,750
CT10-A04	8	15	382	PVC	84	7	Pavement	MV	MV-5	95,500
CT10-J03	6	8	445	PVC	32	3	Dirt	MV	MV-6	111,250
CT07-A08	14	21	106	Techite	86	7	Pavement	TD	TD-1	26,500
CT07-A08A	14	18	262	Techite	79	7	Pavement	TD	TD-1	65,500
TD24-A07	10	12	526	ACP	44	4	Dirt	TD	TD-2	131,500
TD24-A02	18	21	476	Techite	96	8	Pavement	TD	TD-3	119,000
TD24-A03	10	15	406	ACP	59	5	Pavement	TD	TD-4	101,500
TD24-A04	10	15	209	ACP	48	4	Dirt	TD	TD-4	52,250
TD24-A05	10	12	554	ACP	64	5	Dirt	TD	TD-4	138,500
TD24-A08	10	12	295	ACP	48	4	Dirt	TD	TD-5	73,750
TD24-A09	12	15	338	Techite	64	5	Dirt	TD	TD-6	84,500
TD24-A10	15	18	493	Techite	96	8	Dirt	TD	TD-7	123,250
TD24-A18	12	15	376	Techite	62	5	Pavement	TD	TD-8	94,000
										5,719,500

Hard Cost		5,719,500
Engineering & Design	20.00%	1,144,000
Construction Management	15.00%	858,000
Total Soft Cost		2,002,000
Project Cost before Contingency		7,721,500
Contigency	30.00%	2,316,000
Project Cost before PM&A		10,037,500
Project Management and Administration	5.00%	502,000
Total		10,539,500

Truckee Sanitary District
Connection Fee Study - Pump Stations
1/6/2021

Pumps Stations	HP	GPM @TDM	head	FM	Increase to GPM	Additional GPM %	Impeller	Pump	Improvement Project ID	Total Cost
LS1B	25	1020	55	10	1470	0.44		150,000		150,000
LS1	15	960	47	8	1140	0.19	5,000			5,000
LS2	15	820	42	8	970	0.18	5,000			5,000
LS3	790	790	49	8	910	0.15	5,000			5,000
LS4	25	710	48	8	880	0.24		100,000		100,000
LS5	15	620	40	8	670	0.08	20,000			20,000
DSP2	4	52			82	0.58		20,000		20,000
Pine Forest	18		50	6	410			80,000		80,000
LAH 1	10	340	59	6	510	0.50		100,000		100,000
LAH 3	30	181	149	4	280	0.55		140,000		140,000
LAH FM UPGRADE								200,000		200,000
LAH 4	10	166	72	4	260	0.57		100,000		100,000
LAH 5	15	175	107	4	240	0.37		100,000		100,000
										1,025,000

Hard Cost		1,025,000
Engineering & Design	20.00%	205,000
Construction Management	15.00%	154,000
Total Soft Cost		359,000
Project Cost before Contingency		1,384,000
Contigency	30.00%	415,000
Project Cost before PM&A		1,799,000
Project Management and Administration	5.00%	90,000
Total		1,889,000

Technical Appendix - A.2 – TSD Buildout Capacity-Related Fleet Costs Memorandum

MEMORANDUM

TO: SHAWN KOORN & JUDY DEAN, HDR ENGINEERING

FROM: BLAKE TRESAN, GENERAL MANAGER
RAY BROWN, DISTRICT ENGINEER
MARK WASLEY, FINANCE & ADMINISTRATIVE SERVICES MANAGER

DATE: DECEMBER 23, 2020

SUBJECT: FLEET AND CORP YARD FACILITY EXPANSION COSTS

The Truckee Sanitary District (TSD) is the public agency responsible for the collection and conveyance of wastewater in the greater Truckee area. Connection fees collected by TSD are placed in a restricted fund (Fund 4) which can only be used for capital expenditures that increase the capacity of the District. TSD has retained the services of HDR Engineering to evaluate the adequacy of TSD's existing connection fee and make recommendations for changes, if necessary. The purpose of this memorandum is to provide HDR with an estimate of the capacity related capital costs for the District's fleet and corporation yard facilities.

Estimate of Capacity Related Fleet Costs

The District currently owns, operates, and maintains a fleet of 51 vehicles and equipment purchased for approximately $3.0 million with a current replacement value of approximately $4.0 million (see Exhibit A). As the District grows from its existing customer base of approximately 15,000 equivalent dwelling units (EDUs) to a buildout of 28,478 EDUs, the fleet will need to be expanded to serve the needs of the community.

The fleet currently serves multiple crews and functions, including:

- Cleaning Crew
- Televising Crew
- Construction Crew
- Lift Station Crew
- Field Inspectors
- Emergency Response
- General Purpose

As the District grows to buildout, the major capacity related capital fleet purchases anticipated are those vehicles and equipment supporting the Cleaning and Televising Crews. The remaining functions are anticipated to remain at or near their current level even at buildout.

To meet the District's goal of cleaning all pipelines on a three-year cycle at buildout, it is estimated that the District's current fleet of two hydro-cleaning combination trucks and one hydro-cleaning truck will need to be expanded by one additional hydro-excavation combination truck. The current cost of a hydro-excavation truck is estimated at $500,000.

To meet the District's goal of televising all pipelines on a four-year cycle and televising all laterals on a fifteen-year cycle, it is estimated that the District's current fleet of two TV vans will need to be doubled. The cost of a TV van is approximately $200,000, thus the future capacity related TV fleet costs are estimated to be $400,000.

The total future capacity related capital fleet costs for the District are estimated at $900,000 in 2021 dollars.

Estimate of Future Capacity Related Corporation Yard Facility Costs

The District owns, operates, and maintains a corporation yard consisting of an Administration Building, Field Operations Building, Vehicle Maintenance Building, Vehicle Storage Facility, Aggregate Storage Structure, Fueling Station, and associated site and facility appurtenances. The total value of the District's corporation yard facilities is estimated to be approximately $19 million (see Exhibit B).

As the District grows from its current customer base of 15,000 EDUs to a buildout of 28,478 EDUs, some of the corporation yard facilities will require expansion. The cost expanding office, vehicle storage, and field maintenance structures to meet these needs is estimated to be between $3,000,000 and $5,000,000 in 2021 dollars.

EXHIBIT A
TSD FLEET DETAIL REPORT

Unit No.	Fleet Description	Department	Purchase Date	Purchase Amount	21 Est. Replacement Cost [a]
U-07	U-07 Chevy 1500 Crew Cab	Admin	5/18/2016	$ 32,196.13	$ 37,300.00
U-41	U-41 Freightliner/Vactor Vacuum Cleaning Truck	Cleaning	10/9/2012	$ 395,901.25	$ 516,600.00
U-15	U-15 Chevy Silverado Ext Cab	Cleaning	2/8/2019	$ 29,457.25	$ 31,300.00
U-03	U-03 Chevy Silverado Ext Cab	Cleaning	4/5/2019	$ 29,457.25	$ 31,300.00
U-29	U-29 Chevy Silverado Ext Cab	Cleaning	4/5/2019	$ 29,457.25	$ 31,300.00
U-33	U-33 Dodge Pipe Hunter Hydro-Cleaning Truck	Cleaning	6/1/2020	$ 162,421.00	$ 167,300.00
U-19	U-19 Freightliner Vactor	Cleaning	6/30/2017	$ 432,532.36	$ 486,800.00
U-17	U-17 O&M Utility Truck	Cleaning	7/29/2019	$ 66,320.00	$ 70,400.00
T-5	Shoring Carrier Trailer - Brite	Construction	1/1/1992	$ 1,823.00	$ 4,300.00
U-04	U-04 Chevrolet 1 Ton Pickup	Construction	1/24/2008	$ 31,904.36	$ 46,900.00
SE-36	SE-36 CAT 907M Compact Wheel Loader	Construction	10/7/2019	$ 135,853.75	$ 144,100.00
C-1	Compressor - Ingersol/Rand 160 CFM	Construction	11/6/2007	$ 11,775.00	$ 17,800.00
U-05	U-05 GMC C-5500 Utility Truck	Construction	11/7/2006	$ 76,900.98	$ 119,800.00
U-26	U-26 Chevy Flat Bed Truck	Construction	11/8/2006	$ 63,208.00	$ 98,500.00
U-35	U-35 CAT Mini Excavator	Construction	12/3/2008	$ 59,807.00	$ 87,800.00
U-10	U-10 Caterpillar 938G Loader w/12 ft Blade	Construction	12/5/2005	$ 162,488.00	$ 260,700.00
U-31	U-31 Holder Tractor w/Zaugg Snowblower	Construction	2/1/2006	$ 93,800.00	$ 146,100.00
T-7	Sani Hut Toilet Trailer	Construction	3/1/1999	$ 2,199.00	$ 4,200.00
U-06	U-06 Chevy Silverado Utility Truck 2020	Construction	5/5/2020	$ 47,079.78	$ 48,500.00
U-25	U-25 Freightliner Dump Truck	Construction	5/8/2018	$ 153,215.00	$ 167,400.00
U-16	U-16 Ford F450, Dump Bed & Crane	Construction	6/30/1997	$ 60,000.00	$ 122,000.00
U-06	U-06 Ford F350 1 Ton Pickup	Construction	6/30/1998	$ 23,491.80	$ 46,400.00
U-37	U-37 GMC C5500 5-yd Dump Truck	Construction	7/16/2009	$ 63,659.37	$ 90,800.00
T-1	Flatbed/Platform Trailer - Trailmax	Construction	7/20/2001	$ 17,087.00	$ 30,900.00
SE-06	Crafco EZ Pour 50 (crack fill trailer)	Construction	7/7/2004	$ 10,976.00	$ 18,100.00
U-20	U-20 CAT Backhoe/Loader #430-D	Construction	8/31/2006	$ 92,891.16	$ 144,700.00
U-34	U-34 2008 Chevy Silverado	Construction	9/10/2008	$ 31,689.48	$ 46,500.00
T-12	Equipment Utility Trailer - Trailmax	Construction	9/8/2011	$ 9,362.03	$ 12,600.00
U-49	U-49 2015 Chevy Tahoe	Engineering	8/4/2015	$ 36,761.21	$ 43,900.00
U-08	U-08 Chevy 1500 Double Cab	Inspections	5/18/2016	$ 29,892.07	$ 34,700.00
U-09	U-09 Chevy 1500 Double Cab	Inspections	5/18/2016	$ 29,892.07	$ 34,700.00
U-27	U-27 Chevy 1500 Double Cab	Inspections	5/18/2016	$ 29,892.07	$ 34,700.00
G-11	Generator Onan 20DNAF/Glenshire Gen Shed/Sulfide	Lift Station	1/1/1999	$ 20,000.00	$ 38,300.00
G-06	Generator - Caterpillar-150kw	Lift Station	1/1/1980	$ 27,500.00	$ 92,400.00
U-39	U-39 Ford F550 4x4 Cab/Chassis/Crane	Lift Station	10/21/2010	$ 75,846.95	$ 105,000.00
P-8	Pump - Godwin 6"	Lift Station	11/30/1998	$ 27,292.00	$ 53,900.00
P-9	Pump - Godwin 3"	Lift Station	11/30/1998	$ 29,149.00	$ 57,500.00
G-10	Generator - Caterpillar - 75kw	Lift Station	2/5/2009	$ 35,000.00	$ 49,900.00
G-15	Generator - Caterpillar - 100 KW	Lift Station	2/5/2009	$ 60,000.00	$ 85,500.00
G-13	Generator - Caterpillar - 60KW	Lift Station	4/14/2003	$ 26,293.00	$ 44,800.00
U-21	U-21 Kawasaki Utility Task Vehicle (UTV)	Lift Station	4/29/2017	$ 31,997.07	$ 36,000.00
U-30	U-30 Chevy 1500 Double Cab	Lift Station	5/18/2016	$ 29,892.07	$ 34,700.00
T-8	Bypass Trailer/Hose Reel System (Martis Camp)	Lift Station	8/1/2007	$ 46,666.00	$ 70,600.00
T-2	Bypass Trailer/Hose Reel System	Lift Station	8/18/2005	$ 50,625.27	$ 81,200.00
U-02	U-02 Chevy Silerado Reg Cab	Lift Station	9/13/2018	$ 104,225.85	$ 113,900.00
U-38	U-38 Chevy Silverado 1/2 ton Pick-Up	Shop	3/18/2010	$ 23,625.88	$ 32,700.00
U-11	U-11 Ford Expedition	Shop	4/7/2003	$ 26,521.00	$ 45,200.00
U-12	U-12 Ford Expedition	Shop	4/7/2003	$ 26,521.00	$ 45,200.00
U-43	U-43 Ford F-550 TV Truck w/Lamp II	TV	1/29/2014	$ 167,241.47	$ 205,700.00
U-14	U-14 Chevy 1500 Double Cab	TV	5/18/2016	$ 29,892.07	$ 34,700.00
U-40	U-40 Chevy C3500 TV Van 4x4 Chasis	TV	8/9/2012	$ 200,863.25	$ 262,100.00
			Total	$ 3,034,987.87	$ 4,082,500.00

[a] Escalated from construction date with a 3% annual inflation factor

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EXHIBIT B
TSD FACILITY DETAIL REPORT

Facility	Location	Date Constructed	Construction Cost	Est. 2021 Replacement Cost[(a)]
Administration Building	Corporation Yard	1/1/91	3,000,000	7,282,000
Field Operations Building	Corporation Yard	1/1/02	3,000,000	5,261,000
Vehicle Maintenance Facility	Corporation Yard	1/1/93	600,000	1,373,000
Vehicle Storage Facility	Corporation Yard	1/1/93	500,000	1,144,000
VSF Expansion	Corporation Yard	1/1/20	1,400,000	1,442,000
Glenshire Gen Shed	Glenshire Drive	7/1/86	30,000	84,000
OG Odor Scrubber	Old Greenwood	11/1/07	15,000	23,000
Pedestrian Bridge	East River Street	1/1/98	750,000	1,480,000
TSD Fueling Station	Corporation Yard	7/1/93	100,000	229,000
Aggregate Storage Bins	Corporation Yard	1/1/12	56,150	73,000
Solar Panels	Corporation Yard	10/15/09	1,000,000	1,426,000
Repeater Site	Tahoe Donner	1/1/75	5,000	19,000
		Total	10,456,150	19,836,000

[(a)] Escalated from construction date with a 3% annual inflation factor

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Technical Appendix - A.3 – Comparison of Commercial EDU Factors

Comparison of Commercial EDU Factors

Truckee Sanitary District ***1 EDU =*** **230** *gpd*

Summary of EDU Ratio

Type of Service	Unit	*Present Connection Fee per Unit*	TSD Ratio to Residential	Metcalf & Eddy (1)	1980 EPA Design Manual (2)	*WA - DOH (3)*	*Ohio EPA (4)*	*TTSA (5)*
Residential	*Per Living Unit*	$750.00	1.000					1.00
Commercial Establishments	*# of Plumbing Fixture Units*	$50.00	0.067	0.04	0.02	0.04	0.15	0.18
Hotel/Motel without kitchen	*Per Living Unit*	$202.50	0.270	0.23	0.17	0.22		0.50
Hotel/Motel with kitchen	*Per Living Unit*	$262.50	0.350	0.26	0.25	0.17	0.43	0.66
Campsite with sewer	*# of Sites*	$187.50	0.250	0.17	0.17	0.15	0.38	0.50
Campsite without sewer	*# of Sites*	$142.50	0.190	0.07		0.07		0.38
Laundries	*# of 10 lb. Machines*	$240.00	0.320	1.80	2.98	0.22	1.74	0.50
Laundries	*# of 20-50 lb. Machines*	$480.00	0.640	3.59	5.97	0.43	3.48	1.00
Restaurants/Bars	*# of Inside Seats*	$50.00	0.067	0.04	0.02	0.04	0.15	0.10
Restaurants/Bars	*# of Outside Seats*	$25.00	0.033	0.02	0.01	0.02	0.08	0.04
Restaurants/Bars	*# of Banquet Seats*	$18.00	0.024	0.01	0.01	0.01	0.05	0.04
Theatres/Churches	*# of Seats*	$7.50	0.010	0.01	0.02	0.02	0.02	0.01
Barber Shops	*# of Service Chairs*	$210.00	0.280					0.30
Beauty Shops	*# of Service Chairs*	$375.00	0.500				0.43	0.50
Unclassified Service	*# of Units*	$25.00	0.033					
Other	*As determined by the General Manager*	$11.90	0.016					
Temporary Discharge	*Per 1,000 gallons*							
Public Schools	Per 1,000 gallons							

(1) Metcalf and Eddy Inc. 1991 Wastewater Engineering Treatment and Reuse, 4rd edition, Mc-Graw Hill Book Co., Chapter 3.

(2) 1980 Design Manual - Onsite Wastewater Treatment and Disposal Systems, page 60 to 63.

(3) Washington Department of Health, Wastewater Residential Flow Rates, 2002.

(4) Ohio EPA Design Manual, printed 10/23/2019 https://www.epa.ohio.gov/portals/35/rules/42-05.pdf

(5) Tahoe-Truckee Sanitation District.

Technical Appendix - A.4 – Calculation of Connection Fee

Truckee Sanitary District
Exhibit 1
Summary of Estimated Connection Fee - Incremental Method

Plant Description	Estimated Cost		Future EDUs [2]		Estimated $ Cost/EDU	*Notes*
Future [1]						
Collection Pipes	$10,539,576	÷	12,277	=	$858.48	*See Exhibit 2, 3*
Lift Stations	1,888,815	÷	12,277	=	153.85	*See Exhibit 2, 3*
Facilities	5,528,233	÷	12,277	=	450.29	*See Exhibit 2, 3*
Fleet	1,228,498	÷	12,277	=	100.06	*See Exhibit 2, 3*
Total Future	$19,185,121				$1,562.69	
Less Projected Fund 4 Balance	(1,507,000)	÷	12,277	=	(122.75)	
Total Future System	$17,678,121				$1,439.94	
Total Connection Fee[3]			**Rounded**		**$1,440.00**	
Current Connection Fee					**$750.00**	
$ Difference					**$690.00**	

NOTES:

[1] Future plant based on TSD CIP Plan and growth related projects included based on TSD "Connection Fee Model 6.18.20 Prorata" and growth related. See Exhibit 2.

[2] EDUs based on Sewer System Hydraulic Model Update, Final Draft, July 2019. See Exhibit 3.

[3] Based on "Incremental" methodology established in AWWA M1, Seventh Edition, Table VII.2-3, page 336.

Truckee Sanitary District
Exhibit 2
Summary of Development of Future Capital Improvement Projects

CIP No.	Project Listing		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Capital Improvement Projects [1]												
	Collection System Construction Costs	Collection Pipes	$114,901	$114,901	$114,901	$114,901	$114,901	$114,901	$114,901	$114,901	$114,901	$114,901
	Lift Stations	Lift Stations	20,592	20,592	20,592	20,592	20,592	20,592	20,592	20,592	20,592	20,592
	Facilities	Facilities	0	0	0	0	0	0	0	0	0	3,000,000
	Subtotal		$135,492	$135,492	$135,492	$135,492	$135,492	$135,492	$135,492	$135,492	$135,492	$3,135,492
20%	Engineering & Design		27,098	27,098	27,098	27,098	27,098	27,098	27,098	27,098	27,098	627,098
15%	Construction Management		20,324	20,324	20,324	20,324	20,324	20,324	20,324	20,324	20,324	470,324
	Subtotal		$182,914	$182,914	$182,914	$182,914	$182,914	$182,914	$182,914	$182,914	$182,914	$4,232,914
	Fleet Costs	Vehicles	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
	Subtotal		$200,914	$200,914	$200,914	$200,914	$200,914	$200,914	$200,914	$200,914	$200,914	$4,250,914
30%	Contingency		60,274	60,274	60,274	60,274	60,274	60,274	60,274	60,274	60,274	1,275,274
	Subtotal		$261,188	$261,188	$261,188	$261,188	$261,188	$261,188	$261,188	$261,188	$261,188	$5,526,188
5%	Project Management & Adminsitration		13,059	13,059	13,059	13,059	13,059	13,059	13,059	13,059	13,059	276,309
Total Capital Improvement Projects			$274,247	$274,247	$274,247	$274,247	$274,247	$274,247	$274,247	$274,247	$274,247	$5,802,497
Collection System												
Lift Stations												
Facilities												
Fleet												
Net Capital Projects												

NOTES:

[1] Capital improvement projects are based on the "TSD Connection Fee Model 6.18.2020-Prorata".

[2] Connection fee eligible based on growth percentage and TSD input. See Exhibit 3 for growth percentages. Maintenance projects are not eligible.

Truckee Sanitary District
Exhibit 2
Summary of Development of Future Capital Improvement Projects

CIP No.	Project Listing		2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Capital Improvement Projects [1]												
	Collection System Construction Costs	Collection Pipes	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667
	Lift Stations	Lift Stations	22,880	22,880	22,880	22,880	22,880	22,880	22,880	22,880	22,880	22,880
	Facilities	Facilities	0	0	0	0	0	0	0	0	0	0
	Subtotal		$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547
20%	Engineering & Design		30,109	30,109	30,109	30,109	30,109	30,109	30,109	30,109	30,109	30,109
15%	Construction Management		22,582	22,582	22,582	22,582	22,582	22,582	22,582	22,582	22,582	22,582
	Subtotal		$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238
	Fleet Costs	Vehicles	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
	Subtotal		$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238
30%	Contingency		66,371	66,371	66,371	66,371	66,371	66,371	66,371	66,371	66,371	66,371
	Subtotal		$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609
5%	Project Management & Adminsitration		14,380	14,380	14,380	14,380	14,380	14,380	14,380	14,380	14,380	14,380
Total Capital Improvement Projects			$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989
Collection System												
Lift Stations												
Facilities												
Fleet												
Net Capital Projects												

NOTES:

[1] Capital improvement projects are based on the "TSD Connection Fee Model 6.18.2020-Prorata".

[2] Connection fee eligible based on growth percentage and TSD input. See Exhibit 3 for growth percentages. Maintenance projects are not eligible.

Truckee Sanitary District
Exhibit 2
Summary of Development of Future Capital Improvement Projects

CIP No.	Project Listing		2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Capital Improvement Projects [1]												
	Collection System Construction Costs	Collection Pipes	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667
	Lift Stations	Lift Stations	22,880	22,880	22,880	22,880	22,880	22,880	22,880	22,880	22,880	22,880
	Facilities	Facilities	0	0	0	0	0	0	0	0	0	0
	Subtotal		$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547
20%	Engineering & Design		30,109	30,109	30,109	30,109	30,109	30,109	30,109	30,109	30,109	30,109
15%	Construction Management		22,582	22,582	22,582	22,582	22,582	22,582	22,582	22,582	22,582	22,582
	Subtotal		$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238
	Fleet Costs	Vehicles	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
	Subtotal		$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238
30%	Contingency		66,371	66,371	66,371	66,371	66,371	66,371	66,371	66,371	66,371	66,371
	Subtotal		$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609
5%	Project Management & Adminsitration		14,380	14,380	14,380	14,380	14,380	14,380	14,380	14,380	14,380	14,380
Total Capital Improvement Projects			$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989
	Collection System											
	Lift Stations											
	Facilities											
	Fleet											
Net Capital Projects												

NOTES:

[1] Capital improvement projects are based on the "TSD Connection Fee Model 6.18.2020-Prorata".

[2] Connection fee eligible based on growth percentage and TSD input. See Exhibit 3 for growth percentages. Maintenance projects are not eligible.

Truckee Sanitary District
Exhibit 2
Summary of Development of Future Capital Improvement Projects

CIP No.	Project Listing		2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Capital Improvement Projects [1]												
	Collection System Construction Costs	Collection Pipes	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667	$127,667
	Lift Stations	Lift Stations	22,880	22,880	22,880	22,880	22,880	22,880	22,880	22,880	22,880	22,880
	Facilities	Facilities	0	0	0	0	0	0	0	0	0	0
	Subtotal		$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547	$150,547
20%	Engineering & Design		30,109	30,109	30,109	30,109	30,109	30,109	30,109	30,109	30,109	30,109
15%	Construction Management		22,582	22,582	22,582	22,582	22,582	22,582	22,582	22,582	22,582	22,582
	Subtotal		$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238	$203,238
	Fleet Costs	Vehicles	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
	Subtotal		$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238	$221,238
30%	Contingency		66,371	66,371	66,371	66,371	66,371	66,371	66,371	66,371	66,371	66,371
	Subtotal		$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609	$287,609
5%	Project Management & Adminsitration		14,380	14,380	14,380	14,380	14,380	14,380	14,380	14,380	14,380	14,380
Total Capital Improvement Projects			$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989	$301,989
	Collection System											
	Lift Stations											
	Facilities											
	Fleet											
Net Capital Projects												

NOTES:

[1] Capital improvement projects are based on the "TSD Connection Fee Model 6.18.2020-Prorata".

[2] Connection fee eligible based on growth percentage and TSD input. See Exhibit 3 for growth percentages. Maintenance projects are not eligible.

Truckee Sanitary District
Exhibit 2
Summary of Development of Future Capital Improvement Projects

CIP No.	Project Listing	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2021 - 2070 Total	% Eligible (2)	$ Growth Related
Capital Improvement Projects [1]														
	Collection System Construction Costs	$74,047	$74,047	$74,047	$74,047	$74,047	$74,047	$74,047	$74,047	$74,047	$74,047	$5,719,500	100.0%	$5,719,500
	Lift Stations	13,270	13,270	13,270	13,270	13,270	13,270	13,270	13,270	13,270	13,270	1,025,001	100.0%	1,025,001
	Facilities	0	0	0	0	0	0	0	0	0	0	3,000,000	100.0%	3,000,000
	Subtotal	$87,317	$87,317	$87,317	$87,317	$87,317	$87,317	$87,317	$87,317	$87,317	$87,317	$9,744,501		$9,744,501
20%	Engineering & Design	17,463	17,463	17,463	17,463	17,463	17,463	17,463	17,463	17,463	17,463	1,948,880	100.0%	1,948,880
15%	Construction Management	13,098	13,098	13,098	13,098	13,098	13,098	13,098	13,098	13,098	13,098	1,461,680	100.0%	1,461,680
	Subtotal	$117,878	$117,878	$117,878	$117,878	$117,878	$117,878	$117,878	$117,878	$117,878	$117,878	$13,155,061		$13,155,061
	Fleet Costs	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	900,000	100.0%	900,000
	Subtotal	$135,878	$135,878	$135,878	$135,878	$135,878	$135,878	$135,878	$135,878	$135,878	$135,878	$14,055,061		$14,055,061
30%	Contingency	40,763	40,763	40,763	40,763	40,763	40,763	40,763	40,763	40,763	40,763	4,216,500	100.0%	4,216,500
	Subtotal	$176,641	$176,641	$176,641	$176,641	$176,641	$176,641	$176,641	$176,641	$176,641	$176,641	$18,271,561	100.0%	$18,271,561
5%	Project Management & Administration	8,832	8,832	8,832	8,832	8,832	8,832	8,832	8,832	8,832	8,832	913,560	100.0%	913,560
Total Capital Improvement Projects		$185,473	$185,473	$185,473	$185,473	$185,473	$185,473	$185,473	$185,473	$185,473	$185,473	$19,185,121		$19,185,121
Collection System														$10,539,576
Lift Stations														1,888,815
Facilities														5,528,233
Fleet														1,228,498
Net Capital Projects														**$19,185,121**

Summary by Component	Collection	Lift Station	Facility	Fleet	Total
Project Cost	$5,719,500	$1,025,001	$3,000,000		$9,744,501
Engineering & Design	1,143,888	204,998	599,994		1,948,880
Construction Management	857,928	153,751	450,001		1,461,680
Subtotal	$7,721,316	$1,383,750	$4,049,995		$13,155,061
Fleet Costs				900,000	900,000
Subtotal	$7,721,316	$1,383,750	$4,049,995	$900,000	$14,055,061
Contingency	$2,316,385	$415,123	$1,214,993	$269,999	$4,216,500
Subtotal	$10,037,701	$1,798,873	$5,264,989	$1,169,999	$18,271,561
Project Management & Administration	501,875	89,942	263,244	58,499	913,560
Total	**$10,539,576**	**$1,888,815**	**$5,528,233**	**$1,228,498**	**$19,185,121**
Years	50	50	50	50	50
Average Annual Cost	**$210,792**	**$37,776**	**$110,565**	**$24,570**	**$383,702**

NOTES:

[1] Capital improvement projects are based on the "TSD Connection Fee Model 6.18.2020-Prorata".

[2] Connection fee eligible based on growth percentage and TSD input. See Exhibit 3 for growth percentages. Maintenance projects are not eligible.

Truckee Sanitary District
Exhibit 3
Summary of the Development of Equivalent Dwelling Units

Average Daily Flow, gallons per EDU [1] 230.0

Basin[2]	Existing WW Loads (mgd)	Build-Out WW Loads (mgd)
Donner Lake	0.73	1.19
Tahoe Donner	1.52	2.22
Glenshire	0.42	1.16
Martis Valley	0.78	1.98
Total	**3.45**	**6.55**

**1/2017 Data in 2019 Sewer System Hydraulic Model Update*

EDU Calculation	Total Loads (mgd)	Average Daily Flow gallons Per EDU	Total	% Growth
Existing EDUs	3.45	230.00	15,000	
Remaining EDUs	3.10	230.00	13,478	
Buildout EDU's	6.55		28,478	
Remaining EDUs 1/2017			13,478	
Less:	2017		(207)	
	2018		(366)	
	2019		(288)	
	2020		(340)	
2021 Total Remaining EDUs			12,277	
Existing EDUs 2021			16,201	
Remaining EDUs			**12,277**	**43.11%**
Buildout EDUs			28,478	

NOTES:

(1) From TSD definition of 230 gallons per equivalent dwelling unit [gpd/EDU]. Sewer System Hydraulic Model Update, Final Draft, July 2019, page 11.

(2) From Table 3, "Wastewater Loading Summary", Sewer System Hydraulic Model Update, Final Draft, July 2019, page 9.

Truckee Sanitary District
Exhibit 4
Calculated Sewer Connection Fee - Incremental

Item		Estimated Connection Fee
Total Sewer Connection Fee per EDU	Incremental Method	$1,440.00
Existing Sewer Connection Fee		$750.00
Dollar Difference		$690.00

Type of Connection	Units	Equivalent EDU Ratio	Existing Connection Fee Per Unit [1]	Estimated Connection Fee Per Unit [1]
Residential [5]	Living Unit	1.000	$750.00	$1,440.00
Non-Residential				
Commercial Establishments (unless otherwise noted below)	# of Plumbing Fixture Units [2]	0.067	$50.00	$96.00
Hotel/Motel (without Kitchen)	Living Unit	0.270	$202.50	$389.00
Hotel/Motel (with Kitchen)	Living Unit	0.350	$262.50	$504.00
Campsite (with sewer)	# of Sites	0.250	$187.50	$360.00
Campsite (without sewer)	# of Sites	0.190	$142.50	$273.50
Laundries	# of 10 lb. Machines	0.320	$240.00	$461.00
	# of 20 lb. - 50 lb. Machines	0.640	$480.00	$921.50
Restaurants & Bars	# of Inside Seats	0.067	$50.00	$96.00
	# of Outside Seats	0.033	$25.00	$48.00
	# of Banquet Seats	0.024	$18.00	$34.50
Theaters/Churches	# of Seats	0.010	$7.50	$14.50
Barber Shops	# of Service Chairs	0.280	$210.00	$403.00
Beauty Shops	# of Service Chairs	0.500	$375.00	$720.00
Unclassified Service [3]	# of Units	0.033	$25.00	$48.00
Other	As determined by the General Manager	0.016	$11.90	$23.00
Temporary Discharge	Per 1,000 Gal.			
Public Schools [4]	Per 1,000 Gal.			

(1) Adopted by Resolution 2020-102.
(2) Refer to Appendix A-3 of Ordinance 1-2017, available on the District website at www.truckeesan.org.
(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, available on the District website at www.truckeesan.org.
(5) Connection fees for accessory dwelling units addressed separately, contact the District.

Technical Appendix - A.5 – Comparison of Scaled Residential Connection Fees

Comparison of Scaled Residential Connection Fees

Fee Component	Connection Fee Formula										
Base Rate, %	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Base Rate $	0	144	288	432	576	720	864	1008	1152	1296	1440
Variable Rate, $/SF	0.720	0.648	0.576	0.504	0.432	0.360	0.288	0.216	0.144	0.072	0.000

Size of Residential Unit, SF	Connection Fee Charge, $										
500	360	468	576	684	792	900	1,008	1,116	1,224	1,332	1,440
1000	720	792	864	936	1,008	1,080	1,152	1,224	1,296	1,368	1,440
1500	1,080	1,116	1,152	1,188	1,224	1,260	1,296	1,332	1,368	1,404	1,440
2000	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440
2500	1,800	1,764	1,728	1,692	1,656	1,620	1,584	1,548	1,512	1,476	1,440
3000	2,160	2,088	2,016	1,944	1,872	1,800	1,728	1,656	1,584	1,512	1,440
3500	2,520	2,412	2,304	2,196	2,088	1,980	1,872	1,764	1,656	1,548	1,440
4000	2,880	2,736	2,592	2,448	2,304	2,160	2,016	1,872	1,728	1,584	1,440
4500	3,240	3,060	2,880	2,700	2,520	2,340	2,160	1,980	1,800	1,620	1,440
5000	3,600	3,384	3,168	2,952	2,736	2,520	2,304	2,088	1,872	1,656	1,440
5500	3,960	3,708	3,456	3,204	2,952	2,700	2,448	2,196	1,944	1,692	1,440
6000	4,320	4,032	3,744	3,456	3,168	2,880	2,592	2,304	2,016	1,728	1,440
6500	4,680	4,356	4,032	3,708	3,384	3,060	2,736	2,412	2,088	1,764	1,440
7000	5,040	4,680	4,320	3,960	3,600	3,240	2,880	2,520	2,160	1,800	1,440
7500	5,400	5,004	4,608	4,212	3,816	3,420	3,024	2,628	2,232	1,836	1,440

Size of Residential Unit, SF	Connection Fee Charge, Relative to a 2,000 SF Residence										
500	0.25	0.33	0.40	0.48	0.55	0.63	0.70	0.78	0.85	0.93	1.00
1000	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
1500	0.75	0.78	0.80	0.83	0.85	0.88	0.90	0.93	0.95	0.98	1.00
2000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2500	1.25	1.23	1.20	1.18	1.15	1.13	1.10	1.08	1.05	1.03	1.00
3000	1.50	1.45	1.40	1.35	1.30	1.25	1.20	1.15	1.10	1.05	1.00
3500	1.75	1.68	1.60	1.53	1.45	1.38	1.30	1.23	1.15	1.08	1.00
4000	2.00	1.90	1.80	1.70	1.60	1.50	1.40	1.30	1.20	1.10	1.00
4500	2.25	2.13	2.00	1.88	1.75	1.63	1.50	1.38	1.25	1.13	1.00
5000	2.50	2.35	2.20	2.05	1.90	1.75	1.60	1.45	1.30	1.15	1.00
5500	2.75	2.58	2.40	2.23	2.05	1.88	1.70	1.53	1.35	1.18	1.00
6000	3.00	2.80	2.60	2.40	2.20	2.00	1.80	1.60	1.40	1.20	1.00
6500	3.25	3.03	2.80	2.58	2.35	2.13	1.90	1.68	1.45	1.23	1.00
7000	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00
7500	3.75	3.48	3.20	2.93	2.65	2.38	2.10	1.83	1.55	1.28	1.00

Size of Residential Unit, SF	Connection Fee Charge, Relative to a 2,000 SF Residence										
500	-1,080	-972	-864	-756	-648	-540	-432	-324	-216	-108	0
1000	-720	-648	-576	-504	-432	-360	-288	-216	-144	-72	0
1500	-360	-324	-288	-252	-216	-180	-144	-108	-72	-36	0
2000	0	0	0	0	0	0	0	0	0	0	0
2500	360	324	288	252	216	180	144	108	72	36	0
3000	720	648	576	504	432	360	288	216	144	72	0
3500	1,080	972	864	756	648	540	432	324	216	108	0
4000	1,440	1,296	1,152	1,008	864	720	576	432	288	144	0
4500	1,800	1,620	1,440	1,260	1,080	900	720	540	360	180	0
5000	2,160	1,944	1,728	1,512	1,296	1,080	864	648	432	216	0
5500	2,520	2,268	2,016	1,764	1,512	1,260	1,008	756	504	252	0
6000	2,880	2,592	2,304	2,016	1,728	1,440	1,152	864	576	288	0
6500	3,240	2,916	2,592	2,268	1,944	1,620	1,296	972	648	324	0
7000	3,600	3,240	2,880	2,520	2,160	1,800	1,440	1,080	720	360	0
7500	3,960	3,564	3,168	2,772	2,376	1,980	1,584	1,188	792	396	0