By John Haas, Ranson Financial Consultants, LLC

Determining Financial Integrity
– Part of Ongoing Loan Reviews

Ranson Financial Consultants, LLC ("Ranson") is under contract with the Kansas Rural Water Finance Authority ("KRWFA") to review loan applications for the Kansas Public Water Supply Loan Fund ("KPWSLF" or "Loan Fund") as administered by the Kansas Department of Health Environment, Bureau of Water ("KDHE"). The purpose of the loan review is to determine the borrower's financial integrity. It is the intent of this article to help educate readers on the process and the parameters that the Finance Authority and Ranson utilize to measure the borrower's financial integrity.

Ranson utilizes a four-step process in determining the borrower's financial integrity. These are:

1. Gather historical financial information, water usage reports, customer counts, and current and former water rate ordinances

Historical information is usually provided by the borrower when the loan application is submitted to KDHE. The financial information includes three years of financial audits (if the next previous fiscal year has ended, but the audit has not been completed for that fiscal year, then un-audited financial statement for that fiscal year and audits for the prior three fiscal years) and un-audited to date for the current fiscal year. The previous three years annual water reports filed with the Department of Agriculture, Division of Water Resources can be utilized for water production/purchase information, water usage information and customer counts.

2. Organize historical information

Three separate tables can be utilized to organize the historical information:

Table 1: revenue and expenditure information (this information is taken from the audits provided by the borrower)

Table 2: Balance Sheet information

Table 3: Water purchase/production, Water sales and Customer counts

By entering the information on a number of spreadsheets, it can be easily manipulated for the purpose of analysis (Step 3).

3. Analyze historical information and forecast future demand, revenue and expenditures

From the information organized in Step 2, we first forecast revenue and expenditures by looking for trends. Trends may be positive, negative, neutral or inconclusive. A positive trend is when water demand is increasing, customer counts are up, revenue is increasing or expenditures are down. A negative trend is, of course, just the opposite. A neutral trend is when the aforementioned statistics remain fairly unchanged. The worst trend is inconclusive. An inconclusive trend is when numbers are up and down over an analysis period for no particular reason. With the other trends, forecasting is rather simple. An inclusive trend turns a forecaster into a guesser.

After the trends have been analyzed, we attempt to identify factors that may have an impact on these trends. Will the proposed project affect cost of operations – positively or negatively? What is the anticipated debt service on the loan? What other projects need to be financed over the next few years and how will they be paid for? Is the borrower anticipating the loss or the gain of any major water users? If the borrower purchases water, what is the length of the water purchase contract and what is the provision for changes in the water rates? If the borrower produces water, what are the limits on water production and are there anticipated improvements required for compliance purposes? Once these questions have been answered, then we forecast future demand for water, revenue and expenditures.

4. Interpret the forecast utilizing ratios and statistics

Revenue sufficiency (positive net revenue or net profit) is the first thing we look for. Once we have determined required changes in revenue generation, if any, we utilize the following statistics and ratios to determine the borrower's financial integrity: 1) debt service coverage ratio; 2) quick ratio; 3) cash carryover ratio; 4) demand growth ratio; 5) expense margin ratio; 6) water loss ratio; and, 7) affordability index.

The Debt Service Coverage Ratio

The debt service coverage ratio measures the city or RWD's ability to make its debt service payments. The loan program has a debt service coverage ratio requirement of 125 percent for rural water districts and 100 percent for cities. The

The Debt Service Coverage Ratio is calculated as follows: (Net revenue plus debt service plus non-cash flow expenses (e.g., depreciation) plus non-mandatory transfers), divided by total debt service

	2007	2008	2009
Net Income	$155,833	$49,497	$26,365
+ Interest expense and loan fees	19,922	18,151	16,965
+ Depreciation and amortization	0	67,787	68,611
= Total revenues available	$175,755	$135,435	$111,941
$\dfrac{\text{Total revenues available}}{\text{Debt Service}}$ = Debt Service Coverage Ratio	$\dfrac{\$175,755}{\$72,263}$ = 2.43	$\dfrac{\$135,435}{\$71,224}$ = 1.90	$\dfrac{\$111,941}{\$76,818}$ = 1.46

reason for the variance in the debt service coverage ratio requirements between cities (100 percent) and RWD (125 percent) is due to the difference between the security pledges. For a city to receive the 100 percent debt service coverage ratio, it must pledge water system revenues and agree to levy taxes at an amount equal to pay for debt service, if water system revenues prove to be insufficient. RWDs can pledge only the revenues of the water system (as they have no other means to generate revenue); therefore the security for a RWD loan is as not as good as compared to cities. If a water system cannot demonstrate an appropriate debt service coverage ratio, then the water system will pay higher interest rates through a bond issue, as compared to a water system that has a high debt service coverage ratio. In addition, it will not qualify for the Kansas Public Water Supply Loan Fund.

All the information needed to calculate the debt service coverage ratio can be found in the water system's income statement. We typically like to see debt service coverage ratio for cities to be at least 110 percent with a general obligation pledge. For RWDs and cities with a revenue pledge, then 125 percent is the minimum amount required by the covenants of the KDHE Loan Program. The higher the debt service coverage ratio, the greater the ability of the water system to make its debt service payments.

Quick Ratio

This ratio measures the water system's liquidity. In other words, it is a measure of the water system's ability to meet current expense obligations as they become due. Even if a water system has positive net worth, but cannot meet short-term obligations as they come due (because of a lack of liquidity), then the water system becomes a credit risk and will find it very difficult to borrow money.

All the information needed to calculate the Quick Ratio can be found in the water system's balance sheet. We

typically prefer to see a Quick Ratio of at least 100 percent. The higher the Quick Ratio, the better the water system's ability to meet its short-term obligations. The Quick Ratio is similar to the Current Ratio. However, the Current Ratio does not subtract inventory; therefore, it is a more liberal ratio and may misrepresent the Water Systems ability to meet short-term obligations. Inventory is seldom valued on the balance sheet at its liquidation value, which is the value you would get if needed to sell inventory to generate cash to meet short-term expenses.

Cash Carryover Ratio

This ratio measures a water system's ability to absorb unexpected negative changes in revenue or expenses. The demand for water is impacted by many variables. For example, a wet summer can reduce water sales by ten percent or more. Generally, there may be little variability in operating expenses, but it is not uncommon for a Water System to have an unexpected capital expense. The higher the Cash Carryover Ratio, the better a water system can handle unforeseen negative circumstances.

The Quick Ratio is calculated as follows: (Current assets less Inventory) divided by Current Liabilities

		2007	2008	2009
	Current Assets	$273,462	$248,880	$264,147
−	Inventory	9,776	12,355	11,993
=	Current Assets less Inventory	$263,686	$236,525	$252,154
	Current Assets Less Inventory	$263,686	$236,525	$252,154
	Current Liabilities = Quick Ratio	$80,719 = 3.67	$97,573 = 2.42	$99,172 = 2.54

The Cash Carryover Ratio is calculated as follows: Ending Cash Balance divided by (Total Expenditures less Non-Cash Flow Expenditures minus Non-Mandatory Transfers)

		2007	2008	2009
	Ending Cash Balance	$155,833	$49,497	$26,365
	Operating Expenditures	19,922	18,151	16,965
−	Less Depreciation and amortization	0	67,787	68,611
=	Total Operating Expenditures	$140,311	$145,210	$146,031
	Ending Cash Balance	$155,833	$49,497	$26,365
	Total Operating Expenditures = Cash Carryover Ratio	$140,311 = 111.1%	$145,210 = 34.1%	$146,031 = 18.1%

In addition, it seems that rating agencies are more concerned about the amount of Cash Carryover than any other ratio. One of our clients had their rating put on negative watch because the Cash Carryover had been reduced every year for the past three years. Expenses needed to be reduced or revenues increased, but the governing body did not do enough of either. Therefore, the next time this entity has a bond issue, the Cash Carryover Ratio should be stabilized or it will receive a rating down-grade. What does this mean? It means that the interest rate this entity will pay for its bonds will become materially higher. Then, if revenue is not increased or expenses reduced, then the net revenue becomes less, which means further depletion of the Cash Carry Over and then probably another rating down-grade. This is a downward spiral that any entity would not want to experience! A ratings downgrade will not be looked upon favorably when a request for the Loan Program is evaluated.

All the information needed to calculate the Cash Carryover Ratio can be found on the water system's income statement. If the ending cash balance is not on the Water System's income statement, then use the fund balance as it is reflected on the balance sheet. Our recommendation is a Cash Carryover Ratio of at least 30 percent.

The Demand Growth Ratio

This ratio is used to determine if the water system's demand for water is growing, stable or declining. If the demand for water is declining, the water system has to be prepared to cut expenses or increase water rates to meet the current level of expenditures. If a water system's demand for water is increasing, then the problem is to determine what additional capital expenditures are required to serve this increased demand for water. In addition, it has to be determined if the current water rates are structured to meet the additional operating expenses created by the increased demand for water.

All the information needed to calculate the Demand Growth Ratio can be found in the annual Water Use Report or other system records. We typically prefer a positive Demand Growth Ratio.

The Demand Growth Ratio is calculated as follows: Add the percentage change in demand for each year of the analysis period and (divide by the number of periods in the analysis period minus one)

	2007	2008	2009	Sum of % Change	Demand Growth Ratio
Annual Production (Gallons)	33,502,000	34,974,000	33,999,000		
Demand					
Residential	29,405,000	30,364,000	28,569,300		
Percentage Change in Demand:		*3.26%*	*-5.91%*	*-2.65%*	*-1.32%*
Commercial/Institutional	2,569,400	3,252,100	3,566,300		
Percentage Change in Demand:		*26.57%*	*9.66%*	*36.23%*	*18.12%*
Water Loss	1,527,600	1,357,900	1,863,400		
Percentage	4.56%	3.88%	5.48%		

The Expense Margin Ratio is calculated as follows: Operating revenue divided by (operating expenses less non-cash flow expenses less non-mandatory transfers)

	2007	2008	2009
Total Operating Revenues	$222,721	$223,537	$221,734
Operating Expenditures	$140,311	$212,997	$214,642
− **Less Depreciation and amortization**	0	66,787	68,611
= **Total Operating Expenditures**	$140,311	$145,210	$146,031
Total Operating Revenues / Total Operating Expenditures = **Expense Margin Ratio**	$222,721 / $140,311 = 158.7%	$223,537 / $145,210 = 153.9%	$221,734 / $146,031 = 151.8%

Expense Margin Ratio

This ratio measures a water system's ability to generate sufficient cash flow. Like the Quick Ratio, the Expense Margin Ratio measures a Water System's liquidity. However, unlike the Quick Ratio, which is a balance sheet ratio, the Expense Margin Ratio is an income statement ratio. Therefore, the Quick Ratio measures the water system's ability to pay its current expenses on a specific date (the end of the fiscal year, for example). Expense Margin Ratio, on the other hand, measures the system's ability to pay its current expenses over a specific period of time. Therefore, the Expense Margin Ratio is a cash flow statistic, while the Quick Ratio is a static statistic. Also, the Quick Ratio may include non-cash flow assets in the statistics. This means the Expense Margin Ratio is a better statistic to measure a water system's ability to generate cash flow to cover current expenditures.

All the information required to calculate the Expense Margin Ratio can be found on the water system's income statement. The higher the Expense Margin Ratio, the better the water system can meet its current obligations. We recommend an Expense Margin Ratio of at least 105%.

Water Loss Ratio

This ratio measures the water system's water loss as a percentage of water produced, purchased or both produced and purchased. The higher the Water Loss Ratio, the more

expensive water becomes that is sold to the customer. Water that is not sold is an expense. The Water Loss Ratio may also be considered as an indicator of the board/council and staff's ability to operate the water system efficiently.

Information for the Water Loss Ratio can be found in the annual Water Use Report filed with the Division of Water Resources or on internal system records. An unaccounted for loss of 15 percent or less should be every system's goal.

The Water Loss Ratio is calculated as follows: (Commodity purchased or produced less water sold and accounted for loss (flushed, provided free) divided by commodity purchased and/or produced

	2007	2008	2009
Water Produced or Purchased	**37,502,000**	**39,974,000**	**37,999,000**
Residential	29,405,000	30,364,000	28,569,300
Commercial/Institutional	2,569,400	3,252,100	3,566,300
Industrial	1,129,000	1,196,000	1,139,400
Pasture/Stockwater	0	0	0
Wholesale	3,900,000	4,052,000	3,826,500
Other	0	0	0
Flushed, Metered Free	0	200,000	173,200
= Total Use	37,003,400	39,064,100	37,274,700
Unaccounted for Water Loss	498,600	909,900	724,300
Water Produced or Purchased = Water Loss Ratio	37,502,000 = 1.33%	39,974,000 = 2.28%	37,999,000 = 1.91%

Affordability Index

The Affordability Index measures the water system's ability to raise water rates. If the Affordability Index is high prior to the system obtaining a Loan, then we may have a concern about its ability to increase rates to make debt service payments on the Loan.

Information for the Affordability Index can be obtained from the water system's rate structure (average cost per residential customer) and census data (median household income). The lower the Affordability Index, the better the ability of the system to increase water rates if required. We recommend an Affordability Index less than 2 percent.

The Affordability Index is calculated as follows: Average cost per residential customer per month divided by median household income per month

	Current
Cost of 5,000 Gallons	$47.50
Median Household Income	$37,659.00
Affordability Index	1.51%

Summary

None of these ratios should be considered in isolation of each other. Meeting five of the seven criteria does not constitute a passing grade for any water system. It is a pass/fail approach. Your system has to pass each one of these statistics and ratios to demonstrate financial integrity. In addition, the ratios should not be viewed in isolation from one year to the next. A passing grade for the debt service coverage ratio for the past five years, for example, does not mean the system has a passing grade. If the debt service coverage ratio is declining towards the minimum requirement, then the water system's financial integrity is in jeopardy and steps need to be implemented to correct the declines. Therefore, trends in these ratios are just as important as last year's ratio.

John J. Haas is President of Ranson Financial Consultants, L.L.C. John has been a financial advisor to Kansas local units of government since 1978. He received a Master's Degree from the Hugo Wall Center for Urban Studies at Wichita State University and has a Certificate of Public Management and graduate hours in finance from Wichita State. John specializes in general public finance and analytical services.