CITY OF COOS BAY CITY COUNCIL
Agenda Staff Report

MEETING DATE	AGENDA ITEM NUMBER
August 18, 2015	

TO: Mayor Shoji and City Councilors

FROM: Jim Hossley, Public Works Director

THROUGH: Rodger Craddock, City Manager

ISSUE: Follow-up Information on Wastewater Rates

BACKGROUND

At the July 21, 2015 City Council meeting, the City's rate consultant, Mr. Steve Donovan gave a presentation to the Council on the methodology that is currently in place to calculate wastewater rates. During his presentation, Mr. Donovan pointed out the differential in the monthly volume charge between the domestic strength customer classes and the commercial high strength class is based on the assumed strength of wastewater discharged from these customers to the City's wastewater collection and treatment system. The units of measurement for wastewater strength are measured in milligrams per liter (mg/l) of Biochemical Oxygen Demand (BOD) and milligrams per liter of Total Suspended Solids (TSS). As discussed in prior staff communication with the Council, per Coos Bay Municipal Code (CBMC), high strength wastewater customers are those that discharge any water or wastes to the City's system containing higher than 250 mg/l five-day BOD or 250 mg/l suspended solids. Typical domestic strength wastewater discharges contains less than these amounts.

For rate making purposes, the City assumes domestic strength wastewater concentrations are 200 mg/l BOD, and 200 mg/l TSS. For the commercial high strength customers, the assumed concentrations are 350 mg/l BOD and 350 mg/l TSS. These concentration thresholds have been used by the City to calculate volume rates for over thirty years. Mr. Donovan said these threshold concentrations are industry standards, and are used in jurisdictions across the Country. Mr. Donovan referenced the wastewater concentrations sampling data base published by the California State Water Resources Control Board (Revenue Program Guidelines, Appendix G, March 1998 edition) as a data source for establishing the wastewater class concentration thresholds.

During the presentation, the question was posed whether the current volume charge for the commercial high strength customer class is too high, and places an undue financial burden on those customers. By way of comparison, the current volume charge for domestic strength customers is $6.76 per month per 100 cubic feet of water consumption (CCF). The corresponding volume charge for the commercial high strength customer class is $8.38 per CCF.

Mr. Donovan pointed out if the Council chose to reduce the commercial high strength volume charge, an increase in the domestic strength volume charge would have to be initiated to fully recover the wastewater system revenue requirements. Mr. Donovan offered to run rate

sensitivity calculations that would produce a schedule of possible volume charges for both domestic and high strength rates over a range of assumed wastewater concentrations. Mr. Donovan has completed those calculations, and the results are summarized in the attached report.

ADVANTAGES:

The data in the attached rate sensitivity analysis will give the Council additional decision support tools as it deliberates on the merits of reducing the commercial high strength wastewater volume charge.

DISADVANTAGES:

Any reduction in the commercial high strength volume charge, and the corresponding reduction in revenue recovered from this class will have to be made up from volume rate increases to the domestic strength customer classes. As pointed out in the attached rate sensitivity analysis, the rate impacts between these two groups is not one to one. Based on historical metered flow data, roughly 91% of total wastewater system flows originate from the domestic strength customer classes, and only 9% of metered flow originates from the commercial high strength class. This means that a relatively large reduction in the commercial high strength volume charge would translate into a much more modest increase in the domestic strength volume charge.

BUDGET IMPLICATIONS:

None if the Council balances rate decreases to the commercial high strength volume charge with corresponding rate increases to the domestic strength volume charge.

If the Council chooses to move in some other direction relative to the volume charges for high strength and domestic strength customers, Staff direction will be required to calculate the fiscal 2015-16 budget implications.

ACTION REQUESTED:

Consider and discuss the information contained in the attached wastewater volume rate sensitivity analysis. Upon completion of your deliberations, provide Staff with direction how you wish to proceed on this policy decision. Should Council desire to move forward with one of the options for a rate decrease to the commercial high strength volume charge with corresponding rate increase to the domestic strength volume charge, direct staff to prepare the appropriate resolution and advertise for a public hearing to take public input in advance of the proposed change in policy.

ATTACHMENTS:

July 30, 2015 wastewater volume rate sensitivity analysis report prepared by Steve Donovan.

Memorandum

DONOVAN enterprises, inc.

To: Jim Hossley

From: Steve Donovan

Cc: Susanne Baker, Rodger Craddock

Date: July 30, 2015

Re: Council Decision Support – Wastewater Volume Rates

At my July 21st City Council presentation concerning the City's current wastewater rates methodology, I pointed out that assumed strength of discharge is the key variable that differentiates the wastewater volume charge of the domestic strength customer classes (i.e., single family residential, multi-family residential, general commercial, and public/government) and the commercial high strength customer class. Under the current rate structure, domestic strength wastewater concentrations are assumed to be 200 mg/l BOD and 200 mg/l TSS. The assumed concentrations for the commercial high strength class are 350 mg/l BOD and 350 mg/l TSS.

After I completed my presentation, Councilor Daily presented a couple of charts that showed the difference in the current and [his] projected monthly wastewater bills for an average single family residential customer and a commercial high strength customer that uses 2,600 cubic feet of water per month. His argument centered on the size of the differential between the monthly bill for these two types of customers, and the need for the City to consider reducing the volume rate differential between domestic and high strength customers.

The Council discussed the policy implications of Councilor Daily's suggestion, but generally felt unprepared to act on the suggestion without the benefit of concrete alternatives. I pointed out to the Mayor and Council, any reduction in the commercial high strength volume charge would have to be counteracted with an increase in the domestic strength volume charge to fully recover total system revenue requirements. To help the Council with this issue of concrete alternatives, I offered to run a rate sensitivity analysis. Specifically, I created a model that "steps down" the assumed concentrations of wastewater discharges from the commercial high strength class in 50 mg/l increments until it matched the assumed concentrations of the domestic strength classes. In other words, I solved for the volume charges for both classes under alternative concentration assumptions for the high strength class. I held the domestic strength concentrations at 200 mg/l BOD and 200 mg/l TSS over the sliding scale of concentrations for the high strength class. The results of this sensitivity analysis are shown below in Table 1.

Table 1

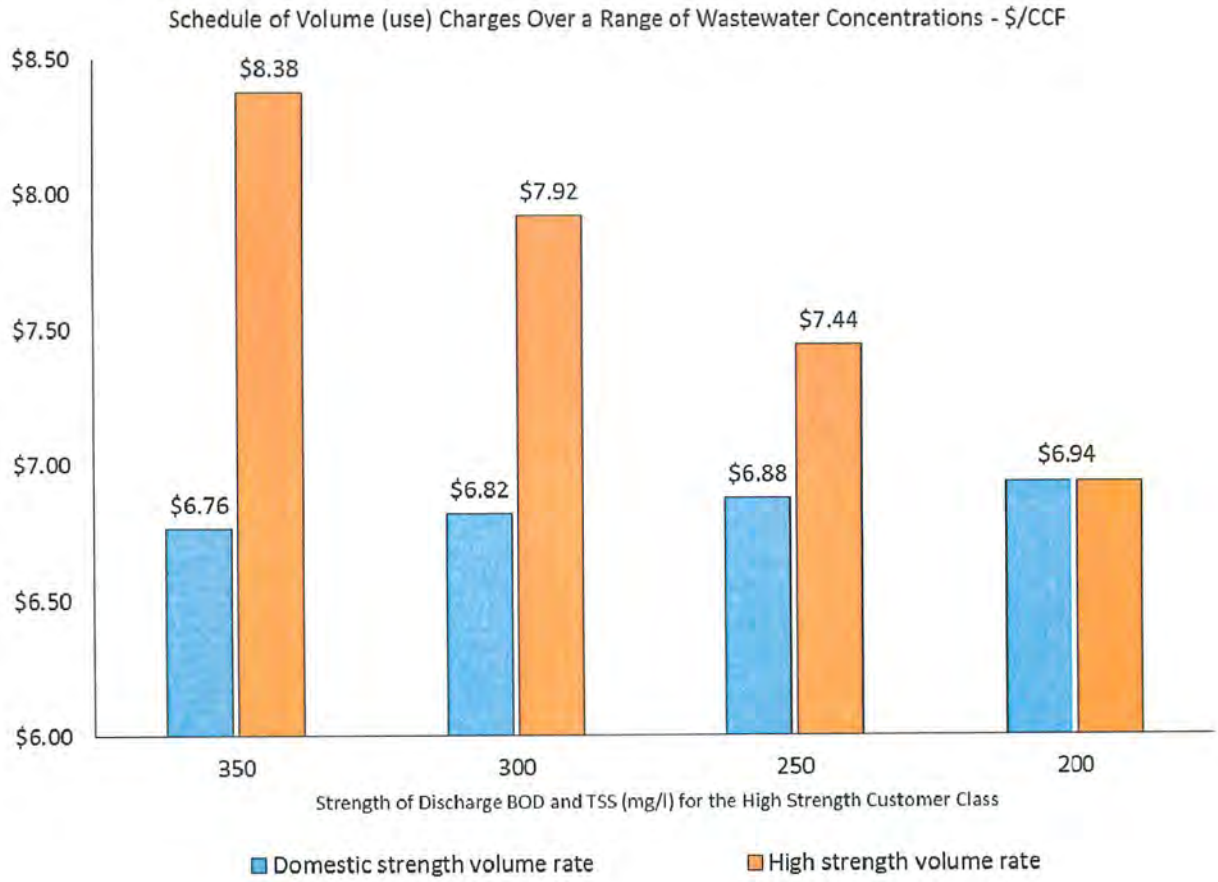
City of Coos Bay, Oregon
Schedule of Volume (Use) Charges over a range of Wastewater Concentrations

Assumed Wastewater Concentrations:	milligrams per liter			
Domestic strength:				
BOD	200	200	200	200
TSS	200	200	200	200
High strength:				
BOD	350	300	250	200
TSS	350	300	250	200
Single Family Residential				
Sanitary flow and I&I	$ 4.61	$ 4.61	$ 4.61	$ 4.61
Strength - BOD	$ 1.27	$ 1.30	$ 1.33	$ 1.37
Strength - TSS	$ 0.89	$ 0.91	$ 0.93	$ 0.96
Total - $/Ccf	$ 6.76	$ 6.82	$ 6.88	$ 6.94
Multi-Family				
Sanitary flow and I&I	$ 4.61	$ 4.61	$ 4.61	$ 4.61
Strength - BOD	$ 1.27	$ 1.30	$ 1.33	$ 1.37
Strength - TSS	$ 0.89	$ 0.91	$ 0.93	$ 0.96
Total - $/Ccf	$ 6.76	$ 6.82	$ 6.88	$ 6.94
Commercial				
Sanitary flow and I&I	$ 4.61	$ 4.61	$ 4.61	$ 4.61
Strength - BOD	$ 1.27	$ 1.30	$ 1.33	$ 1.37
Strength - TSS	$ 0.89	$ 0.91	$ 0.93	$ 0.96
Total - $/Ccf	$ 6.76	$ 6.82	$ 6.88	$ 6.94
Governmental				
Sanitary flow and I&I	$ 4.61	$ 4.61	$ 4.61	$ 4.61
Strength - BOD	$ 1.27	$ 1.30	$ 1.33	$ 1.37
Strength - TSS	$ 0.89	$ 0.91	$ 0.93	$ 0.96
Total - $/Ccf	$ 6.76	$ 6.82	$ 6.88	$ 6.94
High Strength				
Sanitary flow and I&I - $/Ccf	$ 4.61	$ 4.61	$ 4.61	$ 4.61
BOD - $/lb	$ 2.22	$ 1.95	$ 1.67	$ 1.37
TSS - $/lb	$ 1.55	$ 1.36	$ 1.16	$ 0.96
Total - $/Ccf	$ 8.38	$ 7.92	$ 7.44	$ 6.94

The data in Table 1 shows that as we reduce the concentrations (and thus the rates) for the high strength class, the rates for the domestic strength classes go up, but at a modest pace

relative to the pace of declines seen for the high strength rates. The reason for this "weighting" lies in the assumed flow contributions to the system by the domestic and high strength classes. Based on actual fiscal 2014-15 metered water consumption data from the Coos Bay-North Bend Water Board, 89% of all metered Coos Bay flows to the wastewater collection and treatment system originate from the domestic strength customer classes. Only 11% of metered Coos Bay flows come from the commercial high strength class. To put this in perspective, if the Council chose to move the current high strength class concentration threshold from 350/350 to the current domestic strength concentration threshold of 200/200, the commercial high strength volume charge would go from $8.38 per CCF to $6.94 per CCF; a reduction of 17 percent. Conversely, the domestic strength volume charge would go from $6.76 per CCF to $6.94 per CCF; an increase of only 3%. The volume charges for domestic and high strength classes over the range of concentrations are shown graphically in Figure 1.

Figure 1



Monthly Wastewater Bill Impacts

To estimate the impact of changing volume rates on the average customer's monthly wastewater bill requires an estimate of average monthly consumption by customer class. To

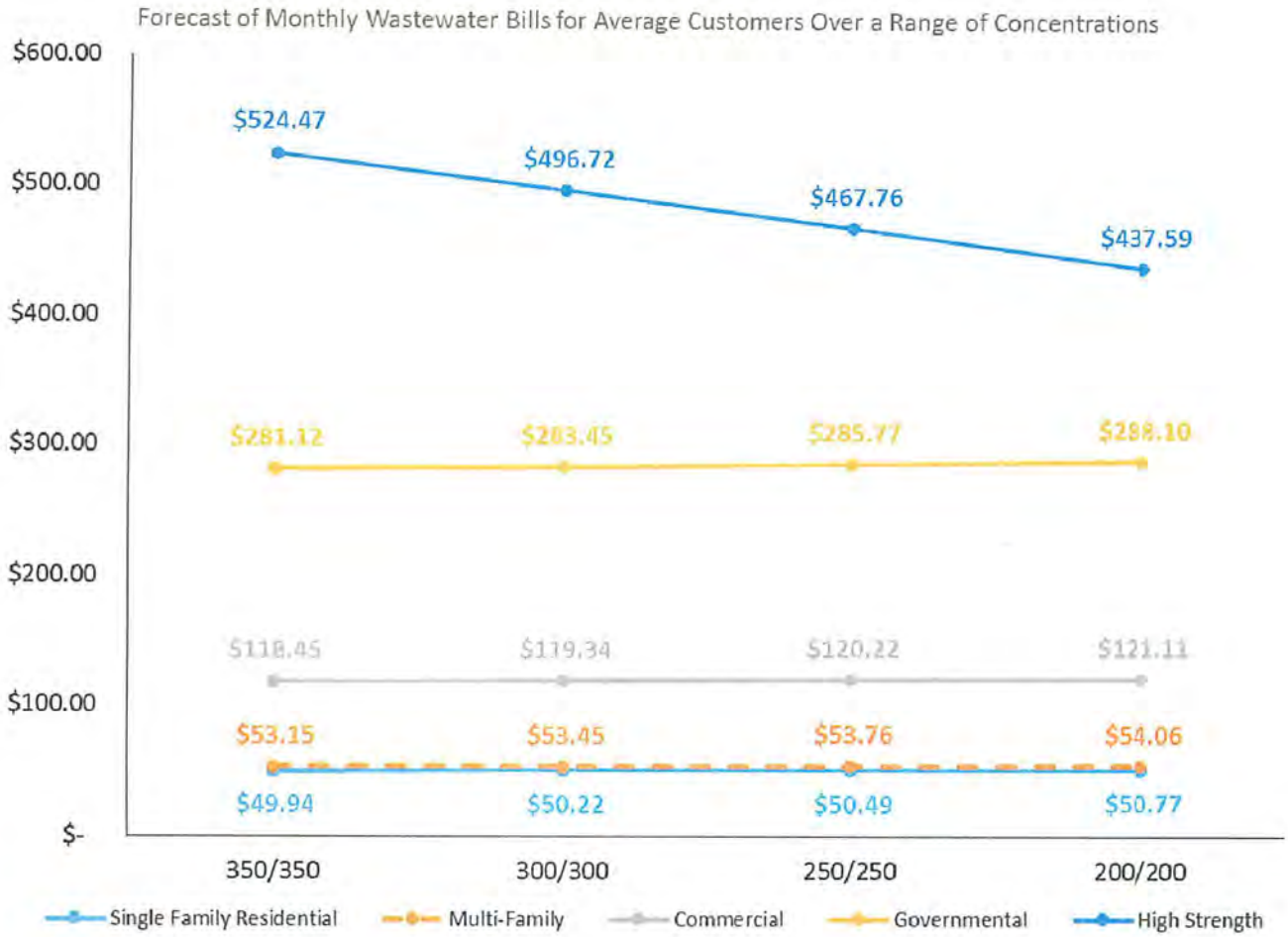
facilitate this, I asked the Finance Department to supply me with metered water sales and active accounts data for the most recently completed fiscal year 2014-15. Based on wastewater billing records, the following monthly average consumption statistics were derived (per account, and per dwelling unit for multi-family):

Customer Class	Monthly Ave. Consumption (CCF)
Single family residential (based on winter average consumption)	4.60
Multi-family residential (per dwelling unit)	5.07
Commercial	14.73
Public/Government	38.80
Commercial high strength	60.34

The other component of any customer's wastewater bill is the base charge. This charge is billed to customers uniformly, and thus would not vary based on assumed strength of wastewater discharged to the system. The current wastewater base charge is $18.86 per account (per dwelling unit for multi-family) per month.

With this data in hand, we were able to calculate monthly wastewater bills for the "average" customer in each of the City's wastewater customer classes across the range of concentrations for the commercial high strength class. This information is displayed below in Figure 2.

Figure 2



The chart data shown above is recast below in tabular format (Table 2).

Table 2

Schedule of Average Monthly Bills by Customer Class				
	milligrams per liter BOD/TSS			
High Strength Class Concentrations	350/350	300/300	250/250	200/200
Single Family Residential	$ 49.94	$ 50.22	$ 50.49	$ 50.77
Multi-Family	$ 53.15	$ 53.45	$ 53.76	$ 54.06
Commercial	$ 118.45	$ 119.34	$ 120.22	$ 121.11
Governmental	$ 281.12	$ 283.45	$ 285.77	$ 288.10
High Strength	$ 524.47	$ 496.72	$ 467.76	$ 437.59

Conclusions

On a total monthly bill basis, the data in Table 2 indicates the average commercial high strength customer's bill could be reduced by $86.88. Currently, this customer pays $524.47 per month. If the Council chose to bring the assumed strength of discharge concentration down to the domestic strength concentration of 200/200, this customer's total monthly wastewater bill would be $437.59. To maintain revenue neutrality, the monthly bills for the average customers in all other domestic strength classes would go up. The estimated amounts of these monthly cost increases are shown below in Table 3 for all classes across the three (3) step reductions in concentrations for the commercial high strength class.

Table 3

Monthly Wastewater Bill Impacts
Dollars per Month to the Average Customer in 50 mg/l Step Reductions in Concentration Threshold for the Commercial High Strength Customer Class

	Monthly Cost	Change in Cost to Ave. Customer - $/mo. 300/300	250/250	200/200
350/350 Concentration BOD/TSS:				
Single Family Residential	$ 49.94			
Multi-Family	$ 53.15			
Commercial	$ 118.45			
Governmental	$ 281.12			
High Strength	$ 524.47			
300/300 Concentration BOD/TSS:				
Single Family Residential	$ 50.22	$ 0.28		
Multi-Family	$ 53.45	$ 0.30		
Commercial	$ 119.34	$ 0.88		
Governmental	$ 283.45	$ 2.33		
High Strength	$ 496.72	$ (27.75)		
250/250 Concentration BOD/TSS:				
Single Family Residential	$ 50.49		$ 0.55	
Multi-Family	$ 53.76		$ 0.61	
Commercial	$ 120.22		$ 1.77	
Governmental	$ 285.77		$ 4.66	
High Strength	$ 467.76		$ (56.72)	
200/200 Concentration BOD/TSS:				
Single Family Residential	$ 50.77			$ 0.83
Multi-Family	$ 54.06			$ 0.91
Commercial	$ 121.11			$ 2.65
Governmental	$ 288.10			$ 6.98
High Strength	$ 437.59			$ (86.88)