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Correction of Economists.com Cash Flow Analysis

Author: Sam Schwalm
WaterForPineStrawberry@hotmail.com
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Abstract: This paper identifies the errors in the Economists.com cash flow analysis that was provided to the PSWID board in November 2008. The errors are fixed and a corrected cash flow is provided.

Executive Summary

This paper is an analysis of the document that was produced by Economists.com as a cash flow and rate analysis for the PSWID board. There are several significant errors in the Economists.com analysis which results in the conclusions that were made in the analysis being invalid. The major errors are:

- The analysis starts from the 2006 annual ACC reports for Pine Water Company (PWCo) and Strawberry Water Company (SWCo). In 2006, 8,245,000 gallons of water were sent from Strawberry to Pine. The Economists.com report does not correct water usage and revenues for that transfer.
- The 2006 ACC reports include the sales taxes collected as part of Metered Revenue and then subtracts them out as Taxes Other Than Income in the operations expenses. The Economists.com analysis uses the Metered Revenue, but it also uses the operations expenses estimated in a Coe and Van Loo (CVL) report which did not include Taxes Other Than Income. As a result the Economists.com analysis is counting sales tax receipts as operational revenue.
- The Economists.com analysis says that operations expenses will grow “by approximately 4% per year”, but in 2011 the growth in the Economists.com analysis is only 1.24%.
- Salaries and Wages are understated in the CVL operations expenses report. They do not take into account the extra overhead expenses of hiring an outside company to run the water system and the need for an administrative assistant.
- The Economists.com analysis uses a three tier rate structure. The Pine rate structure is three tiers and the Strawberry rate structures are two tiers. To merge them properly, there needs to be a four tier structure in the Economists.com analysis.
- In order to correct for errors in the 2009/2010 portion of the rate analysis, the water sales are heavily skewed towards the highest cost tier. When the errors being corrected for go away in 2011, the skewed data remains.

The conclusion of the Economists.com cash flow analysis that was presented at the November PSWID meeting is that there is no need for a rate increase for the first two years. The material in Sections 3 and 4 of this document shows that the Economists.com conclusion is incorrect. A series of errors in the Economists.com analysis greatly overstates projected revenue and greatly understates projected operations expenses. In addition, Economists.com had to resort to using creative financing by having interest only payments for the first two years on the loans and a 25 year loan term in order to avoid immediate rate increases. Using that creative financing adds \$1,037,932 over the life of the first two loans, compared to using the standard municipal 20 year loan.

The corrected cash flow analysis shows the need for an immediate rate increase in 2009. For Pine, the initial rate increases for 3000 gallon usage are \$1.85 (4.9%) for summer bills and \$7.99 (25.5%) for winter bills. For Strawberry, the initial rate increases for 3000 gallons of usage range for the Williamson rates is \$8.45 (27.4%), for the United rates is \$16.70 (73.9%), and the E&R rates is \$10.65 (37.2%). Strawberry’s rate increases are much larger than those for Pine because Strawberry currently pays much less for water than Pine. Consolidating the rates will produce a large initial increase for Strawberry rate payers. After that, everyone’s increases are the same. Years 2011 and 2012 will each see increases of approximately 12% and years 2010 and 2013 will see increases of approximately 3%.

For 5000 gallon usage, Pine residents will see increases of \$1.85 (3.6%) for summer bills and \$12.07 (29.3%) for winter bills. For Strawberry, the initial rate increases for 5000 gallons of usage range for the Williamson rates is \$15.45 (40.8%), for the United rates is \$24.65 (86.0%), and the E&R rates is \$15.30 (40.3%).

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1 Introduction

This paper is an analysis of the document that was produced by Economists.com as a cash flow and rate analysis for the PSWID board. There are several significant errors in the Economists.com analysis which results in the conclusions that were made by the analysis being invalid. The report can be found here:

<http://www.waterforpinestrawberry.com/data%20pages/PSWIDCashFlowReport101408.pdf> .

The major errors are:

- The analysis starts from the 2006 annual ACC reports for Pine Water Company (PWCo) and Strawberry Water Company (SWCo). In 2006, 8,245,000 gallons of water were sent from Strawberry to Pine. The Economists.com report does not correct water usage and revenues for that transfer. The summaries of the important portions of the annual reports can be found here:
<http://www.waterforpinestrawberry.com/data%20pages/PWCo%20Water%20Sales.pdf> ,
<http://www.waterforpinestrawberry.com/data%20pages/SWCo%20Water%20Sales.pdf> ,
<http://www.waterforpinestrawberry.com/data%20pages/PWCo%20Earnings.pdf> ,
<http://www.waterforpinestrawberry.com/data%20pages/SWCo%20Earnings.pdf> .
- The 2006 ACC reports include the sales taxes collected as Metered Revenue and then subtracts them out as Taxes Other Than Income in the operations expenses. The Economists.com analysis uses the Metered Revenue, but it also uses the operations expenses estimated in a Coe and Van Loo (CVL) report which did not include Taxes Other Than Income. As a result the Economists.com analysis is counting sales tax receipts as operational revenue. The CVL reports can be found here:
<http://www.waterforpinestrawberry.com/data%20pages/Task2Report.pdf> and
<http://www.waterforpinestrawberry.com/data%20pages/Task3Report.pdf> .
- The Economists.com analysis says that operations expenses will grow “by approximately 4% per year”, but in 2011 the growth in the Economists.com analysis is only 1.24%.
- Salaries and Wages are understated in the CVL operations expenses report. They do not take into account the extra overhead expenses of hiring an outside company to run the water system and the need for an administrative assistant.
- The Economists.com analysis uses a three tier rate structure. The Pine rate structure is three tiers and the Strawberry rate structures are two tiers. To merge them properly, there needs to be a four tier structure in the Economists.com analysis.
- In order to correct for errors in the 2009/2010 portion of the rate analysis, the water sales are heavily skewed towards the highest cost tier. When the errors being corrected for go away in 2011, the skewed data remains. A more realistic distribution of water sales between the rate tiers needs to be used.

A conversation was started with Mr. Dan Jackson of Economists.com regarding these issues and other questions. One round of questions and answers and a second set of follow-up questions were submitted before the PSWID board cut off the discussion. The details of that discussion can be found here:

<http://www.waterforpinestrawberry.com/data%20pages/JacksonDialog.pdf> .

Section 2 contains a summary of the results from Sections 3, 4, and 5. The summary shows the impacts to rates of the various scenarios and the impact on 3000 gallon per month and 5000 gallon per month bills. Section 3 addresses the affect of correcting the errors in the Economists.com analysis. Section 4 lays out the base rate and usage rates needed to produce the revenue determined in Sections 3. Section 5 looks at the impact to monthly water bills.

2 Summary of Results

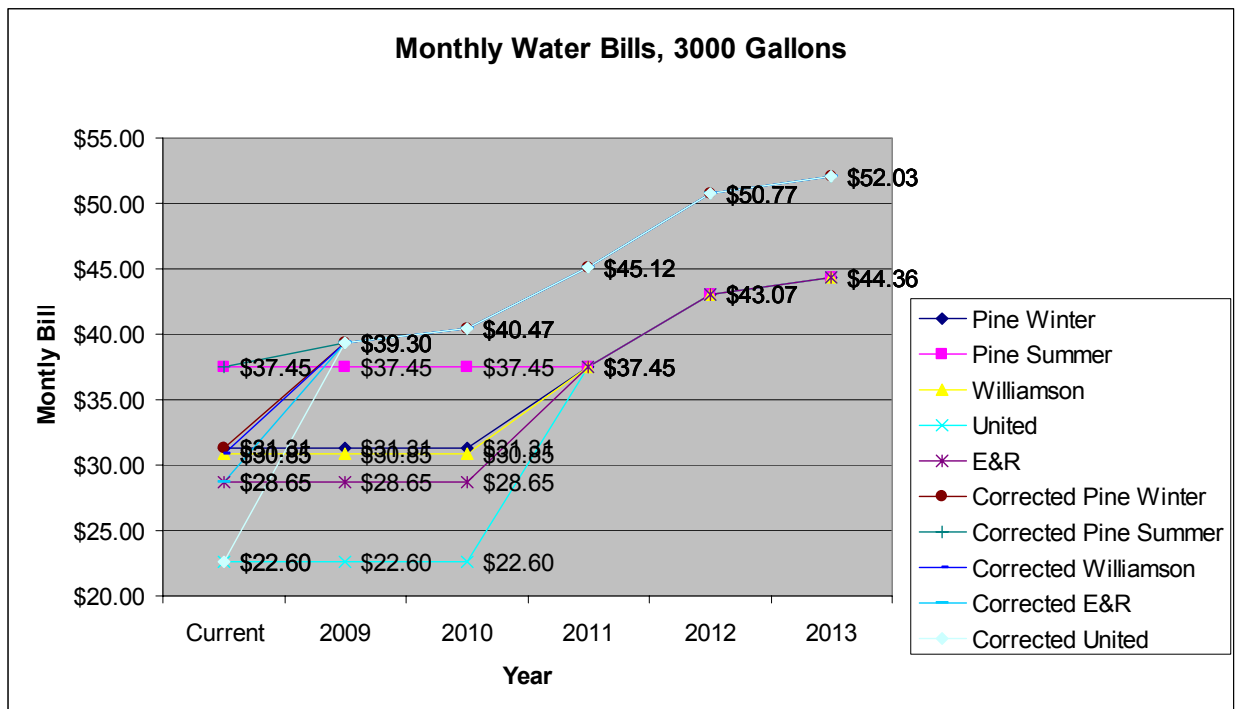
The conclusion of the Economists.com cash flow analysis that was presented at the November PSWID meeting is that there is no need for a rate increase for the first two years. The material in Sections 3 and 4 of this document shows that the Economists.com conclusion is incorrect. A series of errors in the Economists.com analysis greatly overstates projected revenue and greatly understates projected operations expenses. In addition, Economists.com had to resort to using creative financing by having interest only payments for the first two years on the loans and a 25 year loan term in order to avoid immediate rate increases. Using that creative financing adds \$1,037,932 over the life of the first two loans, compared to using the standard municipal 20 year loan.

1 The bottom line is what these errors do to the monthly water bills. Figure 1 and Figure 2 show the comparison of
 2 water bills based on the Economists.com analysis and the analysis after the errors have been corrected for. The first
 3 figure is for 3000 gallons of usage in a month and the second figure is for 5000 gallons of usage in a month. Each of
 4 the different rate sets for Pine and Strawberry are shown. The current cost of the usage is provided, along with the
 5 costs for 2009 through 2013.

6
 7 The lower group of lines in the figures is for the uncorrected Economists.com analysis. These lines show the various
 8 rate sets staying the same as the current rates for 2009 and 2010. In 2011, they move to the Pine summer rates and
 9 then begin increasing in unison after that.

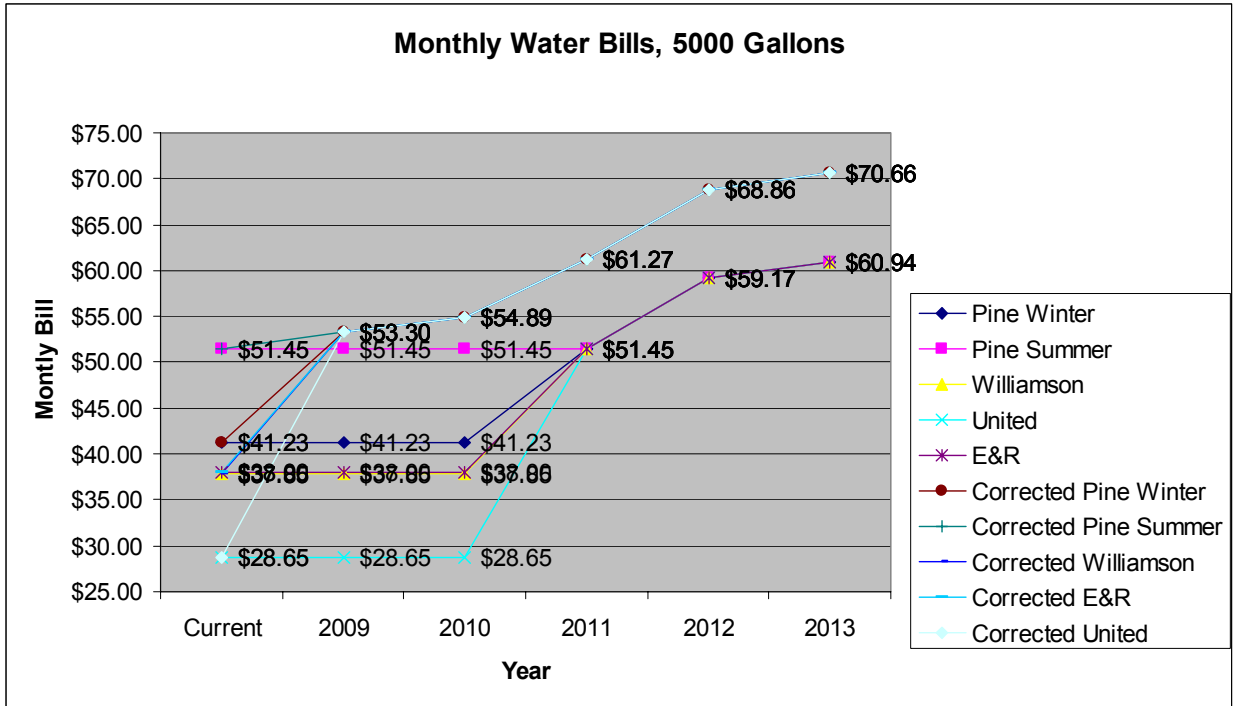
10
 11 The upper line is for the corrected Economists.com analysis. All of the different current rate sets are consolidated in
 12 2009 and they all move in unison from that point on. The 3000 gallons per month shows that the Economists.com
 13 analysis has an error about \$7.70 (24.7%) compared to the corrected analysis. For 5000 gallons of usage the error is
 14 about \$9.69 (16.4%)

15 **Figure 1 Original versus Corrected 3000 Gallon Monthly Cost**



16
 17

18 **Figure 2 Original versus Corrected 5000 Gallon Monthly Cost**



3 Corrections To Economists.com Analysis

The speculation on why the Economists.com analysis contains so many serious errors comes in two parts. The first part is that the PSWID board had a need to show that the purchase would be “free” to the rate payers and asked Economists.com to quickly produce such a report. Due to the haste in putting out that report, Economists.com did not have time to fully understand the relationships of the data between PWCo and SWCo, and thus missed the correction for the water transfers from PWCo and SWCo. This also would explain why they missed the inclusion of the sales tax receipts in the Metered Revenue. The need to show that it would be “free” drove Economists.com to increase the terms of the loan from the standard 20 years to 25 years and to make the first two years interest only.

The second part is that Economists.com does many rate analyses, so it is very likely that they have a generic rate model that they feed the data for the specific water system into. Speculation is that it isn’t set up to easily deal with the first two years being interest only or for multiple rate sets that apply to a portion of the system. The other factor with the model that Economists.com had to deal with is the lack of some critical data that would normally be available when doing a typical rate analysis. Since Strawberry has three different sets of rates, to make an accurate calculation the number of customers for each rate set needs to be known. The other missing set of data for both Pine and Strawberry is how much water is sold in each tier of each rate set. When Economists.com tried to compensate in their model for not knowing that information, it produced errors.

In the Economists.com analysis, 2011 is where the SWCo rates are made the same as those for PWCo. As a result of the above conditions, the proper approach is to do the rate analysis for the 2009-2010 years separately from the rate analysis for 2011 and on. In the following correction analysis, 2009-2010 will be modeled by scaling the 2006 numbers by the increase in the number of customers. Scaling for the 2009 and 2010 years is the proper approach because the rates are not changing in those years. For the 2011 and on, the approach used by Economists.com will be used because the rates are consolidated for all rate payers.

The Economists.com analysis projects out through 2028. To keep things simple, this analysis will only go out through 2013, the first five years. The interesting portion is in the first five years because that is where the bulk of the spending is and the most impact to rates. Beyond that it gets increasingly speculative as to what spending decisions will be made.

1 **3.1 2006: The Starting Point**

2 The starting point for the analysis is the revenue and water usage information contained in the 2006 ACC annual
 3 reports. Those reports can be found at the links provided in Section 1. The relevant information for PWCo and
 4 SWCo are captured in Table 1 and Table 2.

5
 6 For the water usage, the total used by both communities in 2006 was 84,644,000 gallons. The Economists.com
 7 analysis used 92,889,000 gallons. This error comes from just adding together the total water sales in the two ACC
 8 reports and not adjusting for the 8,245,000 gallons that was transferred to Pine and is included in both the PWCo
 9 and SWCo total sales. As a result, that water is counted twice. This error results in a significant overstating of
 10 revenue.

11
 12 In addition to adjusting for the transfer of the water in the overall water usage, the SWCo revenues need to be
 13 adjusted to account for the payment for that transferred water. That adjustment is the \$39,051.44 in Table 2. The
 14 actual cost of the water sold is not known. This value is based on the ratio of the SWCo water transfer to the total
 15 water purchased (not including hauled water) for the Purchased Water cost for PWCo. This assumes that all water
 16 being purchased by PWCo has the same cost. This assumption may result in some error, but it is expected to be
 17 small.

18
 19 **Table 1 2006 Water Usage**

Water Usage	PWCo 2006	SWCo 2006	Combined 2006
Average Number of Customers	2014	1058	3072
Average Monthly Usage/Customer	2056	2753	2296
Water Pumped	30879000	20725000	51604000
SWCo via Magnolia	8245000	0	8245000
Water Hauled	675000	0	675000
Water Sharing Agreement	14917000	27111000	42028000
Total Water Obtained	54716000	47836000	102552000
Gross Water Sold	49687000	43202000	92889000
Adjustment For Water Transfer	0	8245000	8245000
Net Water Sold	49687000	34957000	84644000
Water Lost	5029000	4634000	9663000
Percent Water Lost	9.2%	9.7%	9.4%

20
 21 **Table 2 2006 Water Revenues**

Water Revenues	PWCo 2006	SWCo 2006	Combined 2006
Metered Water Revenue	\$785,326.00	\$442,391.00	\$1,227,717.00
Other Water Revenues	\$61,863.00	\$4,129.00	\$65,992.00
Water Transfer Adjustment		\$39,051.44	\$39,051.44
Total Revenues	\$847,189.00	\$407,468.56	\$1,254,657.56

Total Metered Revenue			\$1,188,665.56
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3.2 Revenue

The analysis of the revenue is divided into two parts. The first part for years 2009 and 2010 are based on a scaling of the 2006 numbers. The second part for years 2011 to 2013 are based on the approach taken in the Economists.com analysis.

3.2.1 2009-2010 Metered Revenue

The calculation of the revenue for 2009 and 2010 is based on scaling up the 2006 numbers by the increased number of customers. Table 3 shows the comparison between the numbers in the Economists.com analysis and those obtained by scaling. They are very close in value. The difference here is likely due to Economists.com using a three tier rate structure instead of a four tier rate structure. The three tier rate structure has the affect of over-charging for SWCo rate payers usage between 2000 and 4000 gallons.

Table 3 2009-2010 Metered Revenue

	Combined 2006	2009	2010
Average Number of Customers	3072	3105	3119
Economists.com Analysis	NA	\$1,207,747.00	\$1,213,210.00
Scaled Revenues Analysis	\$1,188,665.56	\$1,201,434.43	\$1,206,851.52

3.2.2 2011 and On Metered Revenue

There are two parts to the metered revenue, revenue from the base rate charges and revenue from usage charges. These are added together to get the total Metered Revenue.

3.2.2.1 Base Rate Revenue

The base rate revenue is calculated by multiplying the number of customers for each size of meter by the monthly base rate for that meter size and then extending that out for the year. The Economists.com analysis is acceptable in this area, so the details won't be addressed here. Table 4 shows the base rate revenue for each of the years.

Table 4 2011+ Base Rate Revenue

	2011	2012	2013
Average Number of Customers	3133	3147	3161
Base Rate Revenue	\$705,681.38	\$815,217.71	\$843,151.45

3.2.2.2 Usage Revenue

The usage revenue is the biggest source of error in the Economists.com analysis because of the error in the amount of water usage and the errors in the distribution of that water between the rate tiers come together and magnify each other. There are three rate tiers and because Economists.com used the distribution values across the rate tiers to correct for errors in the 2009 and 2010 years, the distributions are extremely skewed. The distributions used in the Economists.com analysis are shown in Table 5. Clearly, these do not pass the common sense test and they result in increasing the water usage revenues because most of the water is projected to be sold at the highest rate.

Table 5 Economists.com Water Usage Distribution

	Economists.com Pine Distribution	Economists.com Strawberry

		Distribution
Tier 1: 0 to 2000 gallons	20%	5%
Tier 2: 2001 to 6000 gallons	20%	5%
Tier 3: 6001+ gallons	60%	90%

The actual distribution of gallons sold across the rate tiers is not known. To get a more realistic estimate of the distribution the following assumptions were made:

- 2% of customers are business users
 - Will always use more than 6000 gallons per month
 - Assume average usage is 15,000 gallons per month
- 49% of customers are weekenders
 - Will always use less than 2000 gallons per month
 - Assume that average usage is 1000 gallons per month
- 49% of customers are residential users
 - Will always use more than 2000 gallons in a month
 - Assume that 10% of gallons sold over 2000 gallons are in the 6001+ tier

Using the above assumptions, Table 6 shows the distribution of water sales for each rate tier by type of user, based on 2011 projected usage. The resulting percentage of water sales for each rate tier is provided in the table. The distribution follows the expectation that more water is sold in the lower tiers than the higher tiers.

Table 6 2011 Water Usage Distribution Estimate

	Tier 1	Tier 2	Tier 3
Business Users	1512000	3024000	6804000
Weekend Users	18420000	0	0
Full-time Resident Users	36840000	17752280	1972476
Total Usage Per Tier	56772000	20776280	8776476
Percentage of Water Sold	65.8%	24.1%	10.2%
Total Usage	86324756		

Using the usage distribution calculated in Table 6, along with the usage rates from the Economists.com analysis, and the corrected values for water sold, the total revenue for the years 2011 through 2013 are calculated in Table 7. Also shown is the water usage revenue calculated in the Economists.com analysis for comparison. Note that the Economists.com analysis is significantly over-stating the water usage revenues.

Table 7 2011+ Water Usage Revenue

	Economists.com Usage Rates (per thousand gallons)			Gallons Sold per Year			Total Revenue		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Tier 1	\$6.00	\$6.90	\$7.11	56772000	57025689	57279378	\$340,632.00	\$393,477.25	\$407,256.38
Tier 2	\$7.00	\$8.05	\$8.29	20776280	20869120	20961960	\$145,433.96	\$167,996.42	\$173,774.65
Tier 3	\$8.00	\$9.20	\$9.48	8776476	8815694	8854912	\$70,211.81	\$81,104.39	\$83,944.57
Total Usage Revenue							\$556,277.77	\$642,578.06	\$664,975.59
Economists.com Analysis Water							\$700,255.00	\$819,864.00	\$855,785.00

Usage Revenue									
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3.2.2.3 Total Metered Revenue

The total Metered Revenue for years 2009 through 2013 is shown in Table 8.

Table 8 Total Metered Revenue

	2009	2010	2011	2012	2013
Economists.com Metered Revenue	\$1,207,747	\$1,213,210	\$1,405,937	\$1,626,141	\$1,687,019
Corrected Metered Revenue	\$1,201,434	\$1,206,851	\$1,261,959	\$1,457,796	\$1,508,127

3.2.3 Other Water Revenues

There are revenues that are not based upon the delivery of water. The non-water revenue is shown in Table 9. The amount is small and the values used in the Economists.com analysis are deemed to be acceptable.

Table 9 Non-Water Revenue

	2009	2010	2011	2012	2013
Economists.com Non-Water Revenue	\$30,000	\$20,000	\$20,000	\$20,000	\$20,000

3.3 Operations Expenses

The Economists.com analysis uses the operations expense determined by CVL, \$882,000, as its starting point. The Economists.com analysis states that “Operating expenses are forecast to increase at an average annual rate of approximately 4.0%.”

The rate of increase in the Economists.com is uneven as shown in Table 10. The year 2011 is when the loan expenses jump. Conveniently, that year operations expenses go up very little. That leaves the appearance of more cash to support the increased loan payments. The low increase in 2011 also lowers the operational expenses for the later years. The table also shows what the operations expenses would be each year if a straight 4% increase is used.

Table 10 Economists.com Operations Expenses

	2009	2010	2011	2012	2013
Economists.com Operations Expenses	\$882,000	\$918,327	\$929,760	\$969,035	\$1,010,409
Rate of Increase		4.12%	1.24%	4.22%	4.27%
Economists.com Operations Expenses with 4% Increase	\$882,000	\$917,280	\$953,971	\$992,130	\$1,031,815

The CVL determination of the operating expenses has three major errors in it:

- Salaries and Wages do not reflect that an operations company will be hired to run the water system and the need for an administrative assistant. The CVL analysis assumes 30% overhead for the following personnel:

- General Manager @ \$75,000 per year
- Foreman @ \$40,000 per year
- 3 Operators @ \$30,000 per year

The operations company that is hired will have additional overhead that needs to be covered along with a profit. The overhead for the Foreman and Operators has been increased to 60% and an Administrative Assistant at \$20,000 per year has been added. Both the General Manager and the Administrative Assistant would be employed directly by the district, so their overhead would be 30%.

- Taxes Other Than Income was left out of the operations expenses. The Taxes Other Than Income are the sales taxes that are collected on the water sales. The ACC annual reports include the sales taxes as part of the Metered Revenue and then it is subtracted out as an operations expense. By leaving this out of the operations expenses, the result is that the sales taxes are counted as revenue for the water district.
- Depreciation Expenses were left out of the operations budget. There is disagreement with Mr. Haney over whether depreciation is included in an operations budget for a government entity. Mr. Haney says that it shouldn't be. The 2003 Economists.com valuation of the water companies includes depreciation in the forecasted operations budget. The City of Florence had a valuation done that includes depreciation in the forecasted operations budget. The Town of Carefree includes depreciation in their operations budget. In the interests of reducing contention it has been left out of this analysis. The generation of cash to cover contingencies will be covered later in the analysis.

The actual operations expenses for PWCo and SWCo are shown in Table 11, along with the projections for 2009 based on the CVL analysis. There is a lot of variation between the actual expenses that have been reported and those projected by the CVL projected operations budget. It was decided not to try and address all of the differences in this analysis. The bigger and smaller values cancel each other out for most of them. The one of most interesting is the expenses that CVL assigns to Purchased Water. Brooke currently spends significant amounts of money for purchased water. The board is actively pursuing additional sources to purchase water from. The CVL analysis allocated a small amount of money for purchased water and a note in the CVL analysis says that once the deep well is in place that there would be no more water purchases. Clearly, the CVL analysis and the board's plans are at odds.

For the purposes of this analysis, the difference in the view on the future division between pumped and purchased water will be ignored since the overall operation costs are close for each view. Basically, the expectation would be that the district would obtain water at the lowest price possible between pumped and purchased.

Table 11 Operations Expenses

Operations Expenses	PWCo 2006	SWCo 2006	Combined 2006	Combined Avg 2003-2006	CVL Combined Projected 2009	CVL Combined Adjusted 2009
Salaries and Wages	\$118,991.00	\$64,573.00	\$183,564.00	\$181,502.25	\$270,000.00	\$331,500.00
Purchased Water	\$109,704.00	\$18,180.00	\$127,884.00	\$151,664.75	\$25,000.00	\$25,000.00
Purchased Power	\$38,508.00	\$24,528.00	\$63,036.00	\$59,892.50	\$150,000.00	\$150,000.00
Chemicals	\$1,635.00	\$1,635.00	\$3,270.00	\$4,189.50	\$7,000.00	\$7,000.00
Repairs and Maintenance	\$33,273.00	\$12,919.00	\$46,192.00	\$45,737.00	\$100,000.00	\$100,000.00
Office Supplies	\$26.00	\$0.00	\$26.00	\$16,089.25	\$60,000.00	\$60,000.00
Outside Services	\$78,180.00	\$101,955.00	\$180,135.00	\$300,264.75	\$110,000.00 ¹	\$110,000.00
Water Testing	\$4,760.00	\$5,027.00	\$9,787.00	\$11,563.00	\$30,000.00	\$30,000.00
Rents	\$240.00	\$0.00	\$240.00	\$1,738.25	\$20,000.00	\$20,000.00
Transportation Expenses	\$26,605.00	\$650.00	\$27,255.00	\$49,452.00	\$50,000.00	\$50,000.00
Insurance - General Liability	\$0.00	\$0.00	\$0.00	\$631.50	\$10,000.00	\$10,000.00

¹ The CVL report broke out Legal and Engineering services separately. They have been combined into Outside Services to maintain consistency with ACC reports.

Insurance - Health and Life	\$8,893.00	\$4,941.00	\$13,834.00	\$18,904.25	\$0.00	\$0.00
Regulatory Commission Expense - Rate Case	\$3,120.00		\$3,120.00	\$19,773.25	\$0.00	\$0.00 ²
Miscellaneous Expense	\$83,924.00	\$49,565.00	\$133,489.00	\$111,335.75	\$50,000.00	\$50,000.00
Depreciation Expense	\$51,571.00	\$42,793.00	\$94,364.00	\$87,174.50	\$0.00	\$0.00 ³
Taxes Other Than Income	\$48,968.00	\$27,578.00	\$76,546.00	\$71,869.50	\$0.00	\$76,546.00
Property Tax	\$25,938.00	\$22,945.00	\$48,883.00	\$53,551.00	\$0.00	\$0.00
Total Operating Expenses	\$634,336.00	\$377,289.00	\$1,011,625.00	\$1,185,333.00	\$882,000.00	\$1,020,046.00

1

2 **3.4 Acquisition Loan Expense**

3 The acquisition loan expense covers the payments made on the loan taken out for the initial purchase of the water
 4 companies and the additional money needed for immediate capital improvements. The Economists.com analysis
 5 states that \$4,538,000 will be borrowed at 4.5%. The length of the loan is 25 years, with the first two years being
 6 interest only payments. In the analysis, Economists.com includes money for the first five years to build a loan
 7 reserve as part of the loan payment. That reserve payment will be broken out separately in this analysis for clarity.
 8

9 With the reserve broken out, the loan expense from the Economists.com analysis is shown in Table 12. The
 10 payments that are shown don't seem to match what would be expected from the terms of the loan described in the
 11 Economists.com analysis. Particularly so for the 2011 and later loan costs. It appears that they used a 25 year
 12 repayment of principal and interest instead of 23 years.

13 **Table 12 Economists.com Acquisition Loan Expense**

	2009	2010	2011	2012	2013
Acquisition Loan Expense	\$206,550.00	\$206,550.00	\$309,545.00	\$309,545.00	\$309,545.00
Acquisition Loan Reserve	\$41,310.00	\$41,310.00	\$41,310.00	\$41,310.00	\$41,310.00

14

15 The corrected acquisition loan expenses are provided in Table 13. The payment period on the loan wasn't specified
 16 in the Economists.com analysis, so quarterly payment is being assumed. The following changes are reflected in the
 17 numbers:

- 18 • Loan value of \$4,554,292. The condemnation motion has an offered value of \$2,554,292 plus the
 19 \$2,000,000 for immediate capital improvements that the Economists.com analysis uses.
- 20 • In the discussion with Mr. Jackson, he indicated that he would be increasing the reserve payment to
 21 \$60,000 in his final version.

22 **Table 13 Corrected Acquisition Loan Expense**

	2009	2010	2011	2012	2013
Acquisition Loan Expense	\$204,943.00	\$204,943.00	\$318,871.00	\$318,871.00	\$318,871.00
Acquisition Loan Reserve	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00

23

² Rate case expenses will still exist. The 2003 Economists.com analysis added \$10,000 per year for rate case costs. Isn't clear whether CVL included these expenses in Outside Services or not. This analysis assumes that they are.

³ The expected depreciation expense is \$185,364.

3.5 Capital Improvement (CIP) Loan Expense

The CIP loan expense covers the payments made on the loan taken out for the second phase of capital improvements starting in 2012. The Economists.com analysis states that \$2,500,000 will be borrowed at 4.5%. The length of the loan is 25 years, with the first two years being interest only payments.

With the reserve broken out, the loan expense from the Economists.com analysis is shown in Table 14. The payments that are shown don't seem to match what would be expected from the terms of the loan described in the Economists.com analysis. It appears that Economists.com is using a number higher than \$2,500,000 as the value for the loan. It may be that the reserve is part of what is being borrowed. The Economists.com analysis is not clear on this.

Table 14 Economists.com CIP Loan Expense

	2009	2010	2011	2012	2013
CIP Loan Expense	\$0.00	\$0.00	\$0.00	\$126,255.00	\$126,255.00
CIP Loan Reserve	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

The corrected CIP loan expenses are provided in Table 15. The payment period on the loan wasn't specified in the Economists.com analysis, so quarterly payment is being assumed. The following changes are reflected in the numbers:

- Loan value of \$2,500,000.
- Added reserve for this loan so that it is treated in the same way as the other loan.

Table 15 Corrected CIP Loan Expense

	2009	2010	2011	2012	2013
CIP Loan Expense	\$0.00	\$0.00	\$0.00	\$112,500.00	\$112,500.00
CIP Loan Reserve	\$0.00	\$0.00	\$0.00	\$33,000.00	\$33,000.00

3.6 Summary

Bringing together all of the revenue and expenses that were discussed above, the cash flow results from the Economists.com analysis are shown in Table 16.

Table 16 Economists.com Cash Flow

	2009	2010	2011	2012	2013
Metered Revenue	\$1,207,747.00	\$1,213,210.00	\$1,405,937.00	\$1,626,141.00	\$1,697,019.00
Non-Rate Revenues	\$30,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00
Operational Expense	\$882,000.00	\$918,327.00	\$929,760.00	\$969,035.00	\$1,010,409.00
Acquisition Loan Expense	\$206,550.00	\$206,550.00	\$309,545.00	\$309,545.00	\$309,545.00
Acquisition Loan Reserve	\$41,310.00	\$41,310.00	\$41,310.00	\$41,310.00	\$41,310.00
CIP Loan Expense	\$0.00	\$0.00	\$0.00	\$126,255.00	\$126,255.00
CIP Loan	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Reserve					
Balance	\$107,887.00	\$67,023.00	\$145,322.00	\$199,996.00	\$229,500.00

The corrected cash flow is shown in Table 17. A negative balance is generated in each of the years. As noted earlier, there should be at least 5% of Metered Revenue generated as a cash balance each year to deal with unforeseen contingencies. The additional revenue needed to cover the negative balance and the cash balance is shown, along with the percentage increase in Metered Revenue that is needed to provide the additional revenue.

Table 17 Corrected Cash Flow

	2009	2010	2011	2012	2013
Metered Revenue	\$1,201,434.43	\$1,206,851.52	\$1,261,959.15	\$1,457,795.77	\$1,508,127.04
Non-Rate Revenues	\$30,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00
Operational Expense	\$1,020,046.00	\$1,060,847.84	\$1,103,281.75	\$1,147,413.02	\$1,193,309.54
Acquisition Loan Expense	\$204,943.00	\$204,943.00	\$318,871.00	\$318,871.00	\$318,871.00
Acquisition Loan Reserve	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00
CIP Loan Expense	\$0.00	\$0.00	\$0.00	\$112,500.00	\$112,500.00
CIP Loan Reserve	\$0.00	\$0.00	\$0.00	\$33,000.00	\$33,000.00
Balance	-\$53,554.57	-\$98,939.32	-\$200,193.61	-\$193,988.26	-\$189,553.50
Generated Cash (5% Revenue)	\$60,071.72	\$60,342.58	\$63,097.96	\$72,889.79	\$75,406.35
Additional Revenue Required	\$113,626.29	\$159,281.89	\$263,291.56	\$266,878.05	\$264,959.85
Percentage Revenue Increase	9.5%	13.2%	20.9%	18.3%	17.6%

4 Rate Impacts

This analysis assumes that when a rate increase is made that the rates are consolidated for all Pine and Strawberry users. The base rates for larger meters are not shown in the interest of keeping it simple. The base rates for the larger meters were included in the revenue calculations.

4.1 Current Rates

The current rates for Pine and Strawberry are shown in Table 18. Almost all residential users are using a 5/8" meter, so for simplicity only the base rate for that meter is shown. Pine has three tiers (1, 2, and 3) of water usage rates and Strawberry has two tiers (A and B):

- Tier 1: 0 to 2000 gallons
- Tier 2: 2001 to 6000 gallons
- Tier 3: 6001 and above gallons
- Tier A: 0 to 4000 gallons
- Tier B: 4001 and above gallons

1

Table 18 Current Water Rates

			Current Usage Rates	Current 5/8" Meter Base Rate
Pine	Winter	Tier 1	\$3.95	\$18.45
		Tier 2	\$4.96	
		Tier 3	\$6.00	
	Summer	Tier 1	\$6.00	
		Tier 2	\$7.00	
		Tier 3	\$8.00	
Strawberry	Williamson	Tier A	\$3.50	\$20.35
		Tier B	\$3.50	
	United	Tier A	\$2.20	\$16.00
		Tier B	\$3.85	
	E&R	Tier A	\$3.40	\$18.45
		Tier B	\$5.95	

2

3 **4.2 Economists.com Rate Analysis**

4 The Economists.com analysis comes to the conclusion that the current water usage and base rates for Pine and
5 Strawberry can continue to be used for 2009 and 2010. In 2011, the rates for Pine and Strawberry would be
6 consolidated into one rate set. The rate set in the Economists.com analysis for 2011 and beyond is shown in Table
7 19.

8

9 **Table 19 Economists.com 2011+ Water Rates**

	Economists.com Rates (per thousand gallons)		
	2011	2012	2013
Tier 1	\$6.00	\$6.90	\$7.11
Tier 2	\$7.00	\$8.05	\$8.29
Tier 3	\$8.00	\$9.20	\$9.48
5/8" Base Rate	\$18.45	\$21.22	\$21.85

10

11 **4.3 Corrected Rate Analysis**

12 The corrected cash flow analysis shows that there is not enough Metered Revenue to cover expenses starting in
13 2009. This means that rate increases will need to be made starting in 2009. The water rates required to produce the
14 amount of revenue needed for the corrected cash flow are shown in Table 20.

15

16 **Table 20 Corrected Water Rates**

Usage Rates	2009	2010	2011	2012	2013
Tier 1 Rate	\$6.00	\$6.18	\$6.92	\$7.75	\$7.98
Tier 2 Rate	\$7.00	\$7.21	\$8.08	\$9.04	\$9.32
Tier 3 Rate	\$8.00	\$8.24	\$9.23	\$10.34	\$10.65
Base Rates					

5/8" Meter	\$20.30	\$20.90	\$23.20	\$26.22	\$26.74
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5 Monthly Bill Impact

Table 21 and Table 22 show the comparison of water bills based on the Economists.com analysis and the analysis after the errors have been corrected for. The first table is for 3000 gallons of usage in a month and the second table is for 5000 gallons of usage in a month. Each of the different rate sets for Pine and Strawberry are shown, with the current cost of the usage shown, along with the costs for 2009 through 2013. The dollar and percentage increase from year to year is shown.

The corrected cash flow analysis shows the need for an immediate rate increase in 2009. For Pine, the initial rate increases for 3000 gallon usage are \$1.85 (4.9%) for summer bills and \$7.99 (25.5%) for winter bills. For Strawberry, the initial rate increases for 3000 gallons of usage range for the Williamson rates is \$8.45 (27.4%), for the United rates is \$16.70 (73.9%), and the E&R rates is \$10.65 (37.2%). Strawberry's rate increases are much larger than those for Pine because Strawberry currently pays much less for water than Pine. Consolidating the rates will produce a large initial increase for Strawberry rate payers. After that, everyone's increases are the same. Years 2011 and 2012 will each see increases of approximately 12% and years 2010 and 2013 will see increases of approximately 3%.

For 5000 gallon usage, Pine residents will see increases of \$1.85 (3.6%) for summer bills and \$12.07 (29.3%) for winter bills. For Strawberry, the initial rate increases for 5000 gallons of usage range for the Williamson rates is \$15.45 (40.8%), for the United rates is \$24.65 (86.0%), and the E&R rates is \$15.30 (40.3%).

Table 21 Original versus Corrected 3000 Gallon Monthly Cost

			Current	2009	2010	2011	2012	2013
Economists.com Analysis	Pine Winter	Monthly Charge	\$31.31	\$31.31	\$31.31	\$37.45	\$43.07	\$44.36
		Change		\$0.00	\$0.00	\$6.14	\$5.62	\$1.29
		Percentage Increase		0.0%	0.0%	19.6%	15.0%	3.0%
	Pine Summer	Monthly Charge	\$37.45	\$37.45	\$37.45	\$37.45	\$43.07	\$44.36
		Change		\$0.00	\$0.00	\$0.00	\$5.62	\$1.29
		Percentage Increase		0.0%	0.0%	0.0%	15.0%	3.0%
	Strawberry Williamson	Monthly Charge	\$30.85	\$30.85	\$30.85	\$37.45	\$43.07	\$44.36
		Change		\$0.00	\$0.00	\$6.60	\$5.62	\$1.29
		Percentage Increase		0.0%	0.0%	21.4%	15.0%	3.0%
	Strawberry United	Monthly Charge	\$22.60	\$22.60	\$22.60	\$37.45	\$43.07	\$44.36
		Change		\$0.00	\$0.00	\$14.85	\$5.62	\$1.29
		Percentage Increase		0.0%	0.0%	65.7%	15.0%	3.0%
	Strawberry E&R	Monthly Charge	\$28.65	\$28.65	\$28.65	\$37.45	\$43.07	\$44.36
		Change		\$0.00	\$0.00	\$8.80	\$5.62	\$1.29
		Percentage Increase		0.0%	0.0%	30.7%	15.0%	3.0%
Corrected Economists.com Analysis	Pine Winter	Monthly Charge	\$31.31	\$39.30	\$40.47	\$45.12	\$50.77	\$52.03
		Change		\$7.99	\$1.18	\$4.65	\$5.65	\$1.26

	Percentage Increase		25.5%	3.0%	11.5%	12.5%	2.5%
Pine Summer	Monthly Charge	\$37.45	\$39.30	\$40.47	\$45.12	\$50.77	\$52.03
	Change		\$1.85	\$1.18	\$4.65	\$5.65	\$1.26
	Percentage Increase		4.9%	3.0%	11.5%	12.5%	2.5%
Strawberry Williamson	Monthly Charge	\$30.85	\$39.30	\$40.47	\$45.12	\$50.77	\$52.03
	Change		\$8.45	\$1.18	\$4.65	\$5.65	\$1.26
	Percentage Increase		27.4%	3.0%	11.5%	12.5%	2.5%
Strawberry United	Monthly Charge	\$22.60	\$39.30	\$40.47	\$45.12	\$50.77	\$52.03
	Change		\$16.70	\$1.18	\$4.65	\$5.65	\$1.26
	Percentage Increase		73.9%	3.0%	11.5%	12.5%	2.5%
Strawberry E&R	Monthly Charge	\$28.65	\$39.30	\$40.47	\$45.12	\$50.77	\$52.03
	Change		\$10.65	\$1.18	\$4.65	\$5.65	\$1.26
	Percentage Increase		37.2%	3.0%	11.5%	12.5%	2.5%

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Table 22 Original versus Corrected 5000 Gallon Monthly Cost

		Current	2009	2010	2011	2012	2013	
Economists.com Analysis	Pine Winter	Monthly Charge	\$41.23	\$41.23	\$41.23	\$51.45	\$59.17	\$60.94
		Change		\$0.00	\$0.00	\$10.22	\$7.72	\$1.77
		Percentage Increase		0.0%	0.0%	24.8%	15.0%	3.0%
	Pine Summer	Monthly Charge	\$51.45	\$51.45	\$51.45	\$51.45	\$59.17	\$60.94
		Change		\$0.00	\$0.00	\$0.00	\$7.72	\$1.77
		Percentage Increase		0.0%	0.0%	0.0%	15.0%	3.0%
	Strawberry Williamson	Monthly Charge	\$37.85	\$37.85	\$37.85	\$51.45	\$59.17	\$60.94
		Change		\$0.00	\$0.00	\$13.60	\$7.72	\$1.77
		Percentage Increase		0.0%	0.0%	35.9%	15.0%	3.0%
	Strawberry United	Monthly Charge	\$28.65	\$28.65	\$28.65	\$51.45	\$59.17	\$60.94
		Change		\$0.00	\$0.00	\$22.80	\$7.72	\$1.77
		Percentage Increase		0.0%	0.0%	79.6%	15.0%	3.0%
	Strawberry E&R	Monthly Charge	\$38.00	\$38.00	\$38.00	\$51.45	\$59.17	\$60.94
		Change		\$0.00	\$0.00	\$13.45	\$7.72	\$1.77

		Percentage Increase		0.0%	0.0%	35.4%	15.0%	3.0%
Corrected Economists.com Analysis	Pine Winter	Monthly Charge	\$41.23	\$53.30	\$54.89	\$61.27	\$68.86	\$70.66
		Change		\$12.07	\$1.60	\$6.38	\$7.58	\$1.80
		Percentage Increase		29.3%	3.0%	11.6%	12.4%	2.6%
	Pine Summer	Monthly Charge	\$51.45	\$53.30	\$54.89	\$61.27	\$68.86	\$70.66
		Change		\$1.85	\$1.60	\$6.38	\$7.58	\$1.80
		Percentage Increase		3.6%	3.0%	11.6%	12.4%	2.6%
	Strawberry Williamson	Monthly Charge	\$37.85	\$53.30	\$54.89	\$61.27	\$68.86	\$70.66
		Change		\$15.45	\$1.60	\$6.38	\$7.58	\$1.80
		Percentage Increase		40.8%	3.0%	11.6%	12.4%	2.6%
	Strawberry United	Monthly Charge	\$28.65	\$53.30	\$54.89	\$61.27	\$68.86	\$70.66
		Change		\$24.65	\$1.60	\$6.38	\$7.58	\$1.80
		Percentage Increase		86.0%	3.0%	11.6%	12.4%	2.6%
	Strawberry E&R	Monthly Charge	\$38.00	\$53.30	\$54.89	\$61.27	\$68.86	\$70.66
		Change		\$15.30	\$1.60	\$6.38	\$7.58	\$1.80
		Percentage Increase		40.3%	3.0%	11.6%	12.4%	2.6%

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