



Technical Memorandum

To: City of Bishop Water and Sewer Commission
City of Bishop Department of Public Works

From: Kate S. Nelson, PE

Date: November 7, 2013

RE: 2013 CITY OF BISHOP WATER AND SEWER RATE STUDY

BACKGROUND

The City of Bishop has contracted with Sustainable Resource Engineering (SRE) to review and analyze the City's water and sewer rates, revenue needs, and ensure the rates are instituted in a fair and equitable system for all customer categories. The City strives to review the water and sewer rates charged to their customers every five (5) years.

The City's main concern for the review of the water and sewer rates is to ensure that they are fair and equitable to all customer categories. The current revenues generated from the water and sewer rates are sufficiently covering the cost of operation, maintenance, administration, and capital improvements each year. Except for the water storage tank constructed about 20 years ago, all capital improvements are completed on a pay-as-you-go basis. The loan payments for the remaining 10 years or so left on the loan for the storage tank are considered to be a part of ongoing capital expenses.

The City of Bishop's water and sewer rates are based on Equivalent Dwelling Units (EDU) to establish a flat rate by customer category. The City currently uses 22 consumer categories and the rates for each category are related to single family residences (equates to 1.0 EDU). Over the years, the City of Bishop has installed approximately 80 water meters representing all 22 customer

categories to assist with determining water use patterns among each category. The water meter data was heavily relied on in revising the EDU factors for each category.

CUSTOMER CATEGORIES

As part of this study, the City requested that SRE review the customer categories and determine if simplifications could be made to reflect similar uses and determine if new categories would be needed to reflect the changing dynamics of the City. Currently the City has a total of 22 customer categories as shown in the following table:

Table 1. Current Customer Categories

	Current Customer Category	Per
1	Single Family Residence	Each
2	Multiple Family Residence	Unit
3	Church	Each
4	Church Recreation Hall	Each
5	Hospital	Bed
6	Convalescent Home	Bed
7	Lodge or Meeting Hall	Each
8	Hall Bar	Each
9	Public School	Student
10	Other School	Student
11	Fairgrounds	Each
12	Gas Station	Island
13	Self Serve Car Wash	Stall
14	Beauty or Barber Shop	Each
15	Bar	Seat
16	Hotel Manager's Quarters	Each
17	Hotel Room	Each
18	Laundry	Each
19	Laundromat	Washer
20	Restaurant	Seat
21	Trailer Dump Facility	Each
22	Other	Toilet

In general, the categories have been refined to differentiate between users that have different characteristics and to combine user categories where users have similar characteristics. The category listing was simplified where possible and where equity would not be compromised. The proposed changes to the customer categories are shown in the following table:

Table 2. Preliminary Proposed Customer Categories

	Proposed Customer Category	Per
1	Single Family Residence	Each
2	Multiple Family Residence (detached)	Unit
3	Multiple Family Residence (attached)	Unit
4	Church	Each
5	Hall	Each
6	Hospital	Bed
7	School	Student
8	Fairgrounds	Each
9	Gas Station	Island
10	Car Wash	Stall
11	Beauty or Barber Shop	Each
12	Bar or Restaurant	Seat
13	Hotel Room	Each
14	Laundry or Laundromat	Washer
15	Trailer Dump Facility	Each
16	General Commercial	Toilet
17	Brewery (with pretreatment)	1K Barrels/Year
18	Irrigation	Acre
19	Other	Case by case

For the preliminary proposed categories, many of the changes have been made to combine categories that are similar in use and have been using the same EDU for water and sewer rates. These changes include: Church Hall and Lodge or Meeting Hall are combined into Hall, Hospital and Convalescent Home are combined into Hospital, Hall Bar, Bar, and Restaurant were combined into Bar or Restaurant, Public School and Other School are combined into School, and Laundry and Laundromat are combined into one category Laundry or Laundromat.

Multi Family Residences are split into attached and detached to account for the difference in water use and demand on the system between an apartment building with limited landscaping and a trailer park with small yards around each unit.

Other was changed, in most cases to General Commercial because the majority of the uses that fell into the “Other” category are considered General Commercial. This language is also more consistent with the City’s zoning map.

New additions to the customer categories have been included as well. A brewery category has been added to accommodate proposed future business growth within the City. Breweries would be assessed based on their associated categories such as General Commercial (for Mammoth Brewery) or Bar/Restaurant (for Mountain Rambler brewery). A brewery fee would be added based on their production capacity. Breweries will also be required to install pretreatment prior to allowing waste to enter the City's wastewater infrastructure. Irrigation was added, but would only be added to accounts that have extraordinary water usage related to irrigation such as schools and hospital.

The Hotel Manager Quarters category was deleted and instead will be billed as Multi Family (attached). We have retained the "Other" category to account for uses that are not anticipated in this study.

WATER AND SEWER EQUIVALENT DWELLING UNIT ANALYSIS

Over the last few years, the City of Bishop has installed approximately 80 water meters throughout their system. These meters have been placed on various users representing each category. Based on water meter readings for 2011 and 2012, the following water use for each proposed category was developed:

Table 3. Water Use by Category

	User Category	Per	Gallons per Day (GPD)	Percent of SFR
1	Single Family Residence (SRF)	Each	837	100%
2	Multiple Family Residence (detached)	Unit	178	21%
3	Multiple Family Residence (attached)	Unit	145	17%
4	Church	Each	400	48%
5	Hall	Each	60	7%
6	Hospital	Bed	570	68%
7	School	Student	56.4	7%
8	Fairgrounds	Each		
9	Gas Station	Island	350	42%
10	Car Wash	Stall	726	87%
11	Beauty or Barber Shop	Each	310	37%
12	Bar or Restaurant	Seat	20	2%
13	Hotel Room	Each	74	9%
14	Laundry and Laundromat	Washer	110	13%
15	Trailer Dump Facility	Each		
16	General Commercial	Toilet	500	60%
17	Brewery (with pretreatment)	1K Barrels/Year		
18	Irrigation	Acre	1540	184%
19	Other	Case by case		

The gallons per day (GPD) are the average gallons per day over the two year period for each customer category. Each customer category average gallons per day was then divided into the average gallons per day of the single family residence to determine the percentage of water use as related to the single family residence. The categories with no data are categories the City did not have meter data.

Theoretical EDU factors were calculated for each proposed category based on an assumption that the total EDU factor for each category is the sum of portion related to fixed costs and a portion related to use costs. The portion of each EDU assumed to be associated with fixed costs and use costs was described in the Public Works Department memo to the Water and Sewer Commission dated 8 November 2006 (Appendix A). This memo concluded that about 84% of water costs and 94% of sewer costs were fixed costs. Fixed costs are costs that should be allocated between users independent of use and can be thought of as representing the cost to provide the facility to provide fire protection and to bring water to a customer. Use costs are mostly related to pumping and aeration costs.

The theoretical EDU factors were calculated based on the presumption that existing EDU factors are not significantly different from what is equitable. This is supported by the fact that the existing EDU's have been in use for many decades, and the understanding that relatively small changes are desired. The fixed portion of the theoretical EDU's was calculated to be 84% of the current EDU's for water and 94% for sewer. Therefore the use portion for a single family residence is represented by the remaining percentage (16% water and 6% sewer). The theoretical EDU factors were calculated to be as follows:

Table 4. Theoretical EDU Factors

	User Category	Per	Water	Sewer
1	Single Family Residence	Each	1.00	1.00
2	Multiple Family Residence (detached)	Unit	0.71	0.76
3	Multiple Family Residence (attached)	Unit		
4	Church	Each	0.92	0.97
5	Hall	Each	0.85	0.94
6	Hospital	Bed	0.39	0.35
7	School	Student	0.04	0.04
8	Fairgrounds	Each	5.88	6.58
9	Gas Station	Island	0.40	1.81
10	Car Wash	Stall	2.66	2.87
11	Beauty or Barber Shop	Each	0.90	0.96
12	Bar or Restaurant	Seat	0.09	0.10
13	Hotel Room	Each	0.22	0.46
14	Laundry and Laundromat	Washer	0.69	0.76
15	Trailer Dump Facility	Each	1.68	1.88
16	General Commercial	Toilet	0.94	0.98
17	Brewery (with pretreatment)	1K Barrels/Year		
18	Irrigation	Acre	0.29	0.11
19	Other	Case by case		

Although they are rational, these theoretical EDU's are over-precise and indicate differences between categories and between water and sewer that do not seem to be meaningful. As a result, using purely calculated EDU's does not represent an ideal and understandable way to assess water and sewer fees to the City of Bishop customers. In addition, simpler EDU factors and fees will reduce staff workload and potential for error. In light of this, an attempt was made to simplify the EDU's. In addition, further adjustments were included to Fairgrounds, Hotel Room, and Gas Station EDU's in an attempt to improve equity.

The result of the simplification and adjustment process was as follows:

Table 5. Preliminary Proposed EDU Factors

	User Category	Per	Water	Sewer	Water Change	Sewer Change
1	Single Family Residence	Each	1	1	0%	0%
2	Multiple Family Residence (detached)	Unit	0.75	0.75	-7%	-7%
3	Multiple Family Residence (attached)	Unit	0.7	0.7		
4	Church	Each	1	1	0%	0%
5	Hall	Each	1	1	0%	0%
6	Hospital	Bed	0.4	0.4	17%	19%
7	School	Student	0.045	0.045	11%	12%
8	Fairgrounds	Each	5	7	-34%	0%
9	Gas Station	Island	0.4	0.4	0%	-83%
10	Car Wash	Stall	3	3	0%	0%
11	Beauty or Barber Shop	Each	1	1	0%	0%
12	Bar or Restaurant	Seat	0.1	0.1	0%	0%
13	Hotel Room	Each	0.25	0.25	0%	-50%
14	Laundry and Laundromat	Washer	0.7	0.7	-14%	-13%
15	Trailer Dump Facility	Each	2	2	0%	0%
16	General Commercial	Toilet	0.95	0.95	-5%	-5%
17	Brewery (with pretreatment)	1K Barrels/Year	0.2	0.2		
18	Irrigation	Acre	0.3	0		
19	Other	Case by case	0	0		

These values and percent change columns seem to reflect reasonable changes that move the factors toward greater equity.

INFLATION INCREASE

The City of Bishop would like to have this rate study cover fiscal years 2014/2015 through 2018/2019. There has been some discussion regarding the best way to account for inflation. There are two common types of inflators that are used. One is a set annual percent increase (not to exceed) typically 3 to 5 percent.

The other option is to adjust the rates using the consumer price index (CPI) as published by the Bureau of Labor statistics. In 2011 the CPI was approximately 3.1% and in 2012 the CPI was

approximately 2.1%. Our recommendation to the City would be to determine a fixed percentage between 2% and 5% and increase the rates by that flat percentage each year.

We advocate increasing water and sewer rates each year by a small percentage as opposed to not increasing rates over a period of time and then having to institute a larger rate increase. It is important to understand that increasing based on a flat percentage or adjusting according to the CPI should be a short term approach to adjusting rates between comprehensive rate studies.

PUBLIC MEETING

The Water and Sewer Commission requested that a public meeting be held to address any concerns that the customers may have and ensure that the public was informed of the proposed changes to the rates/categories. A public meeting was held on October 24, 2013. The information presented to the public was similar to what has been outlined above in the Water and Sewer Rate section of this report. The public works staff, two (2) Water and Sewer Commissioners, and six (6) members of the public were present. The meeting was approximately a half an hour long.

The questions/concerns regarding the proposed changes to the rates/categories were limited. The feedback from the public was more procedural questions; for example, one member of the public was wondering if an audit of the accounts have been completed to ensure that they are being billed under the correct category. An audit of the accounts was performed in 2008 and have been updated as needed each year since.

Based on the limited amount of feedback by the public, we can deduce that the adjustments made have created a more fair and equitable rate structure for the citizens of Bishop.

WATER AND SEWER RATES

City of Bishop Public Works, SRE, and the Water and Sewer Commission reviewed the proposed rate and category changes at their regularly scheduled meeting in September. A public meeting was held at the end of October. Based on all of the feedback from these meetings, some categories have been further revised and altered. For example the Hotel Managers Quarters will no longer be its own category, but it will be included under the attached multifamily category.

The revisions made based on the feedback from the meetings has resulted in revising the proposed EDU's. Below are the recommended final revised EDU factors to be used for the next five (5) years.

Table 6. Revised Final EDU Factors

	Customer Category	Water EDU	Sewer EDU
1	Single Family Residence	1.00	1.00
2	Multiple Family Residence (detached)	0.75	0.75
3	Multiple Family Residence (attached)	0.70	0.70
4	Church	1.00	1.00
5	Hall	1.00	1.00
6	Hospital	0.35	0.35
7	School	0.04	0.04
8	Fairgrounds	5.00	7.00
9	Gas Station	0.40	0.40
10	Car Wash	3.00	3.00
11	Beauty or Barber Shop	1.00	1.00
12	Restaurant	0.10	0.10
13	Bar	0.08	0.08
14	Hotel Room	0.25	0.25
15	Laundry or Laundromat	0.70	0.70
16	Trailer Dump Facility	2.00	2.00
17	General Commercial	0.95	0.95
18	Brewery (with pretreatment)	0.20	0.20
19	Irrigation	0.30	0.30
20	Other	Case by case	Case by case

Water and sewer rates are calculated by taking total required annual revenue divided by the total number of EDU's. The total required annual revenue covers all operation and maintenance, salaries and benefits, as well as yearly capital improvement projects. The total number of EDU's in the system is determined by summing the product of all of the units in each of the categories with the EDU factor for that category.

Based on the proposed EDU factors listed above, the total number of EDU's in the system goes down by about 4% from the current EDU factors. The total water and sewer EDU factors do not match exactly, because the new Irrigation category is only applied to the water system billings.

To reduce workload and the potential for error, it has been suggested to round fees for single family residences to nearest dollars. For July 2014, the result would be to leave water fees at \$34 and increase sewer fees from \$29.30 to \$30, \$64 per month per EDU. It should be noted that although the total water and sewer bill remains \$64 per month, the split between water and sewer is different than the drafts presented in this document.

RECOMENDED RATE STRUCTURE 2014/2015 – 2018/2019

All information and suggested changes were compiled into the following recommended water and sewer rate structure for the next five (5) years.

Table 7. Recommended Rate Structure 2014/2015 – 2018/2019

RECOMMENDED WATER RATE STRUCTURE							
User Category	Basis	Current	Monthly Fee				
			July 2014	July 2015	July 2016	July 2017	July 2018
Single Family Residence	Each	\$ 34.00	\$ 34.00	\$ 35.00	\$ 36.00	\$ 36.00	\$ 37.00
Multiple Family Residence (detached)	Unit	\$ 27.20	\$ 25.50	\$ 26.25	\$ 27.00	\$ 27.00	\$ 27.75
Multiple Family Residence (attached)	Unit	\$ 27.20	\$ 23.80	\$ 24.50	\$ 25.20	\$ 25.20	\$ 25.90
Church	Each	\$ 34.00	\$ 34.00	\$ 35.00	\$ 36.00	\$ 36.00	\$ 37.00
Hall	Each	\$ 34.00	\$ 34.00	\$ 35.00	\$ 36.00	\$ 36.00	\$ 37.00
Hospital	Bed	\$ 11.33	\$ 11.90	\$ 12.25	\$ 12.60	\$ 12.60	\$ 12.95
School	Student	\$ 1.36	\$ 1.36	\$ 1.40	\$ 1.44	\$ 1.44	\$ 1.48
Fairgrounds	Each	\$238.00	\$170.00	\$175.00	\$180.00	\$180.00	\$185.00
Gas Station	Island	\$ 13.60	\$ 13.60	\$ 14.00	\$ 14.40	\$ 14.40	\$ 14.80
Car Wash	Stall	\$102.00	\$102.00	\$105.00	\$108.00	\$108.00	\$111.00
Beauty or Barber Shop	Each	\$ 34.00	\$ 34.00	\$ 35.00	\$ 36.00	\$ 36.00	\$ 37.00
Restaurant	Seat	\$ 3.40	\$ 3.40	\$ 3.50	\$ 3.60	\$ 3.60	\$ 3.70
Bar	Seat	\$ 2.72	\$ 2.72	\$ 2.80	\$ 2.88	\$ 2.88	\$ 2.96
Hotel Room	Each	\$ 8.50	\$ 8.50	\$ 8.75	\$ 9.00	\$ 9.00	\$ 9.25
Laundry and Laundromat	Washer	\$ 27.20	\$ 23.80	\$ 24.50	\$ 25.20	\$ 25.20	\$ 25.90
Trailer Dump Facility	Each	\$ 68.00	\$ 68.00	\$ 70.00	\$ 72.00	\$ 72.00	\$ 74.00
General Commercial	Toilet	\$ 34.00	\$ 32.30	\$ 33.25	\$ 34.20	\$ 34.20	\$ 35.15
Brewery (with pretreatment)	1KBbl/Yr	-	\$ 6.80	\$ 7.00	\$ 7.20	\$ 7.20	\$ 7.40
Irrigation	Acre	-	\$ 10.20	\$ 10.50	\$ 10.80	\$ 10.80	\$ 11.10
Other	Case by case	-	\$ -	\$ -	\$ -	\$ -	\$ -

RECOMMENDED SEWER RATE STRUCTURE							
User Category	Basis	Current	Monthly Fee				
			July 2014	July 2015	July 2016	July 2017	July 2018
Single Family Residence	Each	\$ 29.30	\$ 30.00	\$ 30.00	\$ 31.00	\$ 32.00	\$ 32.00
Multiple Family Residence (detached)	Unit	\$ 23.44	\$ 22.50	\$ 22.50	\$ 23.25	\$ 24.00	\$ 24.00
Multiple Family Residence (attached)	Unit	\$ 23.44	\$ 21.00	\$ 21.00	\$ 21.70	\$ 22.40	\$ 22.40
Church	Each	\$ 28.24	\$ 30.00	\$ 30.00	\$ 31.00	\$ 32.00	\$ 32.00
Hall	Each	\$ 28.24	\$ 30.00	\$ 30.00	\$ 31.00	\$ 32.00	\$ 32.00
Hospital	Bed	\$ 9.77	\$ 10.50	\$ 10.50	\$ 10.85	\$ 11.20	\$ 11.20
School	Student	\$ 1.05	\$ 1.20	\$ 1.20	\$ 1.24	\$ 1.28	\$ 1.28
Fairgrounds	Each	\$197.68	\$210.00	\$210.00	\$217.00	\$224.00	\$224.00
Gas Station	Island	\$ 55.67	\$ 12.00	\$ 12.00	\$ 12.40	\$ 12.80	\$ 12.80
Car Wash	Stall	\$ 64.97	\$ 90.00	\$ 90.00	\$ 93.00	\$ 96.00	\$ 96.00
Beauty or Barber Shop	Each	\$ 29.30	\$ 30.00	\$ 30.00	\$ 31.00	\$ 32.00	\$ 32.00
Restaurant	Seat	\$ 2.93	\$ 3.00	\$ 3.00	\$ 3.10	\$ 3.20	\$ 3.20
Bar	Seat	\$ 2.34	\$ 2.40	\$ 2.40	\$ 2.48	\$ 2.56	\$ 2.56
Hotel Room	Each	\$ 14.06	\$ 7.50	\$ 7.50	\$ 7.75	\$ 8.00	\$ 8.00
Laundry and Laundromat	Washer	\$ 21.74	\$ 21.00	\$ 21.00	\$ 21.70	\$ 22.40	\$ 22.40
Trailer Dump Facility	Each	\$ 58.60	\$ 60.00	\$ 60.00	\$ 62.00	\$ 64.00	\$ 64.00
General Commercial	Toilet	\$ 29.30	\$ 28.50	\$ 28.50	\$ 29.45	\$ 30.40	\$ 30.40
Brewery (with pretreatment)	1KBbl/Yr	-	\$ 6.00	\$ 6.00	\$ 6.20	\$ 6.40	\$ 6.40
Irrigation	Acre	-	\$ -	\$ -	\$ -	\$ -	\$ -
Other	Case by case	-	\$ -	\$ -	\$ -	\$ -	\$ -