

**TOWN OF HOT SULHPUR SPRINGS**

**MONTHLY SERVICE FEES AND  
PLANT INVESTMENT AND TAP FEES**

ED DUERR, INC.

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## **TOWN OF HOT SULPHUR SPRINGS MONTHLY SERVICE FEES AND PLANT INVESTMENT AND TAP FEES**

The purpose of this report is to review the Town's monthly service fees and plant investment and tap fees by evaluating the financial impacts of increasing costs related to water and wastewater system capital improvements, upgrades, operations and maintenance.

The following references were used in the development of this study:

1. Town of Hot Sulphur Springs 2011 Proposed Budget.
2. Composite Correction Program, Town of Hot Sulphur Springs Wastewater Treatment Facility, J. McWilliams, November 2010.
3. Comprehensive Performance Evaluation, Town of Hot Sulphur Springs Wastewater Treatment Facility, J. McWilliams, August 2010
4. Town of Hot Sulphur Springs: Resolution No. 2010 3-2
5. Town of Hot Sulphur Springs Financial Statements and Budgets for 2009-2010
6. Hot Sulphur Springs Water Improvement Study, Stantec Consulting, Inc., January 2008
7. Engineering Report for Hot Sulphur Springs Wastewater Treatment Facilities Expansion, Stantec Consulting, Inc., July 2006.
8. Town of Hot Sulphur Springs Water Planning Report, Integra Engineering and Ed Duerr, Inc., May 2005

Contributors providing background information and report review comments include Mayor Hershel Deputy, Sandy White, Town Administration, and Jim Kleeman and Jack Zielinski, Water and Wastewater Operations.

### **INTRODUCTION**

The Town has recently completed substantial water system improvements with funding provided through the American Recover and Reinvestment Act (ARRA). Additional water projects remain to be constructed in the short term, including replacement of aging pipelines. In the longer term, the Town will consider constructing a dedicated transmission line from the water treatment facilities to the storage tanks. Also, special infrastructure considerations will need to be addressed with respect to the Himbaugh development.

In recent years, the Town has also improved the wastewater treatment facilities and expects to be adding chemical handling and aeration equipment in the near future. Also, the Colorado Department of Public Health and Environment (CDPHE) is reviewing the requirements for in stream water quality on a state-wide basis. This may impact the Town by creating more stringent wastewater effluent limits which may lead to the Town to consider the development of advanced wastewater treatment facilities in future years.

All of the water and wastewater system improvements benefit both existing and new customers. As a result, costs for these facilities will be borne by both customer classes. The issues of Town growth, overall systems capacity and condition of the existing facilities are summarized in the following sections.

### **Current and Projected SFE Growth**

With the recent economic downturn, the communities within Grand County have experienced steadily declining growth rates over the past few years. State projections are for about 3% growth overall. Within the Town, growth has been significantly less.

The current total number of active single family equivalent (SFE) taps is estimated to be 458. For this report, a growth rate of 2.5 SFE taps per year is utilized for rate and tap fee analyses. While this number is only about 0.6% growth per year, it represents a sustainable growth level that reflects the addition of taps in recent years and provides an overall conservative approach. In addition, Town staff estimate that there are about 50 developable lots within the Town limits that are open for construction. If you apply a growth of 2.5 SFE taps per year over 25 years, then total build-out would be completed within the next 20 years. This assumption compares well with previous planning reports developed for the Town.

It is also understood that the Town currently does not plan to service developments outside the current Town limits and, furthermore, has no plans to annex new areas to the Town. If any of these assumptions change over time, the rate and tap fee methodology applied can be easily updated to accommodate new assumptions and data input.

### **Water System Capacity**

With the completion the water treatment facilities upgrade and the addition of a new water storage tank, the Town has about 0.5 million gallons per day summer treatment capacity and just over 0.4 million gallons of treated water storage. In the winter, when influent water temperatures consistently remain around 1 degree C, total treatment capacity is reduced to approximately 0.35 million gallons per day (mgd). This is due to the increased viscosity of cold water and the impact of temperature on membrane fibers.

The State requires the construction of expanded facilities upon reaching 80% of the rated capacity of the treatment facilities. Given current peak month water demand of 165,000 gallons per day, future peak month demand can be estimated to be about 180,000 gallons per day. Since the 80% capacity of the plant is 0.4 million gallons per day in summer, this should be more than adequate for the 20-year build out scenario, assuming historical growth rates and current use patterns prevail.

Another criterion to review is treated water storage capacity. Treated storage on the system is as follows:

**Treated Water Storage**

Storage Tank Description	Storage Quantity
Original Tank	184,000 gallons
New Tank	220,000 gallons
Total	404,000 gallons

At future peak month use of about 180,000 gallons per day, total storage is more than 2 days of demand at projected build out. This amount of storage will adequately serve the system through build-out.

An outstanding topic which needs to be reconciled is the development of an upper zone within the Town limits, to serve customers above the current pressure zone. In the case of some customers within the Himbaugh development, the individual homeowners have installed and are responsible for the maintenance of home booster pump systems to provide additional pressure for their household plumbing. There are, however, lots within that development which need higher water pressure delivery than the system, as currently configured, can provide. Delivery of higher pressure can be accomplished through a pressurized pumping system or by pumping water into a separate water tank set at a higher elevation. The Town of Hot Sulphur Springs Water Planning Report (Integra Engineering and Ed Duerr, Inc., May 2005) reviewed options for servicing the higher zone. The Town will want to review specific policies with regard to this development.

**Wastewater System Capacity**

The Town has 140,000 gallons per day (mgd) capacity in the Wastewater Treatment Facilities with flows averaging about 72,000 gallons per day according to the recent Comprehensive Performance Evaluation Report (McWilliams, 2010). Although average plant flows are well below the rated plant capacity, the plant has suffered violations of its effluent discharge permit, and steps are being taken to resolve treatment issues. Specific upgrades have already been completed and several items still need to be addressed. For the purposes of this report, it is estimated that a total budget amount of \$500,000 will address upgrades to improve the aeration facilities, chemical dosing, electrical service, water service, and other items at the wastewater facilities.

Treatment facilities will also need to be upgraded in the future, as equipment wears out, and to meet future wastewater discharge requirements. At this time, it is estimated that about \$2 million in future improvements could be needed.

If the Town has the opportunity to stretch its wastewater budget, based on favorable interest rates and principle forgiveness through the State's revolving fund program for wastewater facilities improvements, it may desire to do additional facilities upgrades in the near term. With the current federal budgeting process incomplete for the current fiscal

year of 2011, it is unknown at this time what sort of funding options may or may not be available to the Town.

## **REVENUE SOURCES AND COSTS**

The three main sources of revenue for the Town consist of: (1) water and sewer plant investment and tap fees, (2) monthly water and sewer service fees, and (3) monthly water and sewer capital replacement fees. Also, there is a monthly quantity charge for water consumed above the allotted 5,000 gallons per SFE. The quantity charge income is not included in the study, as this revenue source is highly variable, depending on the weather and customer use habits, and it is expected to decline over time, as customers become more water-conserving.

There are three major categories of costs the Town faces: (1) system-upgrade project costs, (2) capital improvement project costs, and (3) utility operation and maintenance costs. While the revenue sources are self-explanatory, the definitions of the costs may not be readily evident. For the purpose of this report, the cost categories are defined as follows:

- (1) **System Upgrade Project Costs:** These costs are associated with system upgrades to improve the system for existing customers and to keep up with new regulatory requirements.
- (2) **Capital Improvement Project Costs:** These costs are associated with capital projects to improve or expand the system to serve new customers.
- (3) **Utility Operation and Maintenance Costs:** These costs are associated with ongoing utility operations and maintenance including power costs, labor for repairs, meter reading, office expenses, administration, vehicle costs, and other related items.

As facilities age and new regulations are put into place by the CDPHE, existing facilities need to be upgraded. New facility upgrades benefit both existing customers and new customers. Since the Town has a customer base not expected to grow quickly, and most of the customers are already on line, monthly service and capital recovery fees are the only reliable source of income to construct the facilities. As a result, new customers need to pay a tap fee to buy into the existing system, as well as a pro-rated portion of upcoming capital costs. The tap fees provide payback for items including water supply, treatment facilities, storage capacity, and distribution system infrastructure.

The Town's foresight has positioned it well for providing water service to existing and future customers. By taking advantage of zero interest loans and principle forgiveness through the ARRA water program, coupled with a competitive construction environment, the Town was able to develop treatment and storage capacity that can serve the community through build-out.

With the wastewater system, near term and longer term investment will be necessary to meet the Town's wastewater treatment need. The recent Comprehensive Evaluation and Composite Correction reports highlight the near term improvements needed. Other upgrades will be necessary in the years to come.

The distinction between the different categories of project costs provides the mechanism for matching revenue sources with monetary needs. Water and sewer monthly service and capital replacement fees are allocated primarily to the costs of operations and maintenance of existing facilities and to fund replacement projects, vehicle replacement costs, and other expenditures that provide benefit to existing customers. Water and sewer plant investment and tap fees for new customers provide payback for the infrastructure provided. Since there are only about 50 new taps expected to come on line over the next 20 years, the income from this new customers is very limited in scope. Thus, all expenses, on a real time basis, are the responsibility of the current customer base.

### **MONTHLY SERVICE FEE METHODOLOGY**

For the purpose of this report, the basis of the opinions for operation and maintenance costs and expenditures were derived from actual Town costs, projected budgets, and annual audits, which were developed by others.

Costs for recent capital projects funded through the ARRA Program and the State Revolving Loan Fund are included as the actual annualized cost for bond repayment. Future capital costs are developed and analyzed on a projected twenty year payment program. The basis for developing capital cost expenditures comes from Town planning documents, Town staff, and Town consultants.

In the last two years, construction costs have been lower than usual, due to the economic downturn and competitive contractor pricing. Capital cost projections need to account for higher construction costs than have recently been the norm. Since it is uncertain if this trend will continue, it is difficult to know if the opinions of probable construction costs provided will accurately reflect real time market conditions. Factors impacting the volatility of construction costs include, but are not limited to, weather, fuel pricing, material costs, local labor costs, and equipment costs. Other potential factors include local and nation-wide construction demands, world market conditions for raw materials, and regional supply and demand impacts that can lead to shortages of key materials such as the concrete shortage which occurred several years ago. As a result, it is recommended that the variables and cost factors in the rate and tap fee projections are periodically reviewed and updated.

Findings of the analyses are presented in the following section.

## **Monthly Service Fee Analysis Results**

Spreadsheets were developed to review the current monthly service and capital replacement fee structure and to test the sensitivity of the variables and the assumptions applied. The water rate spreadsheet validates the applicability of the current Town water rate and provides guidance for future rate adjustments to keep pace with anticipated inflationary costs related to utility operations and maintenance.

The spreadsheet for the sewer system also validates the applicability of the current wastewater rate and provides guidance for future adjustments.

At the top of the each spreadsheet, variables are shown including the interest rate, an inflation factor, an average annual increase in O&M costs, and new tap sales of 2.5 SFEs per year. Also included at the top of each spread sheet are the projected 2011 operational costs and the number of active SFEs (458) estimated by the Town to be served during Year 1 of the analysis by the Town's water and wastewater utilities.

The spreadsheets also list upcoming capital projects and when the projects are projected to be implemented. For the purpose of this report, the existing water and sewer rates per SFE were entered into each corresponding spreadsheet to validate the current balance of revenues and costs. The results showed that the current rates are applicable and, therefore the conclusion of this study is to maintain the current rates for two years and re-address revenues and costs at that time. For Town residents, the current base monthly water fees are \$52.74 for an SFE tap and the corresponding wastewater rate is \$41.46. These fees include both the base user rate and the capital replacement rate which is \$45.74 and \$7.00 for water respectively, and \$37.46 and \$4.00 for sewer.

For the purposes of the analysis, the monthly user and capital replacement rates were not considered separately, but as a total monthly fee. Customers residing out of the Town limits pay double. For both the water and sewer rates, it is expected that there will need to be nominal increases in the rates projected at 4% for water and 5% for sewer. These increases, however, are subject to actual costs for the new water system and for the sewer system that will be upgraded. As it is difficult to ascertain what changes in operational costs will occur at this time, monitoring costs and revenues over the next couple of years should provide useful data for updating the rate study. The spreadsheets developed can be easily updated once better operational expense data and revenue data are in hand.

## **WATER AND SEWER PLANT INVESTMENT AND TAP FEE METHODOLOGY**

This portion of this study reviews the pro-rated costs that are to be associated with new customers. Included in this analysis are major projects that have been recently completed, will soon be under construction, or will be constructed sometime in the next 20 years. Major water projects recently completed include the new water treatment facilities upgrade and the new treated water storage tank. Additional future water projects include

a dedicated line to the storage tank and, potentially, new facilities to serve the upper end of the Himbaugh development. The higher zone facilities are not included in the overall tap fee methodology, and the Town is considering policy options to deal with that issue outside of this study.

Major wastewater projects center on near term chemical handling and aeration improvements to the wastewater treatment plant and future equipment replacement and upgrades to the treatment facilities necessitated by wear and tear and by potential for effluent permitting requirements to change.

Wherever possible, actual costs are used in lieu of planning level opinions of probable costs. The Town will recoup costs for the portion of new and existing projects which will serve new customers through revenues generated by the collection of water and sewer plant investment and tap fees.

For the purpose of this report, the basis for determining the need for capital expenditures comes from Town planning documents, Town staff, and Town consultants. A portion of the costs for existing and new infrastructure, based on total SFEs at build out, has been designated to new growth. For this analysis, capital project costs were identified over a twenty-year period.

### **Water Plant Investment and Tap Fees**

Water use can approach 350 gallons per day per SFE for peak monthly demand, which is typically in July. Peak day use was recorded as 220,000 gallons in the Water Improvement Study (Stantec, 2008). That translates to about 465 gallons per SFE.

The plant investment and tap fee evaluation includes a cost for water system infrastructure reimbursement for the existing transmission and distribution system as well as for the new water treatment and storage facilities. The worth of the existing system infrastructure, without the new ARRA funded facilities, is estimated at about \$1.5 million based on the Town's financial statements. Also included in the tap fee evaluations are costs for a portion of a future dedicated transmission line from the water treatment plant to the tanks.

### **Sewer Plant Investment and Tap Fees**

Sewer flows average 72,000 gallons per day. The Town operates a lagoon based wastewater treatment facility. This facility was upgraded in recent years and will need to be further upgraded through an ongoing program. It is capable of providing 140,000 gallons per day of treatment capacity.

The worth of the existing wastewater system infrastructure, without the new facilities, is estimated at about \$1.4 million in value, based on the Town's financial statements.



### **Plant Investment and Tap Fee Analysis Results**

The results of the water tap fee analysis is that new SFE based taps should be set to a minimum of about \$8,300 based on the assumptions provided herein.

The results of the wastewater tap fee analysis is that new SFE based taps should be set to a minimum of around \$8,100 based on the assumptions provided herein.

# **ATTACHMENTS**

## **TOWN OF HOT SULHPUR SPRINGS MONTHLY SERVICE FEES AND PLANT INVESTMENT AND TAP FEES**

**Town of Hot Sulphur Springs  
WATER RATE STUDY**

CAPITAL PROJECT	YEAR	ANNUAL CAPITAL COSTS*	ANNUAL O&M COSTS	TOTAL ANNUAL COSTS	OTHER INCOME	TOTAL NET COSTS	SFE WATER TAPS	NET COST /SFE	MONTH SERVE COST /SFE	ACTUAL MONTH COST /SFE	NET COST DIF /SFE
*Bonds, WTP & Tank	1	\$65,000	\$220,000	\$285,000	\$0	\$285,000	458	\$622	\$52.74	\$51.86	\$ 0.88
	2	\$65,000	\$226,600	\$291,600	\$0	\$291,600	461	\$633	\$52.74	\$52.77	\$ (0.03)
	3	\$65,000	\$233,398	\$298,398	\$0	\$298,398	463	\$644	\$54.85	\$53.71	\$ 1.14
	4	\$65,000	\$240,400	\$305,400	\$0	\$305,400	466	\$656	\$57.04	\$54.67	\$ 2.37
	5	\$65,000	\$247,612	\$312,612	\$0	\$312,612	468	\$668	\$59.33	\$55.66	\$ 3.66
	6	\$65,000	\$255,040	\$320,040	\$0	\$320,040	471	\$680	\$61.70	\$56.68	\$ 5.01
	7	\$65,000	\$262,692	\$327,692	\$0	\$327,692	473	\$693	\$64.17	\$57.73	\$ 6.43
	8	\$65,000	\$270,572	\$335,572	\$0	\$335,572	476	\$706	\$66.73	\$58.81	\$ 7.92
	9	\$65,000	\$278,689	\$343,689	\$0	\$343,689	478	\$719	\$69.40	\$59.92	\$ 9.48
	10	\$65,000	\$287,050	\$352,050	\$0	\$352,050	481	\$733	\$72.18	\$61.06	\$ 11.12

2011 monthly cost to serve fee per SFE \$52.74  
 Allowable monthly use with no added fee, gallons per SFE 5,000  
 Average monthly use, gallons per SFE 7,350  
 Quantity cost per 1,000 gal above 5,000 gal \$10.55  
 Projected annual quantity income (suspect drop) \$11,355  
 Annual monthly serve cost increase after Year 2 4.0%

(estimated)  
 Annual monthly serve cost increase after Year 2  
 (annualized average)

Interest Rate 0.0%  
 Average Annual Inflation 3.0%  
 Avg. Annual O&M Increase 3.0%  
 New Water Taps Per Year 2.5  
 2011 Projected O&M Costs \$220,000  
 Year 1, 2011 SFES 458  
 2011 Projected Other Income \$0  
 Avg. Annual Other Income Increase 0.0%  
 Existing Water Bond Payment \$65,000

**TOWN OF HOT SULPHUR SPRINGS  
WASTEWATER RATE STUDY**

Interest Rate	3.0%	2011 monthly cost to serve fee	\$41.46
Average Annual Inflation	3.0%		
Avg. Annual O&M Increase	4.0%	Annual service cost increase after Year 2	5.0%
New Wastewater Taps Per Year	2.5		
2011 Projected O&M Costs	\$195,000		
Year 1, 2011 SFES	458		
Other income	\$0		
WWTP - Upgrades	\$450,000		
Wastewater Plant Bond Payment	\$30,247		

CAPITAL PROJECTS	YEAR	ANNUAL WWTP COSTS*	ANNUAL O&M COSTS	TOTAL ANNUAL COSTS	SFE SEWER TAPS	NET COST /SFE	MONTH SERVICE COST /SFE	MONTH ACTUAL COST /SFE	NET COST DIF /SFE
	2	\$30,247	\$202,800	\$233,047	461	\$506	\$41.46	\$42.17	(\$0.71)
	3	\$30,247	\$210,912	\$241,159	463	\$521	\$43.53	\$43.41	\$0.13
	4	\$30,247	\$219,348	\$249,596	466	\$536	\$45.71	\$44.68	\$1.03
	5	\$30,247	\$228,122	\$258,369	468	\$552	\$48.00	\$46.01	\$1.99
	6	\$30,247	\$237,247	\$267,494	471	\$569	\$50.39	\$47.38	\$3.02
	7	\$30,247	\$246,737	\$276,984	473	\$586	\$52.91	\$48.80	\$4.12
	8	\$30,247	\$256,607	\$286,854	476	\$603	\$55.56	\$50.27	\$5.29
	9	\$30,247	\$266,871	\$297,118	478	\$622	\$58.34	\$51.80	\$6.54
	10	\$30,247	\$277,546	\$307,793	481	\$641	\$61.26	\$53.38	\$7.87

**TOWN OF HOT SULPHUR SPRINGS  
WATER TAP FEE ESTIMATES**

Interest Rate	3.00%	WTP & Tank costs/SFE	\$4,000
Inflation Rate	3.00%	WTP & Tank Reimbursement	\$200,000
New SFE Tap Fees Per Year	2.5	Existing water assets/SFE	\$3,000
Basis of costs, 2011		Exist. assets reimbursement	\$150,000
Year 0 = 2010		Transmission line proportion	\$50,000

YEAR	CAPITAL PROJECT	BASE COST
0	Existing Water system Assets Share	\$150,000
1	WTP & Storage Tank Reimbursement	\$200,000
2		\$0
3	Transmission Line Pro-rated Cost	\$50,000
4		\$0
5		\$0
6		\$0
7		\$0
8		\$0
9		\$0
10		\$0
11		\$0
12		\$0
13		\$0
14		\$0
15		\$0
16		\$0
17		\$0
18		\$0
19		\$0
20		\$0
	Exist. System Present Worth Costs	\$350,000
	Future Project Costs as Present Worth	\$45,757
	SRF Loan Costs (1.8% of Future PWC)	\$824
	PWC + Loan costs future projects	\$46,581
	Annualized Costs - Future Projects	\$3,131
	Annualized Costs - Existing system @ 0%	\$17,500
	Total Annualized Costs	\$20,631
	<b>Base Tap Fee, Year 1</b>	<b>\$8,252</b>

**TOWN OF HOT SULPHUR SPRINGS  
WASTEWATER TAP FEE ESTIMATES**

Interest Rate	3.00%	WWTP Upgrade costs/SFE	\$1,000
Inflation Rate	3.00%	WWTP Reimbursement	\$50,000
New SFE Tap Fees Per Year	2.5	Existing System assets/SFE	\$3,000
Basis of costs, 2011		Exist. assets reimbursement	\$150,000
Year 0 = 2010			
		Additional Plant Upgrades Year 10	\$200,000

YEAR	CAPITAL PROJECT	BASE COST
0	Existing System Assets Share	\$150,000
1	2011 Upgrade Reimbursement	\$50,000
2		\$0
3		\$0
4		\$0
5		\$0
6		\$0
7		\$0
8		\$0
9		\$0
10	Additional Plant Upgrades	\$200,000
11		\$0
12		\$0
13		\$0
14		\$0
15		\$0
16		\$0
17		\$0
18		\$0
19		\$0
20		\$0
	Future Projects Present Worth Costs (PWC)	\$148,819
	SRF Loan Costs (1.8% of PWC)	\$2,679
	PWC + Loan costs future projects	\$151,498
	Total Annualized Costs	\$10,183
	Future Cost per SFE	\$4,073
	Existing + Upgrade Reimbursement	\$4,000
	<b>Base Tap Fee, Year 1</b>	<b>\$8,073</b>