



## Overview of 2017 Rate and Capitalization Fee Studies



City of Coeur d'Alene Wastewater Division  
Wastewater Rate and Capitalization Fee Studies

March 2, 2018  
*Coeur d'Alene Idaho*





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# 1 Wastewater Rate Study

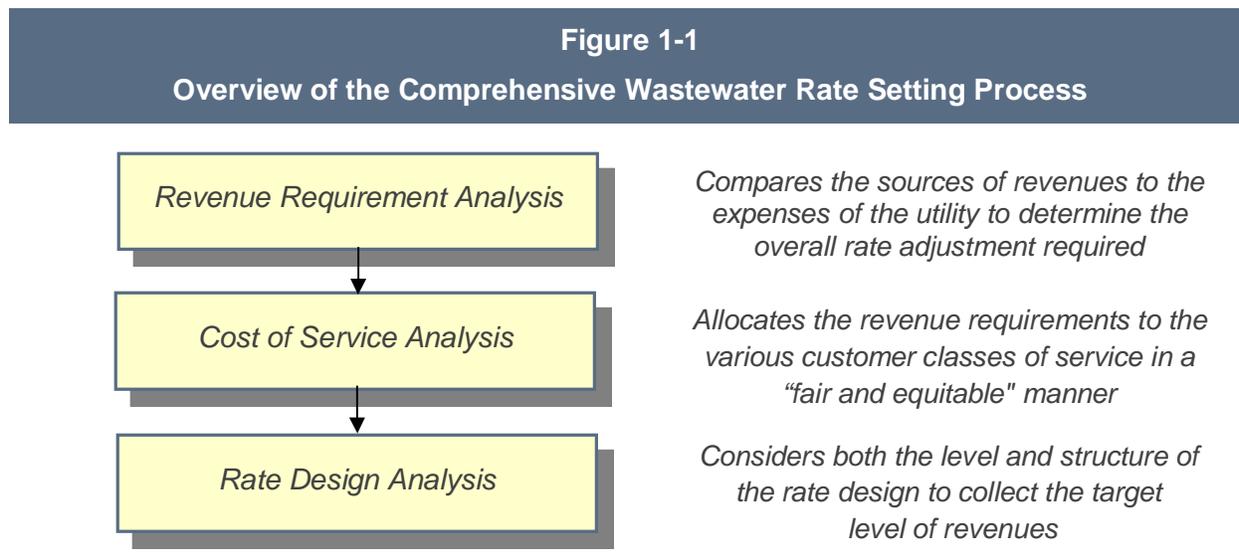
The City of Coeur d'Alene (City) retained HDR Engineering, Inc. (HDR) to perform a comprehensive rate and fee study for its wastewater utility. A comprehensive rate and fee study determines the adequacy of the existing wastewater rates and fees and provides the basis to maintain cost-based rates and fees. The final report will describe the methodology, findings, and conclusions of the wastewater rate and fee study process undertaken for the City.

The purpose of this document is to provide background information for the comprehensive rate and fee study and the resulting preliminary rates and fees.

A comprehensive study determines whether existing rates are adequate to meet the utility's operating and capital expenses with revenues received from customers. Rates set too low may result in insufficient funds to maintain system integrity. The study provides a basis for making rate adjustments; as well as, addressing the fairness and equity of the City's current rates.

## 1.1 Overview of the Rate Study Process

This comprehensive rate study consists of three interrelated analyses performed for the wastewater utility. This section provides an overview of these analyses.



A revenue requirement analysis is concerned with the overall funding sources and expenses of the utility. From this analysis, a determination can be made as to the overall level of adjustment to revenues. Next, a cost of service analysis is performed to equitably allocate the revenue requirements to the various types of customers served (e.g., residential, commercial). Finally, once an overall level of rate adjustment is determined and an equitable allocation of those costs, the last step of the rate study process is the design of rates to collect the appropriate level of revenues while considering the other rate design goals and objectives of the utility (e.g., revenue stability, cost-based, continuity in philosophy).

## 1.2 Generally Accepted Rate Setting Principles

As a practical matter, all utilities should consider setting their rates around some generally accepted or global principles and guidelines. Utility rates should be:

- Cost-based, equitable, and set at a level that meets the utility's full revenue requirement
- Easy to understand and administer
- Designed to conform with generally accepted rate setting techniques
- Stable in their ability to provide adequate revenues for meeting the utility's financial, operating, and regulatory requirements
- Established at a level which is stable from year-to-year from a customer's perspective

## 1.3 Types of Utilities

Utilities are generally divided into two types:

- Public utilities are usually owned by a city, county, or special district, and are theoretically operated at zero profit. A public utility is locally owned since its customers are also its owners.

Public utilities are capitalized, or financed, by issuing debt and soliciting funds from customers through direct capital contributions or user rates. Public or municipal utilities are typically exempt from state and federal income taxes. A publicly elected city council or board of trustees usually regulates public utilities.

- Private utilities are "for profit" enterprises and are owned by a private company and/or stockholders. The shareholders are, in essence, the owners of the private utility. Therefore, the owners of a private utility may not be customers or local citizens, but rather numerous individuals or shareholders spread across the United States.

A private utility is capitalized by issuing stock to the general public. Private utilities are taxable entities. Given their for profit status, their rates and operations are generally regulated by a state public utility commission or other regulatory body.

As a point of reference, the City's wastewater utility is a public utility and the analysis has been based on the methodology generally utilized by public utilities.

## 1.4 Determining the Revenue Requirement

Because public and private utilities have very different administrative and financial characteristics, their methods differ for determining revenue requirements and setting rates.

### 1.4.1 Public Utilities

Most public utilities use the "cash basis" approach for establishing their revenue requirements and setting rates. This approach conforms to most public utility budgetary requirements and the calculation is easy to understand. A public utility:



return to the utility's shareholders in the form of dividends, and leaves a balance for retained earnings and cash flow purposes.

## 1.5 Results of the Revenue Requirement

A comprehensive review of the City's wastewater rates was undertaken. The utility was financially evaluated on a stand-alone basis. That is, no subsidies between the wastewater and the City's other utility funds should occur. By viewing the wastewater utility on a stand-alone basis, the need to adequately fund both O&M and capital infrastructure must be balanced against the rate impacts to customers.

Based on the technical analysis undertaken as part of this study, the following findings, conclusions, and recommendations were noted.

- Total wastewater capital projects for the period of 2017 – 2026 are significant and total \$52.8 million including inflationary impacts.
- Equipment replacement projects totaling \$24.6 million.
- The replacements (other) projects for \$9.7 million.
- Total improvement and Addition projects total \$67.4 million.
- \$14.6 million of the improvements and replacement projects are the necessary treatment plant improvements to meet mandatory discharge permit requirements.
- A revenue requirement analysis was developed for the time period of 2017 – 2026. With the focus being on the next five-year period (2018 – 2022).
- Proposed rates were developed for the next five-year of period of 2017 through 2026.
- In 2022, the City should review the need for additional rate adjustments.

### 1.5.1 Summary of the Revenue Requirement Analysis

A revenue requirement analysis sums a utility's operating and capital expenses and compares it to the total revenues of the utility to determine the overall rate adjustment required. Provided below in Table 1-1 is a summary of the wastewater revenue requirement analysis.

**Table 1-1  
 Summary of Wastewater Utility Revenue Requirement (\$000s)**

	<b>FY2018</b>	<b>FY2019</b>	<b>FY2020</b>	<b>FY2021</b>	<b>FY2022</b>
<b>Sources of Funds –</b>					
Rate Revenues	\$9,800	\$9,834	\$9,873	\$9,918	\$9,967
Misc. Revenues	129	137	147	129	110
<b>Total Source of Funds</b>	<b>\$9,928</b>	<b>\$9,971</b>	<b>\$10,020</b>	<b>\$10,047</b>	<b>\$10,077</b>
<b>Applications of Funds –</b>					
Wastewater Personnel Costs	\$2,661	\$2,715	\$2,769	\$2,824	\$2,881
Administration	879	905	933	961	990
Treatment	1,730	1,783	1,838	1,894	1,952
Collection	91	95	98	102	106
Sludge Management	79	81	84	86	89
Future 5C Additional O&M	0	0	940	1,267	1,305
Rate/Reserve Funded Improvements	2,951	3,539	2,571	2,915	3,558
Debt Service	2,177	2,179	2,851	2,853	2,879
<b>Total Application of Funds</b>	<b>\$10,568</b>	<b>\$11,297</b>	<b>\$12,082</b>	<b>\$12,901</b>	<b>\$13,759</b>
Bal./(Defic.) of Funds	(640)	(1,326)	(2,062)	(2,854)	(3,682)
Balance as a % of Rates	6.5%	13.5%	20.9%	28.8%	36.9%
<b>Proposed Rate Adjustment</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.3%</b>

It is important to note the annual deficiencies in the Table 1-1 are cumulative. That is, any adjustments in the initial years will reduce the deficiency in the later years. Over the projected time period, rates need to be adjusted by approximately 36.9% in order to adequately and properly fund the City's wastewater utility O&M and capital infrastructure needs.

Based on the revenue requirement analysis developed, HDR recommends the City increase the overall revenue levels of the wastewater utility. Based on the plan developed in this report, the recommended annual adjustments of 6.5%, 6.5%, 6.5%, 6.5%, and 6.3% will provide adequate funding for the time period of FY 2018 through FY 2022.

## 1.6 Analyzing Cost of Service

After the total revenue requirement is determined, it is allocated to the users of the service. The allocation, usually analyzed through a cost of service study, reflects the cost relationships for producing and delivering services. A cost of service study requires three steps:

1. Costs are functionalized or grouped into the various cost categories related to providing service (pumping, treatment, collection, etc.). This step is often largely accomplished by the utility's chart of accounts within its accounting system.
2. The functionalized costs are then classified to specific cost components. Classification refers to the arrangement of the functionalized data into cost components. For example, a wastewater utility's costs are typically classified as volume, strength, or customer-related.
3. Once the costs are classified into components, they are allocated to the customer classes of service (residential, commercial, etc.). The allocation is based on each

customer class' relative contribution to the cost component. For example, customer-related costs are allocated to each class of service based on the total number of customers in that class of service (e.g., proportional allocation). Once costs are allocated, the required revenues for achieving cost-based rates can be determined.

## 1.7 Summary of the Cost of Service Analysis

A cost of service analysis determines the equitable allocation of the revenue requirement to the various customer classes of service. The objective of the cost of service analysis is different from determining the revenue requirement. A cost of service analysis determines the fair and equitable manner to collect that revenue requirement based on the customer class characteristics and facility requirements. A summary of the cost of service analysis for 2018 is shown in Table 1-2.

Customer Class of Service	Present Rate Revenues	Allocated Costs	\$ Difference	% Difference
<b>Residential</b>	<b>\$5,962</b>	<b>\$6,266</b>	<b>303</b>	<b>5.1%</b>
<b>Fernan – Residential</b>	<b>25</b>	<b>28</b>	<b>3</b>	<b>10.8%</b>
<b>Commercial</b>	<b>3,805</b>	<b>4,139</b>	<b>333</b>	<b>8.8%</b>
<b>Fernan - Commercial</b>	<b>7</b>	<b>7</b>	<b>0</b>	<b>6.9%</b>
<b>Total</b>	<b>\$9,800</b>	<b>\$10,439</b>	<b>\$640</b>	<b>6.5%</b>

Table 1-2 provides a comparison of the current rate revenues to the equitably allocated costs. The difference between the rate revenues and allocated costs for each class of service represents the variance between the level of revenues currently received from each class of service and the equitable allocation of costs. In viewing these results, it is important to remember that a cost of service analysis is not an exact calculation. Rather, it reflects the current relationships between current customer revenues and current costs. These relationships change over time given budgetary changes and changes in customer usage patterns and characteristics. A customer class is considered being within a reasonable range of its Cost of Service when the customers cost of service change is within 5% of the overall rate adjustment. Given all customer classes are within 5% of the overall adjustment HDR does not recommend interclass changes to rate at this time.

## 1.8 Designing Rates

Rates that meet the utility's objectives are designed based on both the revenue requirement and the cost of service analysis. This results in rates which are cost-based; however, rate design may also consider factors such as revenue stability, ability to pay, continuity of past rate philosophy, economic development, ease of administration, and customer understanding. provides the current rates in place as of 2017. The purpose of this study is to evaluate and update, as necessary, these rate for the next 5 year period. At the end of that five year period a rate study will be conducted to set rate for the next 5 years.

The overall revenue adjustments were determined in the revenue requirement analysis to calculate the prudent revenue levels necessary to fund operating and capital expenses. How the overall revenue adjustment is applied by class of service takes into consideration the cost of service results to determine how the overall revenue adjustment is collected. As noted above, the cost of service results indicate some cost differences between the customer classes of service. Specifically it appears that the commercial rates can increase greater than the residential rates. This is primarily the result of the increased costs related to treating wastewater with strength levels greater than typical domestic levels. Given the results of the cost of service analysis, it is recommended that commercial rates be increased somewhat greater than the overall utility system rate adjustment and residential rates be increased slightly less than the overall rate adjustment over the next five year period to collect the overall revenue adjustment and reflect the results of the cost of service analysis.

<b>Table 1-3 Current Wastewater Rates</b>		
<b>Customer</b>	<b>Code</b>	<b>Present Rates</b>
<b>Residential Rates</b>		
<b><u>Monthly Service Charges</u></b>		
Residential	SERS	\$35.65
Residential	SERV	10.95
Residential-Low	SERSL	15.50
Fernan-Residential	SERF	28.60
Duplex-One Meter	SERMF	71.30
<b>Commercial Rates</b>		
<b><u>Monthly Service Charges</u></b>		
Commercial-Low	CWCL	\$10.95
Commercial-Medium	CWCM	10.95
Commercial-High	CWCH	10.95
Fernan-Commercial	SENRO6	10.95
Fernan-Commercial	SENRF	10.95
<b><u>Monthly Usage Charges</u></b>		
Commercial-Low	CWCL	\$4.10
Commercial-Medium	CWCM	4.70
Commercial-High	CWCH	5.29
Fernan-Commercial	SENRO6	3.55
Fernan-Commercial	SENRF	3.55

## 1.9 Proposed Rates

Based on the revenue requirement and the Cost of service analysis rate were developed for the next 5 years. Table 1-4 provides the proposed wastewater rates for the next 5 year period. these rates were adjusted evenly across all customer classes given the results of the cost of service indicated that the City's customer classes were within their cost of service.

**Table 1-4**  
**Proposed Wastewater Rates**

<b>Customer</b>	<b>Code</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Residential Rates</b>						
<b><u>Monthly Service Charges</u></b>						
Residential	SERS	\$37.98	\$40.46	\$43.10	\$45.91	\$48.82
Residential	SERV	11.66	12.43	13.24	14.10	14.99
Residential-Low	SERSL	16.51	17.59	18.74	19.96	21.23
Fernan-Residential	SERF	30.47	32.46	34.57	36.83	39.16
Duplex-One Meter	SERMF	75.95	80.91	86.19	91.82	97.64
<b>Commercial Rates</b>						
<b><u>Monthly Service Charges</u></b>						
Commercial-Low	CWCL	\$11.66	\$12.43	\$13.24	\$14.10	\$14.99
Commercial-Medium	CWCM	11.66	12.43	13.24	14.10	14.99
Commercial-High	CWCH	11.66	12.43	13.24	14.10	14.99
Fernan-Commercial	SENRO6	11.66	12.43	13.24	14.10	14.99
Fernan-Commercial	SENRF	11.66	12.43	13.24	14.10	14.99
<b><u>Monthly Usage Charges</u></b>						
Commercial-Low	CWCL	\$4.37	\$4.65	\$4.96	\$5.28	\$5.61
Commercial-Medium	CWCM	5.01	5.33	5.68	6.05	6.44
Commercial-High	CWCH	5.64	6.00	6.39	6.81	7.24
Fernan-Commercial	SENRO6	3.78	4.03	4.29	4.57	4.86
Fernan-Commercial	SENRF	3.78	4.03	4.29	4.57	4.86

## 1.10 Summary

This section of the report has provided a brief introduction to the general principles, techniques, and economic theory used to set utility rates. These principles and techniques will become the basis for the City's analysis.

## 2 Capitalization Fee Study

The objective of a capitalization fee (CAP Fee) study is to calculate a cost-based CAP Fee for new customers connecting to the City's sewer system. CAP Fees provide the means of balancing the cost requirements for new (growth-related) utility infrastructure between existing and new customers.

The portion of existing infrastructure and future capital improvements that will provide service (capacity) to new customers is included in the determination of the CAP Fee. In contrast to this, the City has future capital improvement projects that are related to renewal and replacement of existing plant in service. These infrastructure costs are included within the rates charged to the City's customers, and are not included within the determination of the CAP Fee. By establishing a cost-based CAP Fee, the City attempts to have "growth pay for growth" and the City's existing utility customers will be, for the most part, sheltered from the financial impacts of growth.

### 2.1 Defining Capitalization Fees

The first step in establishing cost-based CAP Fee is to gain a better understanding of the definition of a CAP Fee. For purposes of this review, a CAP fee or "system development charge" is used as interchangeable terms and hold the same meaning and intent. A 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."*

System development charges, or CAP Fees, are a contribution of capital to either reimburse existing customers for the available system capacity in the existing system, or to help finance future growth-related capacity improvements. At some utilities, capacity fees may be referred to as capital connection fees, system development charges, capacity charges, impact fees, general facility charges, plant investment fees, etc. Regardless of the label used to identify them, their objective is the same. That is, these fees are intended to provide funds to the utility to finance all or a part of the capital improvements needed to serve (accommodate) new customer growth.

The main objective of a CAP Fee is to assess the benefiting (connecting) party their proportionate share of the cost of infrastructure required to provide them service (i.e. accommodate capacity needs). Stated another way, CAP Fees imply that new development creates new or additional costs on the system, and the CAP Fee simply assesses that cost in an equitable manner to those customers creating the additional cost.

CAP Fees are generally imposed as a condition of service. The objective of a CAP Fee is not to generate funds for a utility, but to assure that 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. The development of the CAP Fee is based on the estimated capacity a new customer will place on the system on average. While some customers may be above or below the average, the purpose of the CAP Fee is not to exactly reflect the capacity requirements of each customer, but place customers in like groups similar to the rate setting process. Through the implementation of equitable CAP Fees, existing customers will not be unduly burdened with the cost of new growth and development.

By reviewing and updating its CAP Fee, the City continues an important step in assuring adequate infrastructure to meet growth-related needs while providing this infrastructure to new customers in a cost-based, fair, and equitable manner. The City should set CAP Fees which are cost-based while balancing the needs of the City and development community.

## 2.2 Key Assumption of the CAP Fee Development

In developing the wastewater capitalization fee, a number of key assumptions are utilized. These are as follows:

- The City's asset records are used to determine the existing plant assets.
- The City provided the capital improvement plan (CIP) for future improvements, and adjusted projects based on current information.
- The CIP costs were in 2016 dollars.
- The CIP was reviewed and the portion of future improvements that were growth-related and CAP fee eligible were identified.

## 2.3 Development of the Proposed CAP Fee

The CAP fee is comprised of two components, capacity in the existing system and capacity provided by future capital improvements specifically needed to serve new customers. The existing fee component, or reimbursement fee, results in new customers reimbursing existing customers for the new customer's equitable share of the available capacity within the existing system that has been funded by existing customers. The second component, based on future growth related capital improvements, reflects the costs related to the expansion (new capacity) needed to accommodate new growth. The process of calculating the capitalization fees is based upon a four-step process. In summary form, these steps are as follows:

- System planning criteria
- Valuation of the fixed assets
- Allocation of CIP project costs
- Definition of existing and new facilities capacity

### 2.3.1 Capitalization Fees

The City's current fees are based the equivalent number of PE's which vary by the type of customer. The base PE factor is existing and future system fee that is then multiplied by the PE units which is then multiplied by the customer class multiplier. The existing single family multiplier is 2.32 which was the people per household average for a single family home. Provides current base CAP fee.

<b>Table 2-1</b>			
<b>Current Base CAP Fees</b>			
<b>Component</b>	<b>Existing System Fee</b>	<b>Future System Fee</b>	<b>Total System Fee</b>
Treatment	\$506	\$656	\$1,162
Collection Mains	134	30	164
Lift Stations	0	8	8
Compost	10	0	10
General Plant	<u>67</u>	<u>22</u>	<u>89</u>
<b>TOTALS Per PE</b>	<b>\$717</b>	<b>\$716</b>	<b>\$1,433</b>

shows the multiplier, or PE units, for each customer type and the resulting calculated CAP fee. As part of the CAP fee update the PE Units will be reviewed and updated if necessary.

**Table 2-2**  
**Current Wastewater CAP Fee**

<b>Customer Type</b>	<b>PE Units</b>	<b>Calculated CF</b>
Residential		
Single Family Dwelling	2.32 per unit	\$3,325
Multiple Family Dwelling (2 units)	2.32 per unit	3,325
Commercial-Low		
Bar or tavern	0.20 per seat	\$287
Factories	0.10 per 100 sq. ft.	143
Hospital	2.50 per bed	3,583
Institution (other than hospital)	1.25 per bed	1,791
Mobile Home	2.32 per unit	3,425
Multiple Family Dwelling (>2 units)	2.20 per unit	3,153
Office Space	0.10 per 100 sq. ft.	143
Retail Space	0.05 per 100 sq. ft.	72
School (without meal preparation)	0.08 per student/staff	115
Warehouse	0.04 per 100 sq. ft.	57
Commercial-Medium		
Hotel or motel (without kitchen facilities in room)	1.60 per unit	\$1,863
Commercial-High*		
Bakeries	0.20 per seat	\$349
Bowling Alley	1.00 per lane	1,746
Funeral homes	0.05 per sq. ft.	87
Grocery markets with garbage disposals	0.04 per sq. ft.	70
Hotel or motel (with kitchen facilities in room)	1.60 per unit	2,794
Laundry, commercial	1.90 per washing machine	2,794
Restaurants	0.20 per seat	349
School (with meal preparation)	0.13 per student/staff	227
Theaters (indoor and outdoor)	0.03 per seat	52

For customers who do not fit into the classes in a fee will be calculated based on the customer's specific wastewater characteristics such as flow, Biochemical Oxygen Demand, suspended solids, ammonia and phosphorus. In addition to the CAP fee the wastewater utility also applies a high strength surcharge on Commercial High customers. The Current surcharge for high commercial customers is \$313.06 per PE.

## 2.4 Summary of the CAP Fee Analysis

The CAP fee was updated to reflect updated plant assets and future capital projects. Table 2-3 provides the new based CAP fee per PE.

<b>Table 2-3</b>			
<b>Proposed Base CAP Fees</b>			
<b>Component</b>	<b>Existing System Fee</b>	<b>Future System Fee</b>	<b>Total System Fee</b>
Treatment	\$582	\$533	\$1,115
Collection Mains	166	11	177
Lift Stations	0	11	11
Compost	7	0	7
General Plant	<u>59</u>	<u>15</u>	<u>73</u>
<b>TOTALS Per PE</b>	<b>\$814</b>	<b>\$569</b>	<b>\$1,383</b>

Table 2-4 provides the CAP fee by customer type. For the most part the PE units have not changed with the exception of residential and mobile home customer classes reflecting the updated data provided from the latest US Census bureau data for the City of Coeur d'Alene people per household.

**Table 2-4  
Proposed Wastewater CAP Fee**

<b>Customer Type</b>	<b>PE Units</b>	<b>Calculated CF</b>
Residential		
Single Family Dwelling	2.39 per unit	\$3,307
Multiple Family Dwelling (2 units)	2.39 per unit	3,307
Commercial-Low		
Bar or tavern	0.20 per seat	\$277
Factories	0.10 per 100 sq. ft.	138
Hospital	2.50 per bed	3,459
Institution (other than hospital)	1.25 per bed	1,729
Mobile Home	2.39 per unit	3,307
Multiple Family Dwelling (>2 units)	2.20 per unit	3,044
Office Space	0.10 per 100 sq. ft.	138
Retail Space	0.05 per 100 sq. ft.	69
School (without meal preparation)	0.08 per student/staff	111
Warehouse	0.04 per 100 sq. ft.	55
Commercial-Medium		
Hotel or motel (without kitchen facilities in room)	1.60 per unit	\$1,799
Commercial-High*		
Bakeries	0.20 per seat	\$361
Bowling Alley	1.00 per lane	1,803
Funeral homes	0.05 per sq. ft.	90
Grocery markets with garbage disposals	0.04 per sq. ft.	72
Hotel or motel (with kitchen facilities in room)	1.60 per unit	2,885
Laundry, commercial	1.90 per washing machine	3,426
Restaurants	0.20 per seat	361
School (with meal preparation)	0.13 per student/staff	234
Theaters (indoor and outdoor)	0.03 per seat	54

As noted earlier the Commercial high customers are subject to high strength surcharge. This charge was also update during this analysis. The new surcharge has increased to \$419.85 which is reflected in the rate in table 2.4.



## 3 Conclusion

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The proposed rates and fees are calculated based on generally accepted rate and fees setting techniques and are pending City Council approval.